THE KNOWLEDGE, PERCEPTION AND UTILIZATION OF EQUINE CHIROPRACTIC BY HORSE RIDERS IN KWAZULU-NATAL

By

Kirsten Moya Snow

Dissertation submitted in compliance with the requirements for the

Master's Degree in Technology: Chiropractic

Durban University of Technology

I, Kirsten Moya Snow, do declare that this dissertation is representative of my own work in both conception and execution (except where acknowledgements indicate to the contrary)

[redacted] 22 Feb 2013

Student: Kirsten Snow Date

Approved for Final Examination

_____ _____

Supervisor: Dr Grant Matkovich Date

MTech Chiropractic

DEDICATION

To my parents, Chris and Margaret, for their unbelievable positivity, guidance and support throughout this process. You are my heroes.

To my brother, Josh, who made sense of the chaos.

ACKNOWLEDGEMENTS

First and foremost I extend my sincere appreciation to my research supervisor, Dr Grant Matkovich. This research could not have been completed without your guidance, intelligence and infinite positivity. Thank you for being a fantastic and proficient supervisor.

Thank you to Dr Charmaine Korporaal, for always being approachable and finding time to assist me through this process. Your passion for chiropractic is invaluable.

Thank you to my statistician, Dr Graham Hammond, who was incredibly efficient and timely.

A warm thank you to Bronwyn Jones, my proof reader, who was engaging and passionate towards the research process. You helped me through the last hurdle and I am forever grateful. Thank you very much for your time and effort.

Thank you to the incredible staff at the DUT Alan Pittenrigh library, you were all endlessly enthusiastic and helpful.

Thank you to all the horse riders that took part in my research- without you I would not have got far. A special thanks to the members of my Expert Group and Pilot Study, I am very grateful for your input and advice.

To all my wonderful friends, you have brought nothing but happiness into my life. Thank you for always being supportive and energizing.

I would like to extend another thanks to my brother Josh, who I am immensely proud of and who helped me in more ways than he realised.

Lastly, I would like to thank a very special person in my life, Cobus, who I have grown to admire greatly, thank you for always being the person with whom I can share everything and anything- you are my light in a dark room.

ABSTRACT

Background:

Horses are unlike most animals as they take part in equine sports and thus are athletic animals. Comparable to a human athlete, horses are prone to sports related injuries and disease. Equine chiropractic has shown to be one of the most utilized forms of complementary and alternative veterinary medicine (CAVM) worldwide, providing a drug free approach to equine health care and maintenance. However, equine chiropractic lacks research and therefore a wide gap in the literature exists. Studies on CAVM therapies have shown that these therapies are largely driven by the public and the public's perceptions towards these therapies. However, little is known of the public's perceptions towards equine chiropractic in KwaZulu-Natal (KZN). Horse riders represent the primary contact with the horse and are in the best position to note the outcome of post equine chiropractic treatment. For this reason they have influence on the utilization of equine chiropractic. It is, therefore, important to attempt to close the gap through ascertaining the horse riders' knowledge, perception and utilization of equine chiropractic, particularly in KZN, where no such data exists.

Aim:

The aim of this study is to determine the knowledge, perception and utilization of equine chiropractic amongst horse riders in the KZN region.

Method:

The research design is a descriptive, quantitative, self administered survey based study.

The study population included all horse riders in KZN (N= 500). There is no available list that details the number of horse riders in KZN, therefore, it was estimated that there are 500 horse riders in KZN (This was based on the number of horses stabled in KZN).

The study sample included all horse riders at stable yards in KZN that had given written permission for the research to take part at their yard (N= 330). This was estimated by the number of horses stabling at the yards where owners had given written permission.

Results:

The response rate was 25% (n=83). The respondents were predominantly white (98%) and female (81%), and between the ages of 41- 50 years. Most respondents had previously been treated successfully by a chiropractor and had tertiary education.

The majority of respondents were part of a horse society and participated predominantly in show-jumping. Most respondents had ridden horses for 0-10years, and currently rode only one horse. Their main horse (the horse they rode the most), for which most respondents were both the owner and rider, stayed predominantly in a stable and was between the ages of 5- 10 years. Most respondents had not sought alternative veterinary care for this horse, but had sought alternative veterinary care for their other horse(s) that they rode. Out of all the alternative veterinary therapies respondents reported to utilize, equine chiropractic showed to have the highest utilization. Equine chiropractic reported to have an overall high success rate with both the respondents' main horse (92%) and their other horse(s) (87.5%).

Respondents' overall subjective knowledge of equine chiropractic was 'that they knew something about it'. Respondents' objective knowledge score was 75%. Most respondents had gained their knowledge of equine chiropractic through a friend and stated that the information they had gained was favourable towards equine chiropractic. It was interesting to note that 90% of respondents had some knowledge of equine chiropractic.

Most respondents knew of one or more equine chiropractor(s), and were referred to them predominantly by a riding instructor. Just under half (49.4%) of the respondents had utilized an equine chiropractor, yet most respondents showed to have accurate knowledge of what equine conditions chiropractors treat.

The majority of respondents supported the future utilization of equine chiropractic, but would like more information on equine chiropractic techniques.

The research data revealed a trend showing that the utilization of alternative equine therapies or equine chiropractic corresponded with an increased knowledge of equine chiropractic. The data revealed graphically that the more equine chiropractors a respondent knew of, the more they utilized equine chiropractic.

Conclusion:

Respondents showed predominantly to have a positive perception towards equine chiropractic. Their knowledge of equine chiropractic was overall accurate and they showed to utilize and support the future utilization of equine chiropractic.

TABLE OF CONTENTS

DEDICATION ii
ACKNOWLEDGEMENTS iii
ABSTRACT iv
TABLE OF CONTENTS vii
LIST OF TABLES xii
LIST OF FIGURES xiv
LIST OF APPENDICES xvi
LIST OF DEFINITIONS xvii
LIST OF ABBREVIATIONS AND ACRONYMS xix

CHAPTER ONE: INTRODUCTION

1.1 Background to the study 1
1.2 Aim 2
1.3 Objectives 3
1.4 Rationale 5
1.5 Assumptions/ limitations 6
1.6 Outline of Chapters 7

CHAPTER TWO: LITERATURE REVIEW

2.1 Complementary and Alternative Medicine (CAM) 8
2.1.1 CAM Utilization 8
2.1.2 CAM Legislation 9
2.1.3 CAM Research 10
2.2 Chiropractic 11
2.2.1 Chiropractic Legislation 12
2.2.2 Chiropractic Research 13
2.3 Complementary and Alternative Veterinary Medicine (CAVM) 13
2.3.1 CAVM History 13
2.3.2 CAVM Utilization 14
2.3.3 CAVM Research 15

2.4 Equine Chiropractic 15
2.4.1 Equine Chiropractic Utilization 16
2.4.2 Equine Chiropractic Research 17
2.4.3 Need for Equine Chiropractic 17
2.4.3.1 Benefits to the horse 17
2.4.3.2 Back and neck pain in the horse 18
2.4.3.3 Flexibility in the horse 19
2.4.3.4 Lameness in the horse 19
2.4.4 Equine Chiropractic Integration 20
2.5 Perceptions 21
2.5.1 Importance of perception 22
2.5.2 Factors influencing perceptions 22
2.5.3 The Information- Processing Model of Perception 24
2.5.4 Perceptions and Equine Chiropractic 25
2.6 Conclusion 25

CHAPTER THREE: METHODOLOGY

3.1 Introduction 27
3.2 Research Design and Protocol 27
3.3 Sampling 29
3.4 Procedure 31
3.5 Data Collection 33
3.6 Advertising 33
3.7 Inclusion and Exclusion Criteria 33
3.7.1 Inclusion Criteria 33
3.7.2 Exclusion Criteria 34
3.8 Research Tools 34
3.8.1 Expert Group 34
3.8.2 Pilot Study 43
3.9 Statistical Methodology 46

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction 47

4.2 Data Sources 48

4.2.1 Primary Data 48

4.2.2 Secondary Data 48

4.3 Abbreviations Pertinent to this Chapter 49

4.4 Response Rate 49

4.5 Results 50

4.5.1 Objective 1: To document the respondents' personal demographic data 50

4.5.1.1 Question 1: Demographic Data 50

4.5.1.2 Summary and Discussion of Question 1: Demographic Data 53

4.5.2 Objective 2: To document the respondents' educational background 55

4.5.2.1 Question 2: Education 55

4.5.2.2 Summary and Discussion of Question 2: Education 57

4.5.3 Objective 3: To document the respondents' equine experience 59

4.5.3.1 Question 3: Equine Experience 59

4.5.3.2 Summary and Discussion of Question 3: Equine Experience 77

4.5.4 Objective 4: To determine the respondents' perception and knowledge of equine chiropractic 85

4.5.4.1 Question 4: Knowledge and Perception of Equine Chiropractic 85

4.5.4.2 Summary and Discussion of Question 4: Knowledge and Perception of Equine Chiropractic 90

4.5.5 Objective 5: To determine the respondents' utilization of equine chiropractic 92

4.5.5.1 Question 5: Utilization of Equine Chiropractic 92

4.5.5.2 Summary and Discussion of Question 5: Utilization of Equine Chiropractic 97

4.5.6 Objective 6: To document what information on equine chiropractic respondents would like made more accessible, and to evaluate the percentage of respondents who were for or against the future utilization of equine chiropractic 99

4.5.6.1 Question 6: Information 99

4.5.6.2 Summary and Discussion of Question 5: Information 101

4.5.7 Objective 7: To determine any association between the respondents' previous

utilization of a chiropractor for themselves and the utilization of an equine chiropractor for their horses 102
4.5.7.1 Q1.4 versus Q3.10.6 + Q3.11.2 102
4.5.7.2 Summary and Discussion of Objective 7 103
4.5.8 Objective 8: To determine if there was an association between the age of respondents and the knowledge that these respondents had of equine chiropractic 103
4.5.8.1 Q1.2 versus Q4.1 103
4.5.8.2 Summary and Discussion of Objective 8 104
4.5.9 Objective 9: To determine if respondents that utilized alternative therapies for their horses had enhanced knowledge on equine chiropractic. Furthermore, to determine if respondents had increased knowledge of equine chiropractic if they had had an equine chiropractor treat the horse that they ride 104
4.5.9.1 Q3.10.5 + Q3.11.2 versus Q4.1 104
4.5.9.2 Summary and Discussion of Objective 9 106
4.5.10 Objective 10: To determine if there was a trend amongst respondents who were against the future use of equine chiropractic for their horses 106
4.5.10.1 Trends amongst respondents who were against the future utilization of equine chiropractic 106
4.5.10.2 Summary and Discussion of Objective 10 107
4.5.11 Objective 11: To graphically asses if there was an association between respondents who knew of multiple equine chiropractors and the utilization of equine chiropractic 107
4.5.11.1 Q5.1 versus Q3.10.5 + Q3.11.2 107
4.5.11.2 Summary and Discussion of Objective 11 109
4.5.12 Objective 12: To determine if there was an association between the duration of time the respondents had horse ridden for and their knowledge of equine chiropractic 110
4.5.12.1 Q3.8 versus Q4.1 110
4.5.12.2 Summary and Discussion of Objective 12 112
4.6 Review of Hypothesis 114
4.7 Conclusion 115

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction 116
5.2 Conclusion 116
5.3 Recommendations and Limitations 122

REFERENCES 124

LIST OF TABLES

Table 4.1: Respondents' ages 51
Table 4.2: Respondents' race 52
Table 4.3: Previous chiropractic treatment 52
Table 4.4: Respondents outcome post chiropractic treatment 52
Table 4.5: Respondents' highest qualification 55
Table 4.6: Field of tertiary education 56
Table 4.7: The different horse societies 59
Table 4.8: Equine course(s) attendance 60
Table 4.9: Equine work experience 61
Table 4.10: Different types of equine work experience 62
Table 4.11: Duration of equine work experience 62
Table 4.12: Local vs. International equine work experience 63
Table 4.13: Equine sports 64
Table 4.14: Number of years participating in each sport 65
Table 4.15: Total number of years riding 66
Table 4.16: Number of horses currently riding 67
Table 4.17: Where the horse stays predominantly 68
Table 4.18: Age of the horse ridden the most 69
Table 4.19: Owner/ rider or both 70
Table 4.20: Treatments in the last year: Veterinary vs. Alternative 71
Table 4.21: Use of alternative treatments: Main Horse 72
Table 4.22: Alternative therapy outcomes and utilization: Main Horse 74
Table 4.23: Average veterinary visits per year 75
Table 4.24: Alternative therapy outcomes and utilization: Other Horse(s) 76
Table 4.25: Knowledge of equine chiropractic 86
Table 4.26: Source of information 87
Table 4.27: Was the information favourable 88
Table 4.28: True and False statements 89
Table 4.29: Known number of equine chiropractors 92
Table 4.30: Utilization of an equine chiropractor 93
Table 4.31: Suggested consultation with an equine chiropractor 94
Table 4.32: Equine conditions for which one would consider an equine chiropractor 96

Table 4.33: Information on equine chiropractic 99
Table 4.34: Future utilization of equine chiropractic 100

LIST OF FIGURES

Figure 2.1: Structure of regulation for health professionals in South Africa 10
Figure 2.2: The regulatory of CAM practitioners in South Africa 12
Figure 2.3: The Information Processing Model of Perception 23
Figure 4.1: Respondents' Gender 50
Figure 4.2: Respondents' ages 51
Figure 4.3: Respondents' outcome post chiropractic treatment 53
Figure 4.4: Respondents' highest qualification 56
Figure 4.5: Field of tertiary education 57
Figure 4.6: Members of horse societies 59
Figure 4.7: The different horse societies 60
Figure 4.8: Equine course(s) attendance 60
Figure 4.9: Equine work experience 61
Figure 4.10: Different types of equine work experience 62
Figure 4.11: Duration of equine work experience 63
Figure 4.12: Local vs. International equine work experience 63
Figure 4.13: Equine sports 65
Figure 4.14: Total number of years riding 66
Figure 4.15: Number of horses currently riding 67
Figure 4.16: Where the horse stays predominantly 68
Figure 4.17: Age of the horse ridden the most 69
Figure 4.18: Owner/ rider or both 70
Figure 4.19: Treatments in the last year: Veterinary vs. Alternative 72
Figure 4.20: Use of alternative treatments: Main Horse 73
Figure 4.21: Alternative therapy outcomes and utilization: Main Horse 74
Figure 4.22: Average veterinary visits per year 75
Figure 4.23: Alternative therapy outcomes and utilization: Other Horse(s) 77
Figure 4.24: Knowledge of equine chiropractic 86
Figure 4.25: Source of information 87
Figure 4.26: Was the information favourable 88
Figure 4.27: True and False statements 89
Figure 4.28: Known number of equine chiropractors 93
Figure 4.29: Utilization of equine chiropractic 93

Figure 4.30: Suggested consultation with an equine chiropractor 94
Figure 4.31: Equine conditions for which one would consider an equine chiropractor 97
Figure 4.32: Information on equine chiropractic 100
Figure 4.33: Future utilization of equine chiropractic 100
Figure 4.34: Correlation between utilization of a human chiropractor and utilization of an equine chiropractor 102
Figure 4.35: Relationship between the age of respondents and their knowledge of equine chiropractic 103
Figure 4.36: Relationship between the utilization of alternative equine therapy and knowledge on equine chiropractic 105
Figure 4.37: Relationship between the utilization of an equine chiropractor and knowledge of equine chiropractic 105
Figure 4.38: Respondents who knew of equine chiropractor(s) vs. the utilization of equine chiropractic for their main horse 108
Figure 4.39: Respondents who knew of equine chiropractor(s) vs. the utilization of equine chiropractic for their other horses i.e. apart from their main horse 108
Figure 4.40: Respondents who had no knowledge on equine chiropractic vs. the number of years in which they had ridden 110
Figure 4.41: Respondents who had little knowledge on equine chiropractic vs. the number of years in which they had ridden 111
Figure 4.42: Respondents who had some knowledge on equine chiropractic vs. the number of years in which they had ridden 111
Figure 4.43: Respondents who had good knowledge on equine chiropractic vs. the number of years in which they had ridden 111
Figure 4.44: The different knowledge levels of respondents vs. the number of years in which they had ridden 112

LIST OF APPENDICES

APPENDIX A: Email from Bryce Taverner

APPENDIX B1: Letter of Information

APPENDIX B2: Informed Consent Form

APPENDIX B3: Final questionnaire

APPENDIX C1: Letter of Information – expert group

APPENDIX C2: Informed Consent Form – expert group

APPENDIX C3: Confidentiality Statement – expert group

APPENDIX C4: Code of Conduct – expert group

APPENDIX C5: Questionnaire – pre expert group

APPENDIX D: Questionnaire – post expert group

APPENDIX E1: Letter of Information – pilot study

APPENDIX E2: Informed Consent Form – pilot study

APPENDIX F: Ethics clearance letter

APPENDIC G: Statistical significance: Chi-sq analysis and Fisher's Exact Test analysis calculations

LIST OF DEFINITIONS:

Canter: A rocking three-beat pace or gait in which the horse's hooves strike the ground in the following order: near hind, near fore and off hind together, off fore or off hind, off fore, and near hind together, near fore; there is a moment of suspension when all four legs are in the air before the sequence begins again (*Equine Dictionary*. 1997).

Equine chiropractic: Is defined as the examination, diagnosis, and treatment of animals through manipulation and adjustment of specific joints and cranial sutures (Schoen and Wynn, 1998). 'The Chiropractic philosophy is based on the relationship of the spinal column to the nervous system and the role of the spinal column in biomechanics and movement' (Schoen and Wynn, 1998).

Equine: A horse, accurately including all members of the family Equidae. Of, or pertaining to, the horse (*Equine Dictionary*. 1997: 375).

Green Horse: Untrained/ novice horse (*Equine Dictionary*. 1997: 349)

Incidence: The frequency with which something, such as a disease or trait, appears in a particular population or area (MedicineNet.com, 2012)

Lameness: also known as unsound. Where the horse's ability to perform is in some way impaired. This is often due to one or more reasons: injury of the bone, tendon, ligament, muscle, or other tissues or structures in one or more of the limbs. Impairment may result in a change in the gait or stance and may range from limping to an inability to walk and often includes a characteristic bobbing of the horse's head as the affected foot strikes the ground (*Equine Dictionary*. 1997: 251).

Prevalence: The proportion of individuals in a population having a disease or characteristic. **Prevalence** is a statistical concept referring to the number of cases of... (MedicineNet.com, 2012)

Ride: Also known as horse riding; to sit on the back of a horse and manage him in motion through the use of natural and artificial aids (*Equine Dictionary*. 1997: 349)

Shoeing: to fit horse shoes on the hooves of a horse (*Equine Dictionary*. 1997: 375).

Swayback: ventroflexed spine (i.e. the back dips down in the centre) (*Equine Dictionary*. 1997: 405).

Target Sampling: Watters and Biernacki (as cited by de Vos et al, 2005) define a target sample as "a purposeful, systematic method by which controlled lists of specified populations within geographical districts are developed and detailed plans are designed to recruit adequate numbers of cases within each of the targets".

Trot: Also known as pure trot or in Western terms, jog; a natural two-beat gait in which the diagonal legs leave the ground simultaneously followed by a moment of suspension where the feet do not touch the ground and then the simultaneous strike of right fore and left hind (*Equine Dictionary*. 1997: 431).

LIST OF ABBREVIATIONS AND ACRONYMS:

CAM	=	Complementary and Alternative Medicine
CAVM	=	Complementary and Alternative Veterinary Medicine
DUT	=	Durban University of Technology
DVD	=	High-Density Video Disc
UK	=	United Kingdom
USA	=	United States of America
vs.	=	versus

Chapter One: Introduction

1.1 Background to the study

If a human has pain and stiffness in their back, their athletic performance is greatly affected. Therefore, the same applies to a horse (Schoen and Wynn, 1998). Equine chiropractic aims at restoring mobility to the horse's joints affecting the muscles attached to the joint, and the related nervous system (Haussler, 2000). This allows the horse's musculoskeletal system to function at its optimum (Haussler, 2000).

Horses, unlike many smaller animals are more prone to spinal and joint injury due to their size (Schoen and Wynn, 1998). The horse is also subjected to many unnatural conditions, a saddle, a rider on its back, shoeing, abnormal movements and postures, and being stabled (Schoen and Wynn, 1998). All these predispose and increase the probability of a horse to spinal and joint dysfunction which leads to pain. A horse in pain can neither perform athletically, nor be ridden (Paulekas and Haussler, 2009).

Complementary and alternative medicine (CAM) is a division of health care that aims at working in a holistic manner to encourage the natural healing ability of the body to restore health (Kelner and Wellman, 2003). CAM therapies are intended to work as a complementary therapy with conventional medicine and not to replace it (Ernst, Cohen, and Stone, 2004). The use of CAM therapies has risen exponentially in recent times. This can be attributable to: an increase in availability of CAM therapies in the Western world; an increase in evidence based research and an increase in consumer demand (Barry, 2006). Since more consumers are choosing CAM therapies for themselves, a new trend of using CAM therapies for animals is emerging (Lin, Kaphle, Wu, Yang, Lu, Yu, Yamada and Rogers, 2003). Thus, there has been a corresponding rise in the use and awareness of complementary and alternative veterinary medicine (CAVM) (Lin et al, 2003).

Equine chiropractic is a CAVM therapy and like most CAVM therapies is in need of further research (Loken, 2001). This study aims at contributing data to the small body of literature surrounding equine chiropractic. As a complementary therapy trying to emerge as a significant treatment option in equine care, the perceptions of end users are important to help establish the validity, development and integration of equine chiropractic.

There is a paucity of knowledge with regards to CAVM (Wynn and Wolpe, 2005). However, this has not stopped the rise in utilization of equine chiropractic despite scepticism from the allopathic veterinary body (Wynn and Wolpe, 2005).

Perception studies are an important way to understand the actions and choices of a population (Baron and Bryne, 2004). Perception involves the process of receiving, processing and interpreting data in order to develop a response to that information (Kruger, Smit and du Pre le Roux, 1996). To do this, the brain draws on memory, learning, attention, reasoning and language to formulate a perception (Vernon, 1970).

Perceptions can either make or break a profession, and are therefore, vital to acknowledge and understand. Currently, the perceptions on equine chiropractic in South Africa are unknown. This study looks at the perceptions surrounding equine chiropractic in KZN, South Africa.

Equine chiropractic has shown to be beneficial in treating equine musculoskeletal disorders and its place in the equine world is evident, but understanding the role that it plays in the equine world is equally important. By assessing horse riders' knowledge, perceptions and utilization of equine chiropractic, one can begin to understand the role it has to play within the equine world. The information gained will also be able to help the chiropractic body understand what is needed to correct, maintain, or change the perception of equine chiropractic.

1.2 Aim

The aim of this study is to determine the knowledge, perception and utilization of Equine Chiropractic amongst horse riders in the KZN region.

1.3 Objectives

Objective 1: To document the respondents' personal demographic data.

Objective 2: To document the respondents' educational background.

Objective 3: To document the respondents' equine experience.

Objective 4: To determine the respondents' perceptions and knowledge of equine chiropractic.

Objective 5: To determine the respondents' utilization of equine chiropractic.

Objective 6: To document what information on equine chiropractic respondents would like made more accessible, and to evaluate the percentage of respondents who were for or against the future utilization of equine chiropractic.

Consequent to the research proposal for this study, a further six objectives were added to this study. These objectives were added in order to give insight into what correlations existed within the research data (Hammond, 2012 pers. comm. 14 April 2012). These correlations were statistically analyses to determine the statistical significance (APPENDIX G)

Objective 7: To determine any association between the respondents' previous utilization of a chiropractor for themselves and the utilization of an equine chiropractor for their horses.

- **Null Hypothesis 7:** No association was expected to be found between the respondents' previous utilization of a chiropractor for themselves and the utilization of an equine chiropractor for their horses.

Objective 8: To determine if there was an association between the age of horse riders and the knowledge that these horse riders had of equine chiropractic.

- **Null Hypothesis 8:** No association was expected to be found between the age of horse riders and the knowledge that these horse riders had on equine chiropractic.

- **Objective 9:** To determine if respondents that utilized alternative therapies for their horses had enhanced knowledge of equine chiropractic. Furthermore, to determine if respondents had increased knowledge of equine chiropractic if they had had an equine chiropractor treat the horse that they ride.

- **Null Hypothesis 9a:** No association was expected to be found between respondents that had previously utilized alternative therapies for their horses and their knowledge of equine chiropractic.

- **Null Hypothesis 9b:** No association was expected to be found between respondents who had had an equine chiropractor treat the horse they ride and respondent's knowledge of equine chiropractic.

Objective 10: To determine if there was a trend amongst respondents who were against the future use of equine chiropractic for their horses.

- **Null Hypothesis 10:** No trend was expected to be found amongst respondents who were against the future use of equine chiropractic for their horses

Objective 11: To graphically assess if there was an association between respondents who knew of multiple equine chiropractors and the utilization of equine chiropractic.

Objective 12: To determine if there was an association between the duration of time respondents had horse ridden for and their knowledge of equine chiropractic.

- **Null Hypothesis 12:** No association was expected to be found between the duration of time respondents had horse ridden for and their knowledge on equine chiropractic.

1.4 Rationale

1) Horses are one of the few domesticated animals that are used extensively in sports. Athletic horses are like all athletes where optimal/ peak physical functioning is paramount (Schoen and Wynn, 1998). At the same time sport related injuries are common and detrimental to the horse (Murray, Dyson, Tranquille and Adams, 2006). Thus a lot of time, money and effort goes into the health of these animals. Equine chiropractic has a drug free role to play in the treatment and maintenance of these athletic animals. However, this does not mean that this therapy is being utilized and understood. This study aims at finding out if equine chiropractic is being utilized within the horse world in KZN.

2) A horse rider sitting on the back of a horse can tell if there has been any change in the biomechanics of the locomotion of that horse. Thus, horse riders represent the primary contact with horses and can play an important role in deciding if equine chiropractic is beneficial. They have firsthand experience with the treatment outcomes post equine chiropractic treatment. Therefore, their perceptions are important for the further utilization of equine chiropractic. This study aims at deciphering what KZN horse riders' perceptions are toward equine chiropractic.

3) In the last few years there have been many lay articles and programmes on equine chiropractic, which has generated an increase in public awareness and interest (Gomez Alvarez, L'ami, Moffat, Black and van Weeren, 2008). Contrary to this, the literature on equine chiropractic is sparse (Gomez Alvarez et al, 2008). The future of equine chiropractic largely depends on further research in this field (Haussler, 1999). This study aims at contributing to the literature surrounding this profession. In addition, it is hoped that the findings in this research can form a stepping stone to encourage further research in this field.

4) Describing and documenting people's perceptions has long been used as a method to understand the current status of a population on a particular topic (Baron and Bryne, 2004). People's perceptions influence their choice and behaviour (Carterette and Friedman, 1978). Understanding the perceptions towards a profession is imperative to identifying where growth and development is needed within that profession. The current status of equine chiropractic in KZN is predominantly determined by the perceptions of the end user (horse rider) of this profession

5) Survey based studies have been used successfully by many researchers as a relatively quick and accurate method of collecting data (Neuman, 1997). Surveys are well suited for descriptive perception based studies (Neuman, 1997). They allow for a wide range of variables and hypothesis to be tested in a single study (Neuman, 1997). This research design allows for the identification of patterns and trends within data. This study utilizes a survey design to identify the perceptions, knowledge and utilization of equine chiropractic within KZN and to identify if any associations exist between these areas of equine chiropractic.

1.5 Assumptions/ limitations

It was assumed that all respondents that completed the questionnaire answered the questions honestly and that the data that they gave was a true reflection of the respondents' current knowledge and perceptions towards equine chiropractic (Brink, 2006).

The horse riding yards that were visited were the yards that gave written permission for the research to be conducted at their yards. This introduced volunteer bias as the yards were not selected randomly but instead on the willingness of the yard owners to participate in the research. These yard owners may have had more knowledge and exposure to equine chiropractic, hence their willingness to allow for the research to be conducted at their yards.

The questionnaires were handed out to horse riders that were at the specific locations at a specific time and who were willing to participate in the study. Thus, these respondents had an increased chance of taking part in the research due to their location and timing.

All respondents were first asked if they were willing to take part in the research, thus introducing further volunteer bias as respondents who agreed to participate in the study may have done so because they had already had previous exposure to equine chiropractic.

1.6 Outline of Chapters

This chapter highlighted the aims and objectives of this study as well as the limitations the study encountered. The rationale and purpose for this research was also discussed and outlined. Chapter Two will discuss the literature surrounding this research, presenting the gap in the literature on equine chiropractic. Chapter Three discusses the methodology that was used in this study. Chapter Four presents the results and the discussion of the results. Chapter Four will also highlight what associations and correlations were noted in the research. Chapter Five concludes the research, incorporating recommendations.

Chapter Two: Literature Review

Health care can be separated into two main groups (Xue, 2008):

- Group 1- Modern (conventional, orthodox, allopathic or Western)
- Group 2- Traditional (complementary, alternative, integrative or indigenous)

2.1 Complementary and Alternative Medicine (CAM)

CAM falls under Group 2-Traditional health care (Xue, 2008). CAM has been defined by the National Center of Complementary and Alternative Medicine in the United States of America (USA) as 'a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine' (Wynn and Wolpe, 2005). The trend among these therapies is to aid the body's natural ability to heal itself (Kelner and Wellman, 2003). CAM treatments are highly individualized, with treatments for each patient being different (Kienle, 2011).

CAM therapies were termed alternative therapies for a long time (Kelner, Wellman, Boon and Welsh 2004). The use of the word alternative gave orthodox medical professionals the idea that these therapies would replace conventional medicine (Jones, 2004; Zollman and Vickers, 1999). This idea generated a negative perception from orthodox medical professionals towards these therapies (Jones, 2004). These days the term 'complementary' or 'integrative' medicine is the preferred term for traditional therapies (Kienle, 2011; Zollman and Vickers, 1999). These terms better describe traditional therapies, bringing light to the fact that often these therapies work best when used in conjunction with conventional medicine (Ernst et al, 2004). Therefore, CAM is seen to complement mainstream medicine, not replace it (Ernst et al, 2004).

2.1.1 CAM Utilization

The advances in health care have grown exponentially with very few of the therapies that were used a 100 years ago being utilized today (Jones, 2004). The use of CAM has grown considerably in recent times (Ernst et al, 2004), with the main catalyst being consumer pressure (Caldis, McLeod and Smith, 2001). The prevalence of usage in one year is 20% in the United Kingdom (UK) and 42% in the USA (Ernst et al, 2004).

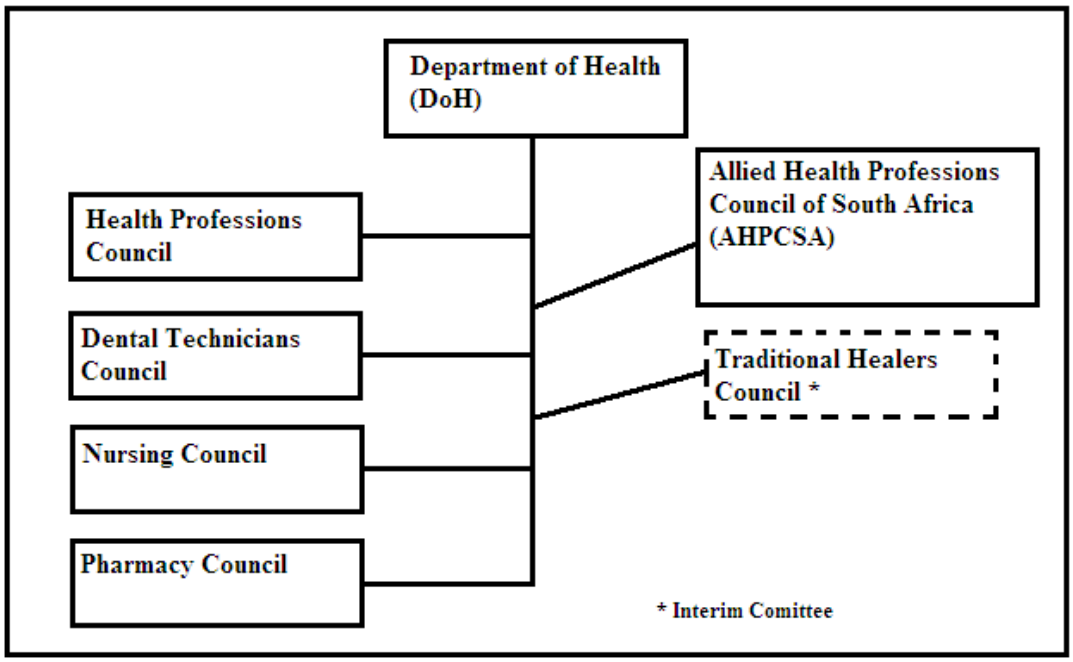
Two-thirds of the Swiss population in 2009 voted in a state referendum for the integration of CAM into health care systems (Kienle, 2011). The percentage of the population who has used CAM therapies at least once is 75% in France, 70% in Canada, 48% in Austrailia, 42% in the USA and 38% in Belgium (WHO, 2002). Up to 80% of the population in Africa utilize CAM therapies to help treat ailments (WHO, 2002). It has been estimated that around US$12 billion is spent on CAM therapies in the USA annually (Coulter and Shekelle, 2005).

An increased availability of CAM therapies in the Western world, along with an increase in consumer demand and an increase in evidence based research, can account for the rise in utilization of CAM therapies (Barry, 2006). Although CAM therapies were predominantly privatly based and not usually covered by medical schemes (Ernst et al, 2004), the consumer demand for these therapies has led to them being covered by medical schemes in many countries (Barry, 2006). This has more than contributed to their increased use.

CAM therapies are also now being recognized and integrated into many educational institutions. The majority of Canadian medical schools now offer courses on CAM therapies and other countries are following suit (Hare, 1999).

2.1.2 CAM Legislation

In South Africa, all CAM practitioners need to be registered with the Allied Health Professions Council of South Africa (AHPCSA) (Caldis, 2001). This council is responsible for setting the educational standard for practitioners as well as regulating the health care profession (Caldis, 2001). Final legislation for the AHPCSA was formalized in 2000 (Caldis, 2001). Figure 2.1 demonstrates where the AHPCSA fits into the health system (Caldis, 2001). Later on in this chapter, Figure 2.2 illustrates where chiropractic fits under the AHPCSA (Caldis, 2001).



(Adapted from Caldis, 2001)

Figure 2.1: Structure of regulation for health professionals in South Africa (Caldis, 2001)

In South Africa, the Board of Health care Funders (BHF) provides codes for chiropractic treatments and consultations (Caldis, 2001). Most medical schemes cover the BHF tariff for chiropractic; making chiropractic the most commonly covered CAM modality in South Africa (Caldis, 2001).

2.1.3 CAM Research

More research is required regarding CAM therapies generally (Ernst et al, 2004; Coulter and Shekelle, 2005; Kelner ans Wellman 2003).The problem is that orthodox methods of scientific evaluation such as randomized controlled trials (RCTs) often do not take into account the holistic approach of CAM therapies, hence cannot be utilized to test CAM therapies safety and efficacy (Kelner and Wellman, 2003). Thus, new methods of assessing CAM therapies are under current debate (Kelner and Wellman, 2003).

The lack of research on CAM modalities has made orthodox medical practitioners reluctant to refer patients for CAM therapies (Kelner and Wellman, 2003). Due to a lack of knowledge on CAM therapies, many orthodox practitioners feel threatened by CAM, perceiving it as something that will replace orthodox medicine (Ernst et al, 2004). This has formed many unhealthy relationships between conventional practitioners and CAM practitioners (Ernst et al, 2004).

The use of CAM therapies has shown to be greatly influenced by the public's perception rather than by the scientific research behind the therapy (Kelner and Wellman, 2003). Currently, public perception is having a greater impact on CAM usage (Kelner and Wellman, 2003). Many patients been rely on anecdotal information as evidence for CAM therapies, rather than conventional research, such as RCTs, which indicates the influential capabilities of perceptions (Kelner and Wellman, 2003; WHO, 2002).

2.2 Chiropractic

Chiropractic is a CAM therapy (Ernst et al, 2004). It is a type of manual therapy and has its roots in ancient Greek and Chinese medicine (Paulekas and Haussler, 2009). Daniel Palmer along with his son BJ Palmer developed the Chiropractic technique in the USA in the late 1800's (Caldis et al, 2001). This makes it unique compared to other CAM therapies, which mostly originate from the east, as its development was based in the Western world (Coulter and Shekelle, 2005). The technique was named Chiropractic, which was derived from the two Greek words: kheir- meaning hand, and praktokos- meaning action (Caldis et al, 2001). Chiropractic is a drug free, nonsurgical manual treatment of the neuro-musculoskeletal system of the body (Caldis et al, 2001).

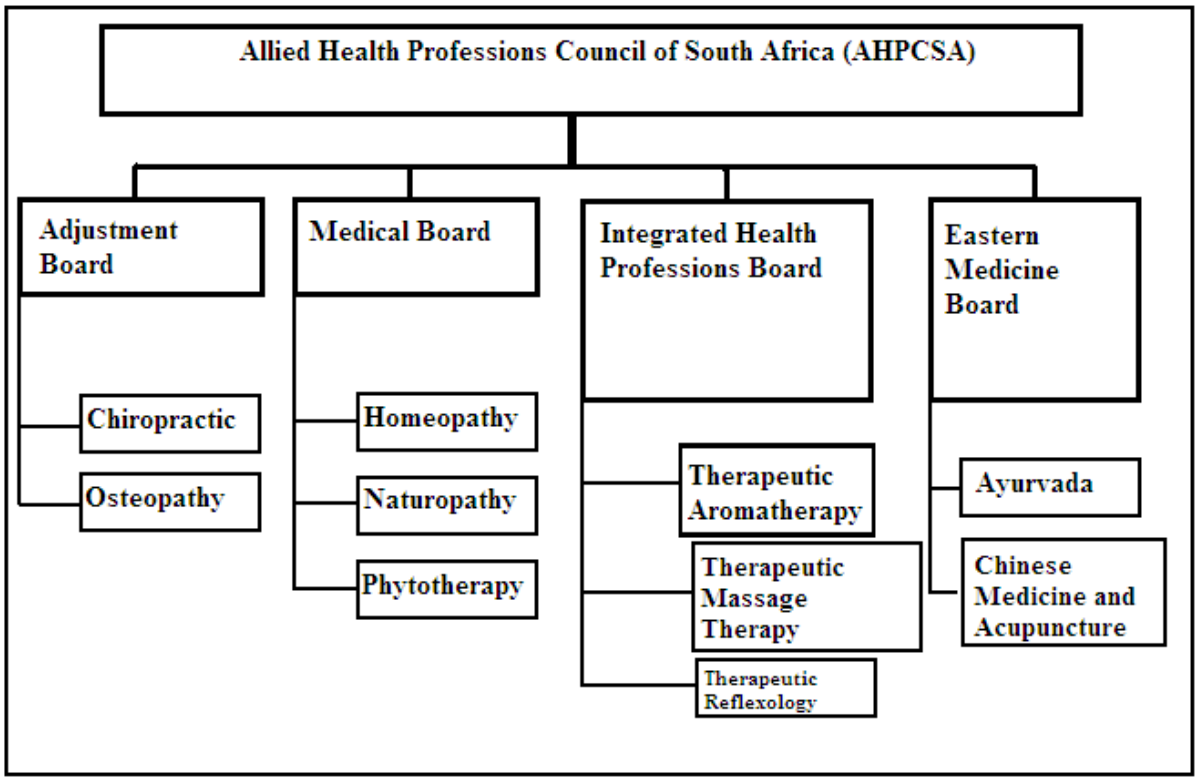
Chiropractic is said to be the most extensively utilized CAM therapy (Kelner and Wellman, 2003). In the USA it is said to be the most established of all CAM therapies (Coulter and Shekelle, 2005). Unlike many other CAM modalities in the world it has also been covered to a certain degree by medical schemes and public insurance (Kelner and Wellman, 2003). Many argue that chiropractic is now part of mainstream care (Kelner and Wellman, 2003).

2.2.1 Chiropractic Legislation

In South Africa, chiropractic is regulated by two main bodies:

1. Allied Health professions Council (see Figure 2.2)
2. Chiropractic Association of South Africa (CASA)

In 2000, the Chiropractors, Homeopath and Allied Health Service Professions Second Amendment Act was signed by the South African president (Caldis, 2001). This formed the establishment of the Allied Health Professions Council (Caldis, 2001). Chiropractic was registered as illustrated in Figure 2.2.



(Adapted from Caldis, 2001)

Figure 2.2: The regulation of CAM practitioners in South Africa (Caldis, 2001)

2.2.2 Chiropractic Research

According to Kelner and Wellman (2003), policy makers are concerned with the accountability of chiropractors as the scientific research and evidence for these therapies is sparse. Thus, the need for more research on chiropractic is crucial, not just for the accountability and regulation of chiropractors but also for chiropractors to gain recognition and respect within the medical world (Kelner and Wellman, 2003).

2.3 Complementary and Alternative Veterinary Medicine (CAVM)

Complementary and alternative veterinary medicine, better known as CAVM, encompasses a group of therapies that are linked only by their exclusion from mainstream veterinary medicine (Wynn and Wolpe, 2005). The common thread amongst all CAVM therapies is that the aim is to achieve healing by working with the animals natural healing capabilities (Jones, 2004).

CAVM therapies include: veterinary acupuncture and acutherapy, veterinary homeopathy, veterinary chiropractic (which includes equine chiropractic), veterinary massage, veterinary physical therapy, veterinary nutriceutical medicine and veterinary botanical medicine (Hare, 1999). Certain therapies such as acupuncture, herbal therapy and chiropractic are among the most accepted of CAVM therapies (Wynn and Wolpe, 2005).

2.3.1 CAVM History

Acupuncture was the first CAVM therapy to be approved by the American Veterinary Medical Association (AVMA) in 1980 (Veterinary Medicine Today, 2001). The guidelines were altered and a new version was approved in 1988. In 1996, the AVMA changed their legislation to incorporate CAVM (Lin et al, 2003). This incorporation was in line with the current status of veterinary medicine (Lin et al, 2003). At this time the AVMA recognized that CAVM therapies were increasingly being used by the public and that it was were going to have an impact on the veterinary profession (VMT, 2001). Thus, with the change of the guidelines in 1996, it was also decided that the guidelines would need to be revised again in 3 years (Veterinary Medicine Today, 2001).

2.3.2 CAVM Utilization

With the increase use of CAM therapies amongst humans, CAVM therapies are being used more and more for animals (Lin et al, 2003; Jones, 2004). The two CAVM therapies most extensively utilized are chiropractic and acupuncture (Boldt, 2008). Most veterinarians have not welcomed this increase but are starting to accept the benefits offered by some CAVM therapies (Jones, 2004). The effectiveness of some of these therapies for certain veterinary problems under certain conditions is being acknowledged more and more by the veterinary body (Jones, 2004).

Veterinarians are now testing and using some of these complementary therapies at various veterinary colleges in the USA (Jones, 2004). In Canada, many veterinary schools are looking at, or already offer elective courses on various CAVM therapies (Hare, 1999). Research has shown that the majority of faculty members at US veterinary schools are pro the implementation of CAVM into veterinary schools as elective courses (Schoen, 2000). They acknowledge a lack of educational and research programs in these areas (Schoen, 2000). With 61% of these faculty members believing that chiropractic should be included into the curriculum (Schoen, 2000).

Veterinarians explain that horse patients do not always respond to traditional veterinary medicine, particularly with regards to lameness (Boldt, 2008). Other complementary therapies are then sought out either by the veterinarian themselves or by desperate horse owners (Boldt, 2008).

Currently, CAVM is being used by equine practitioners with a wide range of qualifications and expertise (Haussler, 2009). These can range from weekend courses to post graduate degrees (Haussler, 2009). There is also a large discrepancy between what practitioners claim CAVM can do and the scientific evidence demonstrating its effectiveness (Haussler, 2009).

Manual therapy (which includes chiropractic) along with acupuncture and physiotherapy are the most commonly utilized CAVM in equine practice (Haussler, 2009). These three CAVM have the highest level of supportive scientific evidence in human literature and are said to play an important role in the future within equine practice (Haussler, 2009).

2.3.3 CAVM Research

With an increased interest and use of CAVM there comes with it an increase in scientific scrutiny (Wynn and Wolpe, 2005).
This combined with veterinarians who are slow to embrace CAVM therapies, leaves an area in veterinary medicine that is in need of further research (Jones, 2004; Loken, 2001). CAVM therapies are being extensively utilized, and thus, it is paramount that there is further research on its effectiveness, safety and what role it has to offer in the health care of animals (Loken, 2001).

2.4 Equine Chiropractic

To understand equine chiropractic in its entirety, it is important to understand how it fits into the equine world and what role it has to offer with regards to equine health. The significance of evaluating the perceptions, utilization and knowledge of equine chiropractic becomes more apparent once its necessity in the equine world is clear.

BJ Palmer spoke about the application of chiropractic on horses in 1944 (Willoughby, 2002).
The aim of equine chiropractic treatment is to restore normal joint function, stimulate neurological reflexes and to reduce pain and muscle hypertonicity (Haussler, 2000). This is achieved through a series of manipulations to the horse's spine or joint (Haussler, 2000). The equine chiropractor will manipulate one vertebral segment at a time (Haussler, 2000). This produces an effect via mechanical and biological mechanisms on the mechanorecpetor and nociceptor function (Haussler, 2000).

Equine chiropractic manipulations are applied to the horse whilst the horse is standing (Haussler, 2000). These manipulations are only achieved when the horse that is being manipulated has relaxed paraspinal musculature (Haussler, 2000). Manipulating a horse that is tense puts not only the horse at risk of injury, but also the practitioner (Haussler, 2000). If applied correctly, small controlled manipulations at a high velocity have a very low risk of soft tissue or osseous injury (Haussler, 2000).

It has been put forward in the USA that veterinary chiropractic should be performed by licensed veterinarians (Schoen and Wynn, 1998). However, there is a shortage of veterinarians educated in veterinary chiropractic (Schoen and Wynn, 1998). Therefore, it is recommended that licensed chiropractors educated in veterinary chiropractic be allowed to practice (Schoen and Wynn, 1998).

The legislation of equine chiropractic in South Africa is somewhat ambiguous. The Allied Health Professions Act, Act 63 of 1982, regulates the profession of chiropractic on humans only, and that the South African Veterinary Council do allow complementary and alternative health treatment on animals, provided that this is under supervision of, or referral by, a qualified and registered veterinarian (Mullinder, 2012 pers. comm. 11 May).

2.4.1 Equine Chiropractic Utilization

There has recently been a significant increase in the number of people interested in alternative veterinarian therapies such as equine chiropractic (Briggs, 1996). This has been influenced by a combination of factors: horse owners and riders looking for alternative treatment methods to use in conjunction with veterinary medicine, horse owners and riders looking for alternative therapies when conventional veterinarian medicine has failed to work, and horse owners and riders understanding that equine health issues are complex and a more holistic approach to health care could yield better results (Schoen and Wynn, 1998).

Equine veterinary practitioners have seen an increase in the use of chiropractic techniques within the veterinary profession (Haussler, 2000). This is due to the fact that equine chiropractic provides additional diagnostic and therapeutic resources that may help equine veterinary practitioners to identify and treat the primary causes of lameness and poor performance (Haussler, 1999). Diagnosing lameness in horses is paramount for any equine veterinary practitioner and plays a vital role in successful treatment (Weishaupt, Wiestner, Hogg and Auer 2004).

Equine chiropractic care was utilized at the 2008 Olympics- one of the reasons being that chiropractic will allow veterinarians to treat equine athletes without the use of drugs or other therapies potentially prohibited by the Federation Equestre Internationale (Boldt, 2008). The clamp down on performance enhancing substances in equine sports can also be contributed to the rise in use of equine chiropractic.

As people have found that their horses do not always respond to orthodox based intervention, they seek out alternative therapies in the hopes that it will be as beneficial to their horses as it was to them (Boldt, 2002; Gomez Alvarez et al, 2008)

2.4.2 Equine Chiropractic Research

Although there is evidence that chiropractic is effective in the treatment of equine back pain, there is limited scientific research on the clinical effectiveness of chiropractic techniques on horses (Gomez Alvarez et al, 2008; Haussler 2000).

The future of Equine Chiropractic is, therefore, dependent on further research on its effectiveness in the treatment of musculoskeletal disorders in horses (Haussler, 1999). It has also been recommended that further research be conducted in equine chiropractic to evaluate for indications and limitations of this therapy (Schoen and Wynn, 1998).

2.4.3 Need for Equine Chiropractic

'The horse's back is central to the function of the musculoskeletal system and the ability to carry a rider' (Schoen and Wynn, 1998). It is therefore, paramount that the functioning of the horse's back is maintained. Equine chiropractic plays a role in the treatment and maintenance of the horse's back (Schoen and Wynn, 1998)

Equine chiropractic care involves the treatment of back, neck pain and lameness in horses, and thus, it is important to understand not only the mechanism behind the treatment, but also the prevalence and impact of these disorders on the athletic horse.

2.4.3.1 Benefits to the horse

Chiropractic care is ideal for the athletic horse (Schoen and Wynn, 1998). Athletic performance requires the horse to function at peak efficiency (Schoen and Wynn, 1998). The major muscles necessary for movement attach to the spine, so a lack of movement, for example in the lumbar spine, limits power and flexibility from the rear- which can impair athletic performance, such as jumping (Schoen and Wynn, 1998).

Equine chiropractic has been shown to be a successful method of treatment for the athletic horse, and particularly effective when treating equine back pain (Gomez Alvarez et al, 2008). Thus merits consideration as a valid therapy in the treatment of equine back and neck problems (Gomez Alvarez et al, 2008).

The athletic horse is prone to spinal injuries and subluxation (Schoen and Wynn, 1998). This can be due to a number of factors: the large size of the horse, shoeing, postural changes that are specific for an equine discipline, poor rider balance (if, for example, the rider is suffering from back pain), lack of rider skill, training techniques that inhibit the natural movement of the back, improper positioning/ill fitting saddle (Schoen and Wynn, 1998). For example, a horse that is swaybacked due to back pain will likely have incorrect neck carriage. This incorrect neck carriage can cause inadequate engagement of the hindquarters which can lead to further postural problems and pain (Schoen and Wynn, 1998). This will contribute to poor performance (Schoen and Wynn, 1998). Intervention of chiropractic therapy early on in this pathological process could prevent the swayback from occurring (Schoen and Wynn, 1998).

Equine chiropractors aim at restoring normal functioning of the equine spine and resolution of musculoskeletal disorders (Gomez Alvarez et al, 2008). Chiropractic does this by restoring normal joint motion and correcting a horse's posture and conformation (Schoen and Wynn, 1998). Poor posture and conformation in an athletic horse can more often than not lead to pain and lameness (Schoen and Wynn, 1998).

Chiropractic manipulations can elicit small but significant changes in the thoracolumbar and pelvic kinematics of the horse (Gomez Alvarez et al, 2008). Areas that if dysfunctional may produce back, neck pain and lameness (Gomez Alvarez et al, 2008). In addition, substantial segmental spinal motion is induced by chiropractic manipulation of the equine spine allowing the horse to be agile and achieve maximum athletic capabilities (Haussler, Bertram and Gellman K, 1999).

2.4.3.2 Back and neck pain in the horse

Equine chiropractic can help relieve pain and re-establish mobility and flexibility in a horse's spine which would aid in improving their performance (Paulekas and Haussler, 2009).

Back pain has become a well recognized contributor to poor performance in the horse, with horse owners and veterinarians now more aware of the impact back pain can have on a horse's athletic ability (Paulekas and Haussler, 2009). Neck pain, back problems and lameness are often interrelated (Haussler 2000).

The prevalence of back problems in horses in mixed equine practice (eventing, dressage and show-jumping) is 13% (Haussler, 2000). Nonspecific neck and back pain of the horse is most often related to

a functional impairment rather than a structural impairment i.e. many back problems are related to muscle or joint dysfunction (e.g. subluxations) with resultant soft tissue irritation and pain generation (Haussler, 2000).

The functional anatomy of the thoracolumbar spine is important for the horse's ability to perform and jump (Jeffcott and Dalin, 1980), and disorders in the horse's thorocolumbar spine have been characterized as causing definite reduced performance among working horses (Haussler et al, 1999). The atlas and the pelvis in the horse are particularly prone to subluxation due to the increased movement in these areas (Kamen, 2001).

2.4.3.3 Flexibility in the horse

Lesser (as cited by Briggs, 1996), states that the horse's spine has more movement than previously thought. This said, Spencer (as cited by Briggs, 1996), pointed out that fitness in an athletic horse is as dependant on mobility and flexibility, as it is on cardiovascular conditioning. Spencer went on to say that approximately 80% of soft tissue injuries that occur during activity are due to poor flexibility in the athletic horse. Flexibility being a key aspect of chiropractic treatment.

2.4.3.4 Lameness in the horse

Lameness is a unique health problem in horses as it affects all horses regardless of age, breed or gender (Kane, Traub-Dargatz, Losinger and Garber, 2000). Lameness is also the most common health problem in horses and is a high priority concern among horse owners, veterinarians and trainers (Kane et al, 2000). This most probably is due to the fact that our relationship with horses depends largely on their athletic ability. Therefore lameness results in a period of inactivity for both the horse and the rider.

Lameness is highly prevalent in the working horse (Broster, Burn, Barr and Whay 2009). An average of 5% of all horses in the world are lame on any given day (Ross and Kaneene, 1996). Lameness has major welfare implications, with an estimate of over 42 million working horses in developing countries suffering from lameness (Broster et al, 2009). Lameness alone costs the USA horse industry about $600 million to $1 billion annually (Lawrence, 2001).

Joint abnormalities, particularly spinal subluxations are a common cause of lameness in the horse (Haussler, 1998; Spitzig, 2006). Lameness can result in compensatory movements, causing further stress on other limbs and the spine which can often lead to secondary injuries (Weishaupt et al, 2004). Therefore, early treatment and resolution is vital in order to avoid complications from lameness.

2.4.4 Equine Chiropractic Integration

The roles that equine chiropractic can play in the management of equine health include (Schoen and Wynn, 1998):

- Preventative health care in terms of maintaining a healthy spine in the athletic horse.
- To incorporate into the pre-purchase examinations of horses.
- Treatment of horse back, neck pain or intervertabral disc disease.

The American Veterinary Chiropractic Association (AVCA) has stated that it is paramount that a firm and healthy partnership exists between the veterinarian and the chiropractor in order to maintain equine chiropractic with regards to its application and education (Willoughby, 2002). However, there is still some uncertainty from the orthodox veterinary body towards equine chiropractic. This may be because so many questionable therapies are also included under the heading of alternative therapies, giving chiropractic a bad reputation by virtue of association (Jones, 2004). Furthermore, it is likely that equine practitioners feel that alternative therapies are replacing conventional equine medicine (Jones, 2004).

Thus, the field of equine chiropractic needs to be better legislated, researched and educated if it ever wants to be properly integrated within the equine world. The status of equine chiropractic can be further enhanced with an increase in well trained equine practitioners in equine chiropractic (Jones, 2004). A good starting point is to find out what the consumer (the horse rider in this case) is thinking and what their expectations are with regards to Equine Chiropractic.

2.5 Perceptions

Perception is the human mind's ability to process information from the surrounding environment (Carterette and Friedman, 1978). There are three steps in which information is perceived by the human brain: firstly, the information is received; secondly, it is processed and thirdly, information is then interpreted by the human brain (Kruger, Smit and du Pre le Roux, 1996). It is the ability to transform, organize and structuralize information arising from the world in either sense data or memory data (Carterette and Friedman, 1978). Thus, utilizing the aspects of learning, memory, attention, reasoning and language to formulate a perception and to determine a response and understanding to the environment (Vernon, 1970). It allows information from the outside world to be processed by the individual to produce conscious decisions and guide their actions (Coren and Ward, 1989). Thus, no two people have identical perceptions. Perception is one person's conscious experience of objects and objects' relationships (Coren and Ward, 1989). It is an active process involving selection, allowing people not to just receive information but rather perceive it (Carterette and Friedman, 1978).

The process by which we seek to understand other people is known as social perception (Coren and Ward, 1989). Finding out why groups of people act as they do or possess certain perceptions is a common aim of social science research (Black, 1999). Often people with similar traits will share similar perceptions (Black, 1999). Investigating what these perceptions are is valuable as it is assumed that these perceptions will influence behaviour (Black, 1999). For many years researchers have been interested in what makes people behave in a certain manner i.e. the cause-and-effect relationship amongst individuals (Baron and Bryne, 2004). That way researchers can understand what influences behaviour and how they can attempt to change the behaviour of people. Attribution is one way of finding out the cause behind others' behaviour (Baron and Bryne, 2000). 'Attribution is the process by which we seek to identify the cause of others' behaviour and so gain knowledge of their stable traits and dispositions' (Baron and Bryne, 2000). To understand the cause behind people's behaviour, it is important to recognise people's perceptions towards what they are reacting to (Baron and Bryne, 2000). In this study, perceptions towards equine chiropractic amongst horse riders in KZN, are explored. This will hopefully give insight into the horse riders' behaviour with regards to the utilization of equine chiropractic.

2.5.1 Importance of perception

Perception is a principle factor in almost every aspect of human activity (Carterette and Friedman, 1978). Perceptions can thus be said to influence how the world is viewed. Therefore, people's perceptions are important and play a vital role in how society functions (Kruger, Smit and du Pre le Roux, 1996). People's perceptions are forever changing, thus keeping up to date with the latest perceptions is important (Carterette and Friedman, 1978). The change in perception over time, based on experience, is known as perceptual learning (Carterette and Friedman, 1978). This study aims to identify the latest perceptual learning amongst horse riders towards equine chiropractic.

2.5.2 Factors influencing perceptions

The first process in developing a perception requires the receiving of information. This process of receiving information can otherwise be known as attention, or attention focus. Factors that influence attention focus and thus perceptions can be categorised into two groups, namely: External Factors and Internal Factors (Kruger et al, 1996).

External Factors

External factors are the external characteristics of perceived objects or situations (Kruger et al, 1996). A few important examples are listed below:

- Movement- movement is often received more readily than stationary objects (Kruger et al, 1996).
- Intensity- the more intense the external factors, the greater the probability that it will be perceived (Kruger et al, 1996).
- Contrast- objects that blend in are often not noticed (Kruger et al, 1996).
- Repetition- increased repetition allows for the object to draw more attention (Kruger et al, 1996).
- Size- small objects often go unnoticed (Kruger et al, 1996).
- Familiarity and Novelty- a new object in a familiar situation or vice versa, brings about more attention to it (Kruger et al, 1996).

Internal Factors

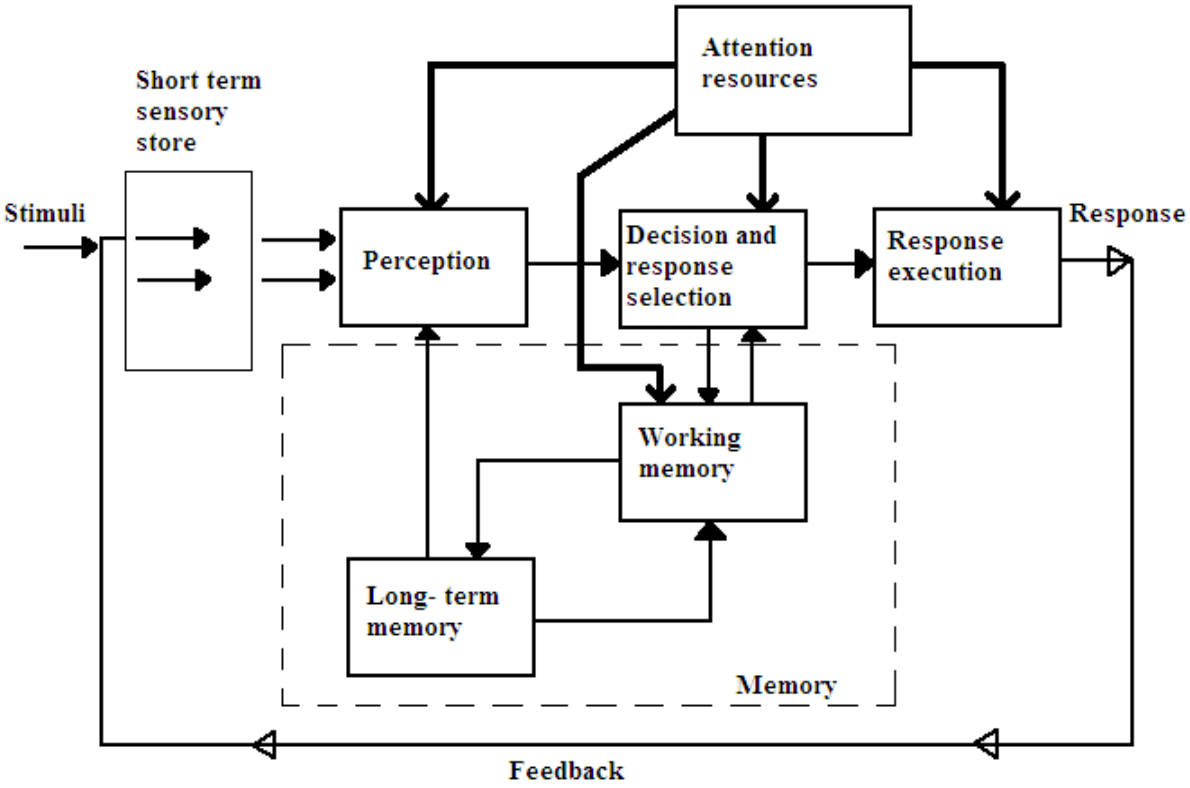
These are factors that have to do with the individuals' make up, and how they, as an individual will react in their own unique way to outside factors (Kruger at al, 1996). Some examples are discussed below:

- Attitudes and expectations- each individual has their own predetermined expectations and attitudes towards situations. People are more likely to receive and perceive situations that reinforce their prior expectations (Kruger et al, 1996). In fact, people will often distort their perceptions in order to validate their attitudes and expectations (Kruger et al, 1996).
- Motives- motives can drive behaviour and effect the way in which people perceive information (Kruger et al, 1996).
- Personality- personality traits such as extrovert or introvert can influence how open an individual is to outside factors. For example, personalities that are more sensitive may intentionally not notice things that may upset them as a defense mechanism- thus their perception of an event could be vastly different to another person with a more open personality type (Kruger et al, 1996).
- Interests- individuals who have an interest in a certain thing are more likely to perceive it in more detail (Kruger et al, 1996).
- Behaviour acquired by previous experiences- previous experience will influence if a person is more aware of objects or situations. The more experience an individual has in a certain area the more their perception towards it will be swayed in a subjective way (Kruger et al, 1996).

2.5.3 The Information-Processing Model of Perception

This model illustrates how the human mind can be compared to the functioning of a computer (Kruger et al, 1996). Figure 2.3 demonstrates the role perception plays in the brains ability to process a stimulus and to react to that stimulus (Kruger et al, 1996).

The perception compartment of this process involves the recognition, identification and categorization of the stimulus by comparing it to related material that is stored in memory (Kruger et al, 1996). This process can be described as 'perceptual coding' (Kruger et al, 1996). Perceptual coding allows the brain to organize incoming information into meaningful information (Kruger et al, 1996).



(Adapted from Wickens as cited by Kruger, 1996)

Figure 2.3: The Information Processing Model of Perception (Wickens, 1984 as cited by Kruger, 1996).

This diagram, is therefore, a way to illustrate how perception fits into our brain's processing of every day information.

2.5.4 Perceptions and Equine Chiropractic

Despite the lack of scientific research on CAM modalities, the public demand for these modalities has grown (Kelner and Wellman, 2003). According to their research the perceptions towards CAM modalities are influenced more by the feedback of family members and friends than by scientific evidence- showing how powerful and influential perceptions can be (Kelner and Wellman, 2003). It is important to understand the effect of the public's perceptions toward chiropractic and what dominates their perceptions. Kelner and Wellman (2003) have noted that the public's perceptions are greatly influenced by the media through which they most interact with, such as television (TV), internet, radio and advertisements.

The perception of the horse rider towards equine chiropractic is important because they ride the horse and can note changes post equine chiropractic treatment (Schoen and Wynn, 1998). This allows the rider to have first-hand experience of any benefits of Equine Chiropractic treatment. Therefore, the rider's perception of Equine Chiropractic can be influential in the further utilization of Equine Chiropractic.

2.6 Conclusion

Perceptions are dynamic and a principle aspect of all human activity. Perceptions have the ability to contribute to and influence the chiropractic profession, as they have with the rest of world. The public's perceptions on CAM and CAVM are not fully understood, yet CAM and CAVM therapies are being utilized more and more. Chiropractic is one of the most extensively utilized CAM and CAVM therapies.

Lameness in horses is widespread and prevalent. It leads to both morbidity and financial loss within the equine world (Lawrence, 2001). Spinal subluxations are common in the equine spine, and can contribute to the etiology of lameness and back pain in the horse. Equine chiropractic has shown to be effective in the treatment of equine spinal subluxations, and therefore, has a role to play in the equine world. However, further research in this field is needed.

At the moment the future of chiropractic in equine health care is limited by the lack of serious research (Schoen and Wynn, 1998). The perceptions and knowledge of horse riders towards equine chiropractic ultimately play a significant role in the utilization and integration of equine chiropractic into the horse world. The chiropractic profession can only further develop once it understands what the end user requires.

This study aims to gather data that can contribute to the professional development of equine chiropractic, as well as to filling in the gap in the literature on equine chiropractic.

.

Chapter Three: Research Methodology

3.1 Introduction

This chapter describes the research methodology that was utilized to conduct this research. This chapter also describes the type of statistical analysis used.

3.2 Research Design and Protocol

The research design is a descriptive, quantitative, survey based study.
The questionnaire was adapted from Taverner (2011), for which permission to use the questionnaire was received (APPENDIX A).

Descriptive Research

Descriptive research presents a current picture of the specific details of a situation (Neuman, 1997). In this case the research will describe the current status of horse riders in KZN with regards to their knowledge, utilization and perceptions towards equine chiropractic. One of the main goals of descriptive research is to find information that can encourage new explanations, and to document it (Neuman, 1997).

Quantitative Research

In quantitative research the variables and design of the research are defined and set before commencing with data collection (Berg and Latin, 2004). In this case, the questionnaire and methodology was determined before data was collected. In quantitative research, the researcher is detached from the research and focuses on measuring objective facts (Neuman, 1997; Berg and Latin, 2004). This type of research quantifies the data with the use of statistical analysis (Neuman, 1997; Berg and Latin, 2004).

Survey Design

The data gathering technique used in this research was a survey design. Survey design research has been utilized for many decades and today it is a major industry, both within and outside universities (Neuman, 1997). Surveys can act as a powerful tool in improving communication between different groups of people (Edwards, Thomas, Rosenfeld and Booth-Kewley, 1997).

A survey design utilizes a questionnaire to sample many respondents on the same set of questions (Neuman, 1997). The survey design is best suited to explorative and descriptive studies which examine certain groups of people at a specific point in time (de Vos, Strydom, Fouche and Delport, 2011). A well conducted survey allows for accurate data collecting on a wide range of issues (Edwards et al, 1997).

Many variables and hypothesis can thus be tested in one study (Neuman, 1997). This type of design also allows for the identification of any correlations that exist within the data (Neuman, 1997). These correlations between variables can then be statistically analyzed (Neuman, 1997).

The advantages of a survey design include the following (de Vos et al, 2011):

- Inexpensive and easy to perform
- Dropout of respondents is low
- Time period is short

The survey research design follows a deductive approach (Neuman, 1997). The research begins with a research problem and ends up with empirical measurement and data analysis (Neuman, 1997).

3.3 Sampling

Population size

There is no available list that details the number of horse riders in KZN, therefore the researcher made a list of all the major stable yards in KZN by using the KZN horse trader and word of mouth. The researcher then approached the stable yards telephonically in order to determine approximately how many horses were stabled at each yard. It was estimated that there are about 549 horses in KZN stable yards. The researcher then accounted for horse riders riding more than one horse. From the researchers many years of equine experience in KZN, this was more common than many riders riding one horse. Thus the estimate of horse riders was slightly less than the number of horses estimated to be in KZN stable yards, as it was still acknowledged that many riders may ride one horse. It was estimated that there may be approximately 500 horse riders in KZN. This method was agreed as being the most appropriate by the statistician (Hammond, 2011 pers. comm.).

Target sampling

This study focused on a specific group of people (KZN horse riders), and therefore, target sampling was used. Target sampling draws on aspects of both quota and purposive sampling which ensures that people or groups from specific geographical areas with specific characteristics have a better chance of appearing in the sample (de Vos, 2011).

This method involves compiling a sample that represent the population adequately and who will make up a sufficient number of respondents to produce meaningful research (de Vos, 2011).

Sampling size:

The study population is a subset of the entire population of horse riders in KZN. Target sampling (de Vos et al, 2011) was utilised to divide the KZN geographical area into five areas: Hillcrest, Summerveld, Durban, Umhlanga and La Mercy. Stable yards in each of these five geographical areas were approached to have their yard participate in the research. Out of the 29 stable yards that were approached at least one stable yard in each geographical area needed to participate in the research. This was done to make sure that the research was reflective of the region and to accommodate any discrepancies in regions towards equine chiropractic. Out of 29 stable yards that were approached, 11 agreed to participate in the research. These stable yard owners (which were distributed over the five geographical areas) gave written permission for the research to be conducted at their yard.

The total number of horse riders at these 11 yards amounted to an initial estimate of 345 horse riders. Further information on commencement of the research; lead the initial estimated amount to be revised to 330 horse riders. Stable yard owners/ managers informed the researcher of a generalised drop in the number of horses stabling at the yard during the early months of 2012, possibly due to the economic situation (The Economist, 2008). A minimum of 25% from 330 horse riders (n=83) needed to fill out the questionnaire to give a meaningful confidence interval of 95% (Hammond, 2011 pers. comm. 11 June). The minimum number of questionnaires that will need to be completed in each geographical area to ensure sample representativeness is listed below:

1. Durban: 8 (10%)
2. Umhlanga: 8 (10%)
3. La Mercy: 17 (20%)
4. Summerveld: 25 (30%)
5. Hillcrest 25- (30%)

There is a higher density of horse riders/ stable yards in the Hillcrest and Summerveld area therefore a larger sample will be recruited from these areas (Horse Trading KZN, 2012). The researcher regularly visited the stable yards to obtain the requisite number of respondents.

3.4 Procedure

Step 1: Design and Planning Phase

1. Type of Survey: hand delivered written questionnaire.
   Type of respondents: horse riders that were 18 years or older.
   Population: horse riders in KwaZulu- Natal area.

2. Development of the survey questionnaire included writing up questions to meet the research objectives. In order to answer the objectives six main areas needed to be covered in the questionnaire. Questions were then developed and assigned to one of these six sections. These six sections were:
   1. Demographic data
   2. Education
   3. Equine Experience
   4. Knowledge and Perception of Equine Chiropractic
   5. Utilization of Equine chiropractic
   6. Information

   Development also included deciding on response categories, organizing the sequence of the questions and designing the layout of the questionnaire.
   The questionnaire needed to measure three main aspects surrounding equine chiropractic: knowledge, perception and utilization. Thus, questions on these three aspects of equine chiropractic needed to be included in the questionnaire.

3. A system for recording the data was developed in conjunction with statistician, Dr Hammond (2012 pers. comm. 13 March), this included recording the data on an excel spread sheet.
4. An expert group was formed to discuss the initial questionnaire. The aim was to establish the relevance of its outcomes and reduce ambiguity. Changes were made to the pre- expert group questionnaire (APPENDIX C5). After the changes were made the post expert group questionnaire was developed (APPENDIX D).

5. The post expert group questionnaire was put through a pilot study to refine the questionnaire. The changes made to the questionnaire after the pilot study, developed the post pilot study questionnaire (APPENDIX B3). This was the final questionnaire that was handed out to respondents (APPENDIX B3).
6. The sample was defined and described.

Step 2: Data Collection Phase

1. The post pilot study questionnaire (APPENDIX B3) was hand delivered to horse riders at the various stable yards that gave consent for the research to be conducted at their yards. The questionnaire was handed out along with a Letter of Information (APPENDIX B1) and an Informed Consent Form (APPENDIX B2).
2. The questionnaire had instructions on it to explain how to answer the questionnaire.
3. The Letter of Information gave a brief outline of the research as well as an explanation on the importance of the research. It also gave the criteria for participation in the research and the implication of signing the informed consent form.
4. Each participant read the Letter of Information and signed the Informed Consent Form.
5. The Informed Consent Form included the respondents name and signature and was placed into a sealed box (Box A). This sealed box will not be opened unless needed.
6. Names of the respondents were not visible to either the researcher or supervisor as the questionnaire directed the respondents not to write their name anywhere on the questionnaire and the consent forms remain sealed.
7. The questionnaire had a box on the cover page where the respondents were instructed to tick if they had completed the Informed Consent Form and were willing to participate in the research.
8. Respondents then filled out the questionnaire and placed it into a sealed box (Box B) on completion. This was done so as no association was made between a questionnaire and a particular participant.
9. This process was then repeated with each participant.
10. As advised by Dr Hammond (2012), the data was then collated by the researcher in an excel spreadsheet.
11. The data was then sent to a statistician for analysis (Hammond, 2012).

Note: The procedure outlined in this section is in accordance with Neuman (1997).

3.5 Data Collection

The data was collected in the form of a questionnaire. The questionnaire was handed out in person directly to horse riders that fit the inclusion criteria. The researcher travelled to all the participating stable yards and approached horse riders at random. Horse riders that were willing to participate in the research and met the research inclusion and exclusion criteria were given a Letter of Information and Informed Consent Form to fill in and then they were asked to answer the questionnaire. The researcher was present whilst respondents filled out the questionnaire to follow up on any queries the respondents may have had. The researcher collected the questionnaire directly after completion.

3.6 Advertising

No form of advertising was required for this study.

3.7 Inclusion and Exclusion Criteria

3.7.1 Inclusion Criteria

All horse riders who participated in this study must:

- have read the Letter of Information
- have signed the Informed Consent Form
- be based in KZN.
- be English literate. All above stable yards were contacted and asked what language the horse riders at their yards spoke predominantly. English was the predominant language.
- fit the criteria of the definition of a horse rider in this research (see below).
- be 18 years or older. This was done to ensure that adults only participated in the study.

Horse Rider- for this research a participant will only be considered a horse rider if they have ridden a horse 10 or more times in their life and have experienced all three gaits (walk, trot and canter) on 8 or more of these occasions.

3.7.2 Exclusion Criteria

Respondents were excluded from the study if they:

- participated in the research Expert Group. These respondents had already completed the pre-expert group questionnaire and participated in the modification of the questionnaire during the expert group. Thus, allowing them to participate in the study would lead to bias as they knew what outcomes were expected in the questionnaire.
- participated in the research pilot study.
- were horse driving 'riders', or any other horse sport where the 'rider' does not sit directly on the horses back. These respondents were excluded as the researcher felt that they did not have as much feel to changes in the horse's biomechanics as may be felt by a traditional saddle based horse rider.

3.8 Research Tools

3.8.1 Expert Group

The purpose of an expert group is to inspire thinking and elicit ideas on a particular subject (Salant and Dillman, 1994). An expert group consists of a small group of people led by a mediator with the idea of generating a hypothesis for later testing (Salant and Dillman, 1994). This is otherwise known as a brainstorming session (Salant and Dillman, 1994).

The expert group included two qualified Chiropractors (both lecturers and research supervisors), five horse riders (two were also homeopathic students), and two were chiropractic students, and one rider from Shongweni area, and the researcher's supervisor. The expert group therefore included participants from each of the following four categories:

1. Expertise in research and the research process
2. Knowledge and experience with horse riding
3. Chiropractic expertise
4. Alternative and complementary medicine expertise

Each participant in the expert group meeting was given:

- A Letter of Information (APPENDIC C1)
- Informed Consent Form (APPENDIC C2)
- Confidentiality Statement (APPENDIX C3)
- Code of Conduct Form (APPENDIX C4)
- Pre Expert Group Questionnaire (APPENDIX C5)

Expert group participants were asked to complete the Code of Conduct, Statement of Confidentiality and Informed Consent Form. They were also asked to read the Letter of Information before commencement of the expert group meeting.

During the Expert Group discussion the questionnaire was discussed question by question in sequential order. The content validity and face validity of the questionnaire was discussed.

- Face Validity:

Face validity is a measurement of the validity by untrained individuals who have been asked to comment or give their opinion on the items of interest (i.e. the questionnaire in this case) (Litwin, 1995). It is a casual review of the questionnaire and is often done initially to see if the questionnaire looks appropriate (Litwin, 1995). This review is cursory but still adds to the validity of the questionnaire especially if combined with other forms of validity (Litwin, 1995).

- Content Validity:

This is an in-depth review of the questionnaire by a team of experts in a particular field (Litwin, 1995). The questionnaire is looked at critically and subjective opinions are given (Litwin, 1995). Relevance and content of the questionnaire is discussed and analyzed (Litwin, 1995). The aim is to come to a conclusion on what should and shouldn't be in the questionnaire (Litwin, 1995).

If inconsistencies were found or changes proposed, a unanimous decision was made to institute the change. The aim of the expert group was to increase the reliability and validity of the questionnaire. A post expert group questionnaire (APPENDIX 7) was derived. This questionnaire (APPENDIX 7) was used in the pilot study.

This was done so as to insure that all areas of the questionnaire were reviewed by a group where each individual had expertise in a different area of the research. A thorough review of the questionnaire was thus conducted, confirming face and content validity had been addressed.

The expert group meeting was video-recorded. Consent for the recording was given by the participants. A DVD of the meeting is available upon request through the Department of Chiropractic.

Changes to questions were made for the following reasons:

- To improve the layout of the questionnaire
- To correct grammar
- To eliminate repetitive questions
- To decrease unnecessary/ unimportant data
- To simplify questions

The following changes were made to the pre expert group questionnaire:

Instructions were added to include a box where participants were instructed to tick if they had completed the Informed Consent Form. Instructions further included: 'Please tick or cross. For those questions where a response is required please be accurate'.

Section 1: Demographics Data

Question 1.2:

The abbreviation 'yrs' was added to the question to indicate the appropriate numerical unit of response.

Question 1.3:

The answers were put into alphabetical order and 'Asian' replaced the 'Indian' answer block. This was done to standardize the demographic data.

Section 2: Education

Question 2.1:

This question was changed from 'What is the highest education that you have obtained (or currently studying for)' to 'What is the highest qualification you have obtained?' The answer was changed from having: 'Primary School; Secondary School; Matric; Diploma; Undergraduate; Postgraduate; PhD' answer blocks to: 'Primary School; Secondary/High school; Matric (completion of high school); Certificate; Higher Certificate; Diploma; Honours/BTech; Masters; PhD; other (please specify)' answer blocks. This was done to broaden the choices so as to increase accuracy in the data.

Question 2.2:

This question became 2.3 and a new question 2.2 was added- 'What was the qualification (e.g. Medicine, Accounting, Zoology)?'

Section 3: Equine Experience

Section 3 was switched with Section 4 to result in Section 3 being 'Knowledge of Human Chiropractic' and section 4 being 'Equine Experience'.

Question 3.1:

This question was changed from 'Are you a member of the Natal Horse Society?' to 'Have you ever been a member of a horse society?' This change was initiated to allow for the other horse societies to also be included in the answer.

Question 3.2:

This question was changed from 'If yes, how many years have you been a member of the Natal Horse Society' to 'If Yes, please specify which horse society and for how long you were a member (years)?' The question was left as an open ended question and moved down to become Question 3.4.

Question 3.3:

This question was removed from the questionnaire.

The question 'Have you ever been a member of the KwaZulu Natal horse Society?' was inserted to replacement Question 3.3.

Question 3.4:

'Have you attended any courses on equine management?' was changed to 'Have you attended any courses that are equine specific?' and was shifted down to become Question 3.5. This change allowed courses other than just equine management courses, to be mentioned.

Question 3.5:

This question was changed from 'If yes, what course(s) have you attended?' to 'If yes, what course(s) have you attended and where did you attend them (local vs. overseas)?' and shifted down to become question 3.6. The additional information added to this question was done in the hope of investigating if overseas courses correlated with a better knowledge of equine chiropractic.

Question 3.6:

This question was changed from 'What equine sport(s) do you participate in, and for how long (years)? (more than one answer possible)' to 'Which equine sports have you participated in and are you participating in currently and for how long (years)? (more than one answer possible)' and was shifted down to become question 3.9. The corresponding answer was put into alphabetical order and had the categories 'Polo Cross; Polo; Trec; Rodeo; Vaulting and Eventing' added as options. The length of time (years) participating was changed to be open ended. These changes were implemented to allow for a wide variety of equine sports to be included.

Question 3.7:

This question was changed from 'How many years (total) have you been horse riding for?' to 'For how many years (total) have you been horse riding?' and shifted down to become Question 3.10. The corresponding answer was changed from being in categories to being open ended.

The question 'have you ever worked with horses in any capacity?' was added and put as the new Question 3.7. The answer to correspond with this question was categorized as 'Yes' or 'No (proceed to 3.9)'.

Question 3.8:

The question 'If Yes, in what capacity and for how long?' was added and put in as the new Question 3.8. The corresponding answer was left open ended.

Question 3.12:

Questions 3.9; 3.10; 3.11; 3.12; 3.13; 3.14; 3.15 and 3.16 were grouped to all be part of question 3.12 under the heading 'The horse you ride the most'.

Question 3.12 was changed from 'In the last year what conditions has the horse you ride the most been treated for?' to 'In the last year what conditions has this horse been treated for? Please specify what treatment.' The categories in the corresponding answer were put into alphabetical order. The categories were changed from only having eight options to having twenty two options (conditions). The categories 'Laminitis' and 'founder' were merged. 'horse sickness' was changed to 'African horse sickness' and 'EPM' was changed to 'equine protozoal myeloencephalitis'. The headings "Condition' and 'type of treatment' were inserted at the top, over an extra four columns. The options 'Veterinary care; Alternative treatment; No treatment and other' were added as part of the heading at the top of the extra four columns.

Question 3.12 answer option 'Nerve problems, e.g. sciatica neuralgia' was changed to 'Nerve problems e.g. pinched nerve'

These changes were done in order for the question to be more comprehensive and accurate.

Question 3.14:

This question was changed from 'Do you make use of any alternative veterinary therapies?' to 'Do you make use of any alternative therapies?'

Question 3.15:

Question 3.15 was changed from 'If yes, what therapies do you make use of ?' to 'If yes, what therapies do you make use of and what was the response?'. The answer was changed to have five columns. The first column listed the types of treatments under a heading which stated 'Treatment'. The second to fourth columns had a heading 'response' with three subheadings under it: 'Improved; Stayed same; Got worse'. The final column had the heading: 'How many visits per year'.

This allowed the respondents to indicate which treatments were beneficial or not. As well as to indicate how many treatments their horses had per therapy in a year. Correlations could then be looked at with regards to the number of treatments and the treatment outcomes.

General Changes for Question 3:

Questions that received alternative numbering:

3.9 become 3.12.1

3.10 became 3.12.2

3.11 became 3.12.3

3.12 and 3.13 became 3.12.4

3.14 and 3.15 became 3.12.5

3.16 became 3.12.6

Section 4: Knowledge of Human Chiropractic

Question 4.2:

Question 4.2 answers were changed from having the options: 'Lay lecture about chiropractic'; 'I have read about chiropractic in a medical journal'; 'I have read about chiropractic in a (lay) journal'; 'From friends and my family '; 'From my doctor'; 'Through the media'; 'Interaction with a chiropractor'; 'From people/persons who have been treated by a chiropractor' and 'other, please specify' to: 'Chiropractor'; 'Friends/Family'; 'Informal/non-professional lecture about chiropractic'; 'Internet'; 'Magazine'; 'Medical Journal'; 'My doctor'; 'People/person who have been treated by a chiropractor'; 'Radio'; 'TV' and 'Other, please specify'. The question was also put into alphabetical order.

Question 4.4:

Question 4.4 had 'yourself' added onto the end of the question.

Question 4.4 and 4.5 were moved to fall under Section 1: Demographic data. This was done in order to separate the questions that were concerning the horse from the question that were concerning the horse rider.

Question 4.6:

Question 4.6, the word 'weather' was changed to 'whether'

The first answer for Question 4.6 had 'manipulation' changed to 'adjustment of joints'.

The third answer for Question 4.6 had 'electro-'changed to 'additional-'.

The fourth answer for Question 4.6 had 'under' changed to 'within'.

The fifth answer of Question 4.6 had 'but' changed to 'by'.

Question 4.6 had an extra column added to it with the option 'unknown' added next to each statement.

Section 5: Knowledge and Utilization of Equine Chiropractic

The heading for section 5 was changed from '**Knowledge and Utilization of Equine Chiropractic:**' to '**Knowledge/ Perception and Utilization of Equine Chiropractic:**'

Question 5.4:

The first answer for Question 5.4 had 'manipulation' changed to 'adjustment of joints'.

The fifth answer for Question 5.4 had 'on' changed to 'of'.

The sixth answer for Question 5.4 had 'activator gun' changed to 'mechanical adjusting device (e.g. mallet)'.

The last answer for Question 5.4 'yes, what type of response did the horse have to the treatment?' was removed.

Question 5.4 had an extra column added to it with the option 'unknown' next to each statement.

Questions 5.5:

This question was removed from the questionnaire and was replaced with Questions 5.12, 5.13 and 5.14.

Question 5.6:

Was removed from the questionnaire and replaced with the question 'Has one ever treated the horse you ride?'

Question 5.7:

This question was removed from the questionnaire and replaced with 'Name of that Equine Chiropractor?'

Question 5.8:

Question 5.8 was changed from 'Who referred/ informed/ suggested an equine chiropractor?' to 'Have any of the following suggested you to consult with an Equine Chiropractor?'

The answers for Question 5.8 were put into alphabetical order and had an extra block added- 'Riding Instructor'.

Question 5.9:

Question 5.9 was removed from this section and put under '**Information**' section as Question 6.2.

A new Question 5.9 was then added: 'If you have had exposure to Equine Chiropractic-please answer the following questions'

Question 5.10:

Question 5.10 was incorporated into Question 5.11. Therefore, adding another two answers- 'Improved performance' and 'Maintenance' to Question 5.11's choices in the option column.

Question 5.11:

Question 5.11 was changed from 'Which equine conditions would you consider getting an Equine Chiropractor to treat?' to 'For which of the following would you consider getting an Equine Chiropractor for?'

Question 5.11's corresponding answers were put into alphabetical order and had another six categories 'African Horse Sickness; Colic; Equine Influenza; Injuries; Equine protozoal myeloencephalitis; laminitis/ founder' added to it.

Question 5.11 had the option: 'Nerve problems, e.g. sciatica neuralgia' changed to 'Nerve problems e.g. pinched nerve'

Question 5.12:

Question 5.12 had the option of '0' added into the answer.

Questions 5.12, 5.13 and 5.14 were moved to fall under Question 5.5.

Question 5.13:

This question was removed from the questionnaire. Similar data was gained from a different question earlier on in the questionnaire.

Question 5.14:

Question 5.14 had the options 'Local' vs. 'International' added to the option column.

Question 5.15

This question was removed from the questionnaire as it was thought that it would yield trivial data.

Section 6: Information

Question 6.1:

Question 6.1 had the 'yes' 'no' answers removed and was left open to tick the appropriate answer. The answers were also put into alphabetical order.

Question 6.2:

Question 6.2 was removed from the questionnaire. This was because this question was noted as being irrelevant.

3.8.2 Pilot Study

A pilot study was conducted following approval from the DUT ethics committee (APPENDIX G). The post expert group questionnaire (APPENDIX D), along with an Informed Consent Form (APPENDIX E2), and Letter of Information regarding the research (APPENDIX E1) was handed out to 5 horse riders who met the inclusion criteria for the study. The 5 horse riders were selected in the same manner as for the final distribution of the questionnaires in the main study. The pilot study was carried out as similarly as possible to how the main study was conducted. The aim was to conduct a trial run of the research (Fink and Kosecoff, 1985; and Hicks, 2004).

The pilot study was conducted in order to identify any problems with the questionnaire/ design of the research. In accordance to Fink and Kosecoff (1985) and Hicks (2004), three main responses were looked at:

1. Failure to answer questions
2. Giving several answers to the same question
3. Comments written in the margin.

Issues that arose in the pilot study were written up in a word document. These issues were then discussed by the researcher and research supervisor and the following amendments were made to produce the post pilot study questionnaire (APPENDIX E3).

Section 2: Education

Question 2.1:

This question had 'degree' added to the list of answers.

Question 2.2:

This question was removed from the questionnaire, as participants consistently did not answer it and commented that it did not apply to everyone. Its necessity was then noted as being low, thus it was removed.

Section 3: Equine experience

Question 3.2:

This question had 'NB- Avoid Abbreviations!' added to the answer block, in the hope of avoiding unrecognisable abbreviations being written by respondents.

Question 3.3:

This question was removed from the questionnaire due to inconsistencies and confusion surrounding this question in the pilot study.

Question 3.4:

This question was removed from the questionnaire due to inconsistencies and confusion surrounding this question in the pilot study.

Question 3.6:

This question was removed from the questionnaire. Pilot study participants had trouble answering this question. Thus the question was seen to possibly introduce errors into the study and thus was removed.

Question 3.10:

This question was changed from 'Which equine sports have you participated in and are you participating in currently and for how long (years)? To 'Which equine sports do you participate in and for how long (years)?'.

Question 3.13.3:

Pilot study participants consistently wrote more than one answer for this question. This indicated confusion around the question, and thus the question was removed.

Question 3.13.4:

This question was simplified by changing the answer block from 'Both the owner and rider' to 'Owner+Rider'.

Question 3.13.8:

This question was removed from the questionnaire. Pilot study participants consistently failed to answer this question.

Section 4: Knowledge and Perception of Equine Chiropractic

Question 4.2:

Question 4.2 had an extra answer block added in: 'People/person who has had a horse/animal treated by a chiropractor'.

Question 4.4:

This question was reworded and shortened. This was done due to the confusion surrounding these statements.

Section 5: Utilization of Equine Chiropractic

Question 5.3:

This question was removed from the questionnaire. Comments were made that this question which posed a breach of confidentiality to equine chiropractors.

Question 5.4:

This question was removed from the questionnaire. Pilot study participants either failed to answer this question or gave multiple answers to it. In addition, the importance of the data gained in this question was low and thus the question was removed.

Question 5.6:

The word 'laminitis' was duplicated in this question. This error was corrected.

3.9 Statistical Methodology

Demographic data was sorted into tabular form and illustrated graphically using pie charts or histograms. Where necessary, categorical data was grouped to enhance the graphical representation. Comparison between groups was tested for statistical differences using the Chi-square test for observed and expected values. The Chi-square test is a statistical test that is used to compare observed data with expected data (according to the hypothesis) (Soong, 2004). The chi-sq test always tests the null hypothesis, which states that the expected results and the observed results will be exactly the same (Soong, 2004). Thus, the Chi- sq tests will measure the deviation from the expected results (Soong, 2004). Where numbers in the body of the table were small (less than 10), Fisher's Exact probability was calculated as well to confirm the result. After consulting with Dr Hammond (2012), the statistical significance was calculated to determine correlations (positive and negative) between knowledge, perception and utilization of equine chiropractic by horse riders in KZN.

Chapter Four: Results and Discussion

4.1 Introduction

The results from the questionnaire are presented in this chapter. The statistical analysis of these results as well as the discussion around them will also be covered in this chapter. The combining of the results and discussion of the results into one chapter was decided as being an appropriate layout for this research project. This allowed for the reader to read the presented results and then read the discussion directly thereafter, decreasing cross referencing and paging back and forth. This layout was discussed during the presentation meeting with the faculty and was approved by the Institute Research Ethics Committee (APPENDIX G). The results were presented and discussed according to the twelve study objectives and sub sections of these objectives.

Objective 1: To document the respondents' personal demographic data.

Objective 2: To document the respondents' educational background.

Objective 3: To document the respondents' equine experience

Objective 4: To determine the respondents' perceptions and knowledge of equine chiropractic

Objective 5: To determine the respondents' utilization of equine chiropractic.

Objective 6: To document what information on equine chiropractic respondents would like made more accessible, and to evaluate the percentage of respondents who were for or against the future utilization of equine chiropractic.

Objective 7: To determine any association between the respondents' previous utilization of a chiropractor for themselves and the utilization of an equine chiropractor for their horses.

Objective 8: To determine if there was an association between the age of the horse riders and the knowledge that these horse riders had of equine chiropractic.

Objective 9: To determine if respondents that utilized alternative therapies for their horses had enhanced knowledge of equine chiropractic. Furthermore, to determine if respondents had increased knowledge of equine chiropractic if they had had an equine chiropractor treat the horse that they ride.

Objective 10: To determine if there was a trend amongst respondents who were against the future use of equine chiropractic for their horses

Objective 11: To graphically assess if there was an association between respondents who knew of multiple equine chiropractors and the utilization of equine chiropractic

Objective 12: To determine if there was an association between the duration of time the respondents had horse ridden for and their knowledge of equine chiropractic.

4.2 Data Sources

Both primary and secondary data sources were utilized to compile this chapter.

4.2.1 Primary Data

Primary data included all the data that was captured from the questionnaire that was completed by respondents.

4.2.2 Secondary Data

Communications with the statistician, Dr Hammond (2012) and the research supervisor, Dr Grant Matkovich (2011) provided the secondary source data. It must be noted that the discussion of this chapter (as in Chapter Five) also required the use of the literature outlined in Chapter Two.

4.3 Abbreviations and Acronyms Pertinent to this Chapter

%	=	percentage
=	=	implies “equals to”
AHPC	=	Allied Health Professions Council
Alt	=	Alternative
CASA	=	Chiropractic Association of South Africa
Chiro	=	Chiropractor
ECHS	=	Eastern Cape Horse Society
GHS	=	Gauteng Horse Society
KZNHS	=	KwaZulu- Natal Horse Society
N	=	number
n	=	refers to the sample size
SA	=	South Africa
Sig	=	Significance
SAEF	=	South African Equine Federation
THS	=	Transvaal Horse Society
TMJ	=	Temporomandibular Joint
vs.	=	Versus
yrs	=	years

4.4 Response Rate

The exact number of horse riders in KZN was not attainable. The researcher thus drew up a list of all the major stable yards in KZN and the number of horses that were stabled at each yard. It was determined that the number of horses would be more or less equivalent to the number of horse riders in KZN. It was thus estimated that there are 500 horse riders in KZN.

The researcher then approached stable yards to seek permission to conduct research at their yards. Eleven stable yards gave written permission to allow for the research to be conducted at their yards. The finalized total estimate of horse riders at these 11 yards numbered to 330 horse riders. A minimum of 25% from 330 horse riders (n=83) was needed in order to give a meaningful confidence interval of 95% (Hammond, 2011).

Mail surveys have a particularly bad response rate (Dey, 1997), therefore questionnaires were hand delivered to horse riders that were willing to participate in the research and who fit the inclusion criteria of the research. Eighty three questionnaires were completed in total at the various stable yards- meeting the minimum amount of questionnaires needed to be completed. This was the exact number of questionnaires required to meet the minimum response rate.

4.5 Results

Results are described and discussed by percentage, however, where this is not possible, they have been discussed by number.

4.5.1 <u>Objective 1</u>: To document the respondents' personal demographic data

4.5.1.1 <u>Question 1: Demographic Data</u>

Q1.1: "Gender?"

Figure 4.1 shows that the respondents were 81% female and 19% male.

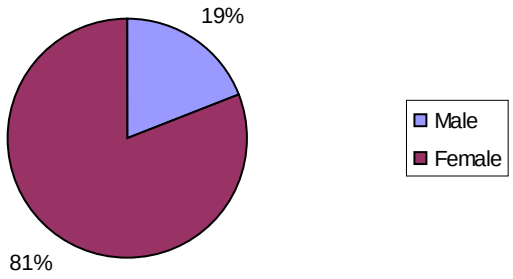


Figure 4.1: Respondents' Gender

Q1.2: "Age at last birthday? (yrs)"

Table 4.1 show the results for the above question; Figure 4.2 shows these results graphically. Most of the respondents (31%) were between 41- 50 years old, followed by 21% of the respondents being between 21- 30 year olds. The least number of respondents (7%) were between 61-70 year olds.

Table 4.1: Respondents' ages

Answer Options	Response Count	Response Percent
18- 20yrs	11	13%
21- 30yrs	17	21%
31- 40yrs	13	16%
41- 50yrs	26	31%
51-60yrs	10	12%
61- 70yrs	6	7%
TOTAL	**83**	**100%**

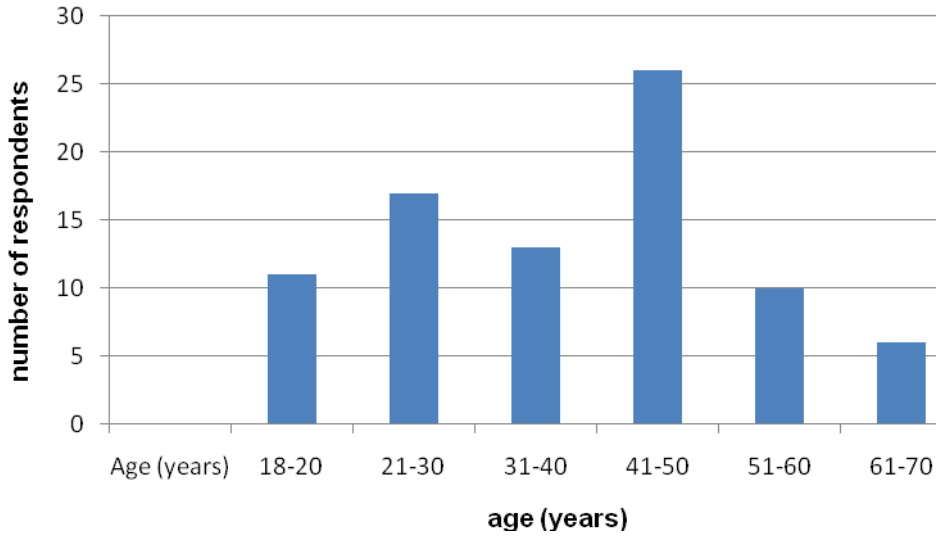


Figure 4.2: Respondents' ages

Q1.3: "Race?"

Table 4.2 shows that the majority of respondents were White (98%).

Table 4.2: Respondents' race

Answer Options	Response Count	Response Percent
Asian	1	1%
Black	1	1%
Coloured	0	0%
White	81	98%
TOTAL	**83**	**100%**

Q 1.4: "Have you ever been to a chiropractor?"

Table 4.3 shows that 68% of respondents had previously been treated by a chiropractor and 32% of respondents had never been treated by a chiropractor.

Table 4.3: Previous chiropractic treatment

Answer Options	Response Count	Response Percent
Yes	56	68%
No	27	32%

Q1.5: "Was the treatment beneficial?"

Table 4.4 shows the results for the above question; Figure 4.3 shows these results graphically.

Table 4.4: Respondents outcome post chiropractic treatment

Answer Options	Response Count	Response Percent
Beneficial	53	64%
Not beneficial	3	4%
No visit	27	32%

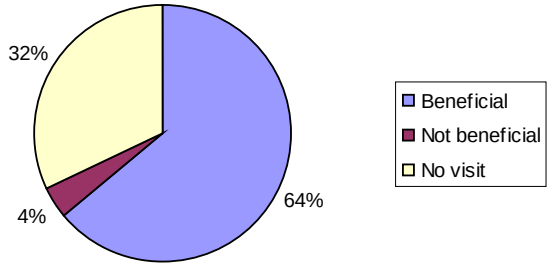


Figure 4.3: Respondents' outcome post chiropractic treatment

4.5.1.2 Summary and Discussion of Question 1: Demographic Data

The respondents were 81% female and 19% male. This is consistent with the demographics of horse riding, as female horse riders out number male horse riders generally (Silver, 2002; Hammett, 1995). Females have shown to make use of CAM and CAVM therapies more often than their male counterparts (Bishop and Lewith, 2008). Females have also shown to be more open and accepting to complementary medicine in general (Bishop and Lewith, 2008). As the respondents were predominantly female in this study, the demographics of this study were in line with the world demographics of horse riders as well as CAM consumers (Bishop and Lewith, 2008; Silver, 2002; Hammet, 1995).

However, females have also shown to be more likely to complete questionnaires (Eaker, Bergstrom, Bergstrom, Adami and Nyren, 1998), and thus may have been more approachable and willing to take part in the research.

The majority of respondents in this study were between the ages of 41-50 years. Literature on the largest CAM consumer's shows that they are consistently between the ages of 25- 49 years (Eisenberg, Kessler, Foster, Norlock, Calkins and Delbanco, 1993), or more specifically middle aged women (Bishop and Lewith, 2008). An explanation for the 41-50 years group's high response rate is the likelihood that they are more financially secure, as well as possibly having the most free time, particularly with regards to females of this age. Both these factors increase the probability that female horse riders of this age group would be at the particular yards on the day that the research was conducted, increasing their chances of being part of the research.

This age group has also shown to be particularly willing to participate in questionnaire based studies (Eaker, 1998), which is yet another factor that explains this group's high response rate.

A possible explanation for the low number of respondents older than 50 years could be that this group is older and may be less athletic due to age related disorders. This could mean that many horse riders in this age group have retired from horse riding, and thus, the sample was small to begin with. It could also mean that this age group may be more hesitant to take part in questionnaires as they do not feel mentally confident to do so. Physical deterioration such as loss of eye sight could also add to this age group being less willing to participate in questionnaire based studies. Finally, people older than 70 years have been shown to have a poor response rate in questionnaire based studies (Eaker et al, 1998). This could explain why there were no respondents of this age that took part in this study.

From the 83 respondents who took part in this study, 56 (68%) respondents had previously been treated by a chiropractor. Fifty three of whom, and therefore, the majority had found the treatment to be beneficial. The increased utilization of CAM therapies by people has positively affected the utilization of these therapies for animals (Lin et al, 2003). Previous exposure to CAM therapies influences the knowledge and confidence a consumer has with complementary medicine in general. Thus, respondents who had previously had a beneficial chiropractic treatment (i.e. 53 out of 56) would presumably be more open to utilizing this same type of therapy for their horse(s). Similarly, the respondents that had had a negative association with chiropractic may steer clear of this type of therapy for their horse(s). The relationship between the respondents' previous personal interaction with a chiropractor and the utilization of an equine chiropractor for their horses will be discussed in further depth (Q4.5.7.1), later in this chapter.

An explanation for the higher numbers of respondents that had previously been treated by a chiropractor (56 out of 83) could be that horse riders have one of the highest incidences of sport related injury (Silver, 2002; Cripps, 2000), with musculoskeletal injury being the most prevalent, particularly among female horse riders (Cripps, 2000). Thus, it would be likely that many of the horse riders had experienced musculoskeletal injuries at some point and had sought treatment for their injuries, possibly explaining the high number of riders that had been treated by a chiropractor.

The overall demographic data is thus consistent with the demographics of CAM consumers, as well as that of horse riders. These results may indicate that the majority of respondents in this study were expected to have a positive association with equine chiropractic.

4.5.2 Objective 2: To document the respondents' educational background.

4.5.2.1 Question 2: Education

Q2.1: "What is the highest qualification(s) you have obtained? In what field is your qualification (e.g. Medicine, Accounting, Zoology)?"

Table 4.5 and Table 4.6 show the results for the above question; Figure 4.4 and Figure 4.5 show these results graphically. Most respondents' highest educational qualification was Matric (43.3%), and the least number of respondents had a Honours/ BTech degree. None of the respondents had Primary school or a PhD as their highest educational qualification.

Most respondents obtained education that fell under Other (21.7%). The second highest category was Equine Studies (9.6%), with the least number of respondents' having an education in Architecture/ Draughting (2.4%), Chiropractic (2.4%) and Interior Design (2.4%).

Table 4.5: Respondents' highest qualification

Answer Options	Response Count	Response Percent
Primary School	0	0%
Secondary/ High School	3	3.6%
Matric	36	43.3%
Certificate	6	7.2%
Higher Certificate	4	4.8%
Degree	12	14.5%
Diploma	17	20.5%
Honours/ BTech	1	1.2%
Masters	4	4.8%
PhD	0	0%
TOTAL	**83**	**100%**

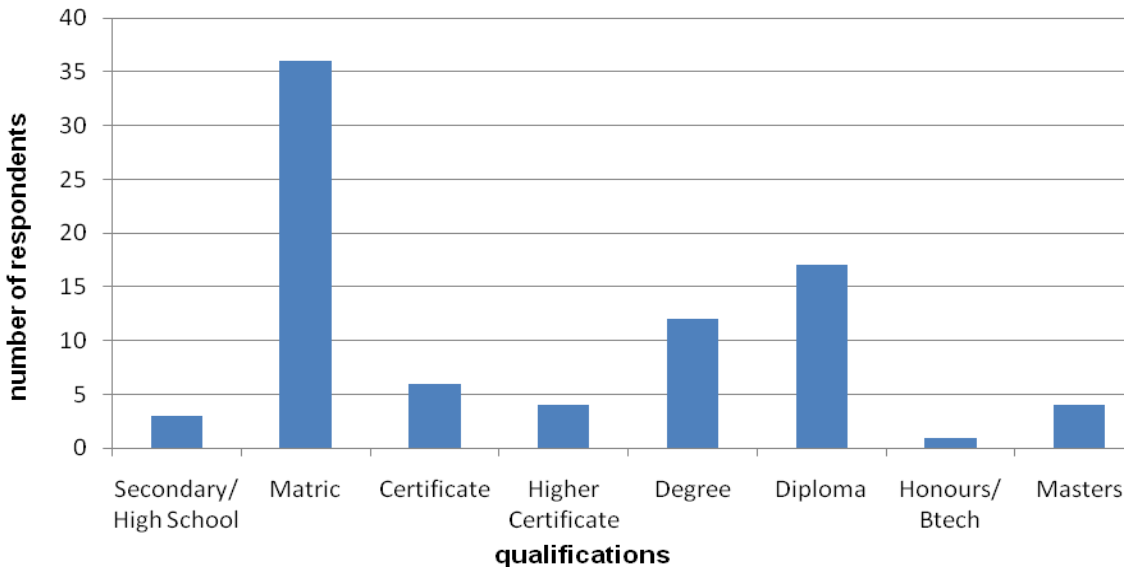


Figure 4.4: Respondents' highest qualification

Table 4.6: Field of tertiary education

Categories	Response Count	Response Percent
Architecture/ Draughting	2	2.4%
Arts	4	4.8%
Chiropractic	2	2.4%
Engineering	5	6.0%
Equine Studies	8	9.6%
Interior Design	2	2.4%
Teaching	3	3.6%
Other	18	21.7%

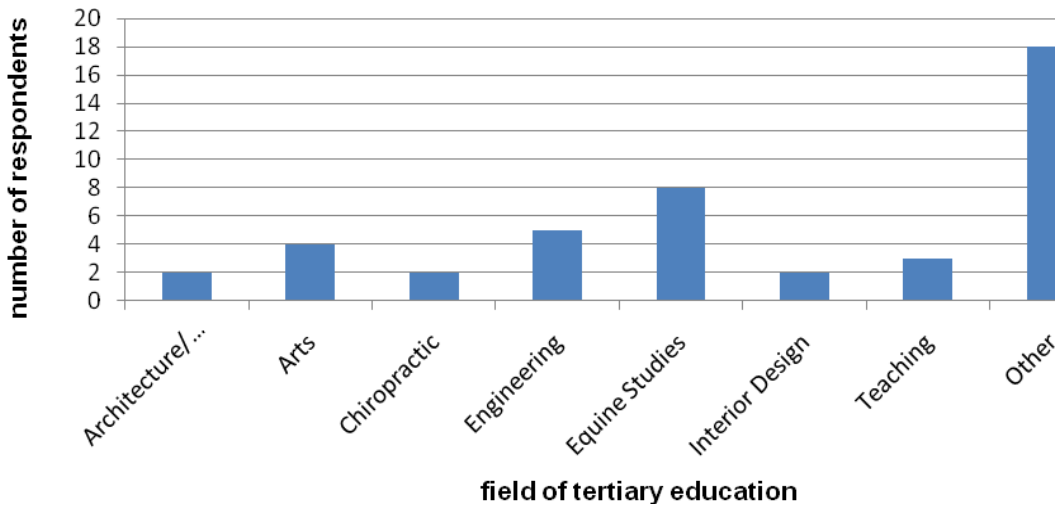


Figure 4.5: Field of tertiary education

Q2.2: "Where did you obtain your qualification?"

This question was open ended and yielded answers that were too diverse to draw conclusions from the data.

4.5.2.2 <u>Summary and Discussion of Question 2: Education</u>

The majority of respondents (43.3%) stated Matric as their highest qualification, so on the face of it, it looks like Matric is the highest qualification, but 53% respondents actually hold higher qualifications. The difference is that the 53% is 'hidden' within different qualifications. Higher education can be a predictor of CAM utilization (Bishop and Lewith, 2008; Eisenberg et al, 1993), possibly because these individuals, who are assumed to be more educated, are exposed to more information and knowledge, which could make them more willing to understand alternative therapies. Research has shown that with understanding often comes experimentation and thus utilization (Baron and Bryne, 2004). As more and more people seek out CAM therapies for themselves they turn to these therapies for their animals (Boldt, 2002). Therefore, it can be assumed that a higher education could result in an increase of utilization of CAVM therapies such as equine chiropractic.

The level of education can also be used to gauge the level of income an individual earns. A higher education can generally result in a better income. On the other hand, tertiary education is expensive and thus respondents with tertiary education can be presumed to have enough money to afford to get their qualification. Therefore, either way, tertiary education can be an indicator of financial means. The literature has shown that a higher income corresponds with the utilization of CAM therapies (Eisenberg et al, 1993) and most certainly is vital in the use of CAVM therapies.

The field of tertiary education may have an impact on the knowledge and utilization of equine chiropractic. The 9.6% of respondents, who had tertiary education in equine studies, presumably may be well equipped to understand how equine chiropractic works. However respondents who gained their equine qualifications through the South African Veterinary Association (SAVA) or school may have been exposed to a conservative/ orthodox approach to equine health. Taverner (2011) pointed out that veterinarians in South Africa (SA) report a low level of study of CAVM. Generally, veterinary institutions have been known to not welcome CAVM therapies (Jones, 2004). Therefore, it is also possible that these respondents may be more cautious or apprehensive in the utilization of equine chiropractic.

However the 2.4% of respondents, with a chiropractic degree, could presumably have better knowledge of equine chiropractic. They are also more likely to support the profession that they are already in. This group of respondents, therefore, could be assumed to make the most use of equine chiropractic for their horses.

The respondents with tertiary education in the creative fields such as Architecture (2.4%), Art (4.8%) and Interior Design (2.4%) may have an increased willingness to try alternative therapies because they may be more open minded and creative (Feist, 1998; Weinberg and Galenson, 2005).

When comparing wealth with consumers' education, the literature has shown that there is stronger evidence that CAM therapies are utilized more often by the well educated than the wealthy (Bishop and Lewith, 2008). Question 2 has, therefore, documented the various educational levels and categories of the respondents. It can be concluded that the educational demographics of respondents in this study could yield a positive response with regards to the perception, utilization and knowledge of equine chiropractic because 53% of the sample had tertiary qualifications.

4.5.3 <u>Objective 3</u>: To document the respondents' equine experience

4.5.3.1 <u>Question 3: Equine Experience</u>

Q3.1: "Have you ever been a member of a horse society?"

Figure 4.6 shows that 73% of the respondents were or have previously been a member of a horse society and that 27% of the respondents had never been a member of a horse society.

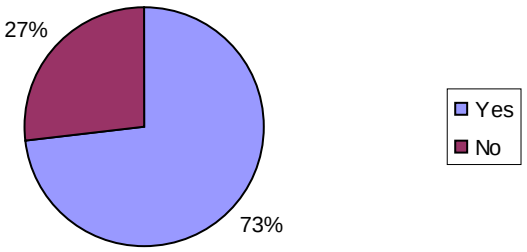


Figure 4.6: Members of horse societies

Q3.2: "If Yes, please specify which horse society and for how long you were a member (years)?"

Table 4.7 shows the results for the above question; Figure 4.7 shows these results graphically. Respondents could be a member of more than one horse society. Most respondents (50) were a member of the KZNHS. There were 4 respondents that were members of horse societies that were mentioned only once and thus were grouped together to fall under the category Other.

Table 4.7: The different horse societies

Answer Options	Response Count
KZNHS	50
GHS	6
THS	3
ECHS	2
Other	4

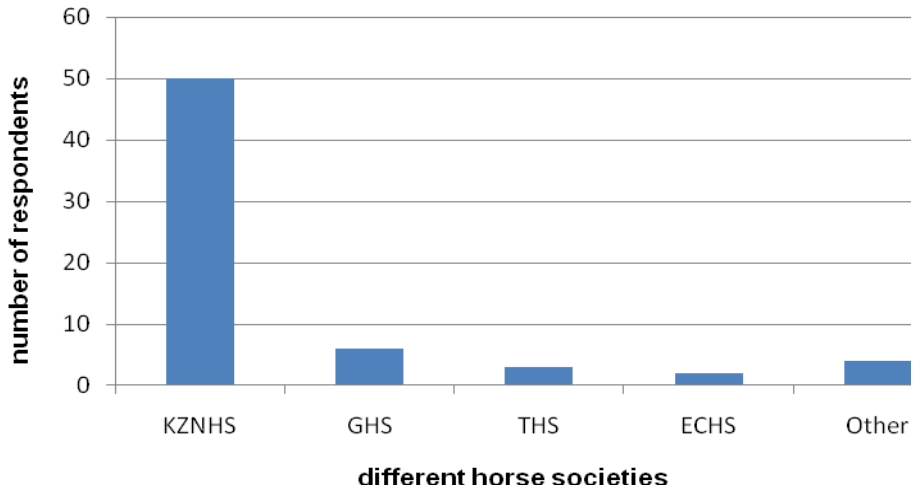


Figure 4.7: The different horse societies

Q3.3: "Have you attended any courses that are equine specific?"

Table 4.8 shows the results for the above question; Figure 4.8 shows these results graphically. Most respondents (54.2%) had not attended an equine specific course.

Table 4.8: Equine course(s) attendance

Answer Options	Response Count	Response Percent
Yes	38	45.8%
No	45	54.2%
TOTAL	**83**	**100%**

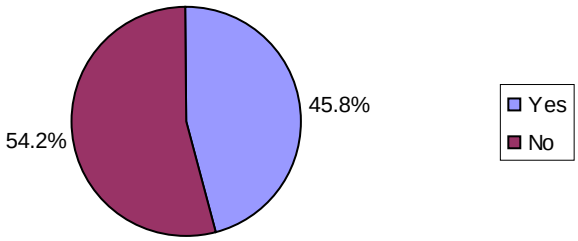


Figure 4.8: Equine course(s) attendance

Q3.4: "Have you ever worked with horses in any capacity?"

Table 4.9 shows the results to the above question; Figure 4.9 shows these results graphically. Most respondents (61.4%) had previously had some sort of equine work experience.

Table 4.9: Equine work experience

Answer Options	Response Count	Response Percent
Yes	51	61.4%
No	32	38.6%
TOTAL	**83**	**100%**

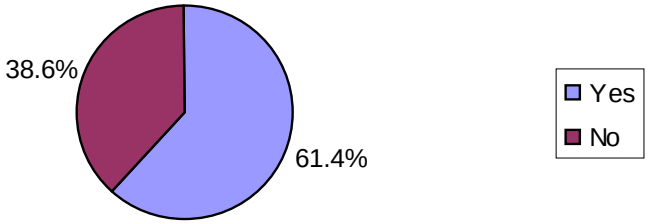


Figure 4.9: Equine work experience

Q3.5: "If Yes, in what capacity and for how long?"

Table 4.10 and 4.11 show the results for the above question; Figure 4.10 and Figure 4.11 show these results graphically. This question was left open ended and allowed respondents to have more than one answer; Table 4.10 summarizes the results that were most common. From the 61.4% of respondents who answered 'Yes' to the previous question (Q3.4), 18 were riding instructors, 5 were equine yard owners, 2 were horse race trainers and 29 fell into the category 'Other'. The 'Other' category included all answers that were mentioned only once.

Table 4.11 shows how long respondents had worked in the equine field. Most respondents (28) had worked with horses in some capacity for 0-10 years.

Table 4.10: Different types of equine work experience

Answer Options	Response Count
Equine yard owner	5
Horse race trainer	2
Riding instructor	18
Veterinary nurse	3
Other	29

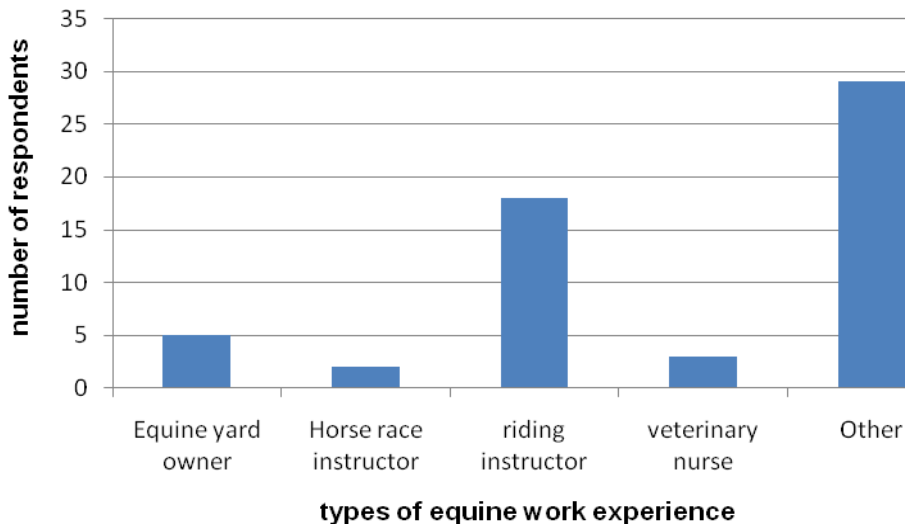


Figure 4.10: Different types of equine work experience

Table 4.11: Duration of equine work experience

Answer Options	Response Count
0-10 years	**28**
11-20 years	**21**
21-30 years	**6**
31-40 years	**1**
41-50 years	**1**

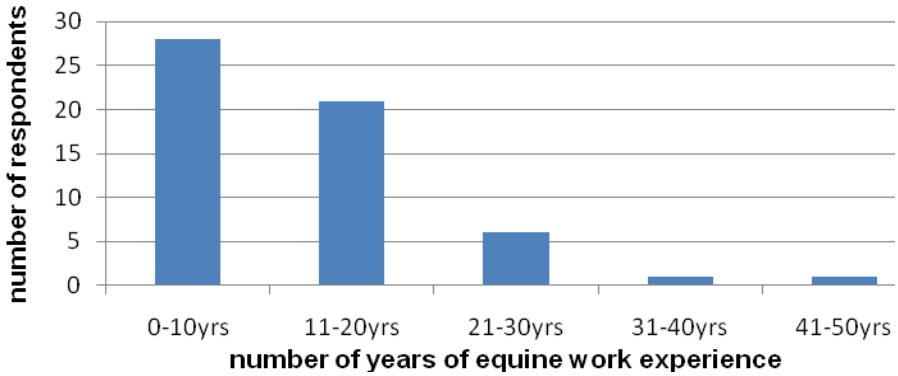


Figure 4.11: Duration of equine work experience

Q3.6: "Where did you work?"

Table 4.12 shows the results for the above question; Figure 4.12 shows these results graphically. From the 61.4% of respondents that had answered 'Yes' to having equine work experience (Q 3.4), 70.6% of the respondents had worked locally, 7.8% had worked internationally and 21.6% had worked both locally and internationally.

Table 4.12: Local vs. International equine work experience

Answer Options	Response Count	Response Percent
Local	36	70.6%
International	4	7.8%
Local+ International	11	21.6%
TOTAL:	**51**	**100%**

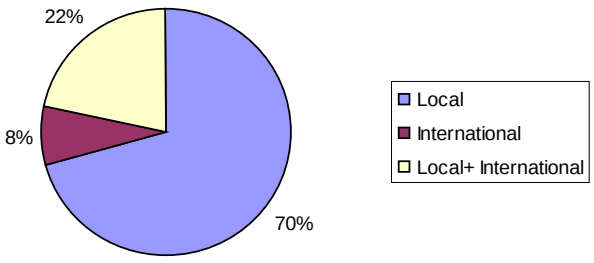


Figure 4.12: Local vs. International equine work experience

Q3.7: "Which equine sports do you participate in and for how long (years)? "

Table 4.13 and Table 4.14 show the results for the above question; Figure 4.13 shows these results graphically. This question allowed for more than one answer from each respondent. Table 4.13 shows the different equine sports in which respondents participated. Show Jumping was the most popular sport among the respondents. A total of 64 respondents participated in Show Jumping, Dressage was the second most popular sport with 49 respondents reporting to take part in it. The least number of respondents (1) participated in Rodeo. None of the respondents participated in Vaulting. The category 'Other' included all equine sports that were not listed in the answer section.

Table 4.14 shows the number of years respondents participated in each sport. The numbers of years were grouped into 9 categories. These ranged from 0-5 years to 40+ years. For each equine sport there were corresponding categories showing duration of time. For example, 21 respondents had participated in Dressage for a duration that fell into the category 0-5 years.

Table 4.13: Equine sports

Answer Options	Response Count
Dressage	49
Endurance	2
Equitation	21
Eventing	31
Gymkhana	11
Racing	6
Polo	4
Polo-cross	3
Rodeo	1
Showing	25
Jumping	64
Trec	6
Vaulting	0
Other	9

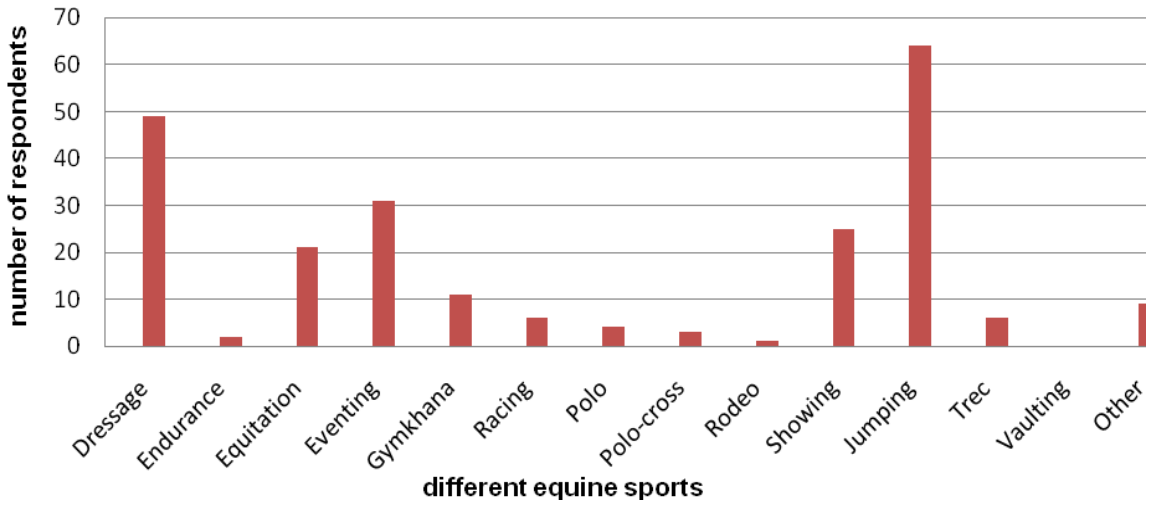


Figure 4.13: Equine sports

Table 4.14: Number of years participating in each sport

	0-5yrs	6-10yrs	11-15yrs	16-20yrs	21-26yrs	26-30yrs	31-35yrs	36-40yrs	40+
Dressage	21	15	8	1		2	2		
Endurance	2								
Equitation	14	6							
Eventing	12	13	3		1	1	1		
Gymkhana	8	2		1					
Horse-racing	1	1	2	1	1				
Polo	3		1						
Polo-crosse	3								
Rodeo		1							
Showing	11	7	2	1		3	1		
Showjumping	21	19	9	6	2	3	1	1	2
Trec	5		1						
Vaulting									
Other	6	2	1						

Key: blank square = 0

Q3.8: "For how many years (total) have you been horse riding for?"

Table 4.15 shows the results for the above question; Figure 4.14 shows these results graphically. A total of 42.2% of respondents had been horse riding for a time period of between 0-10 years, in contrast 6% of respondents had been horse riding for a period of more than 41 years.

Table 4.15: Total number of years riding

Answer Options	Response Count	Response Percent
0-10 years	35	42.2%
11-20 years	19	22.9%
21-30 years	12	14.5%
31-40 years	12	14.5%
41+ years	5	6.0%
TOTAL:	**83**	**100%**

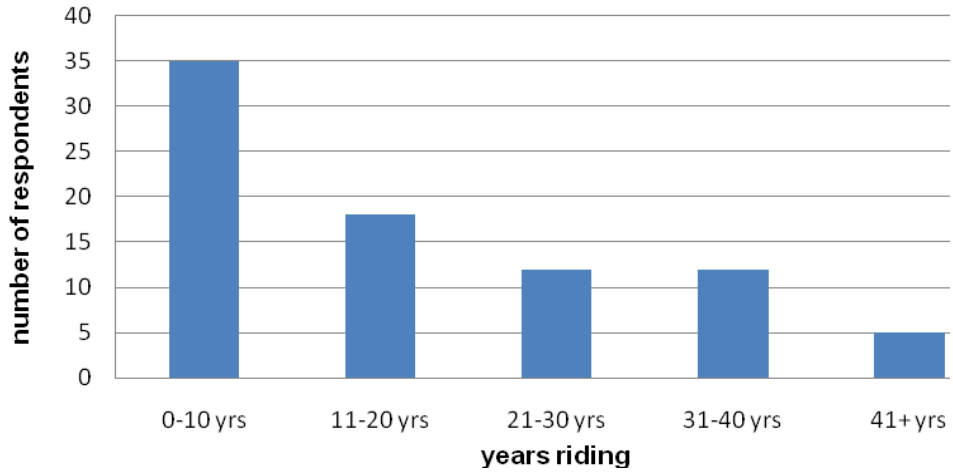


Figure 4.14: Total number of years riding

Q3.9: "How many horses do you ride currently?"

Table 4.16 shows the results for the above question; Figure 4.15 shows these results graphically. A total of 47% of respondents currently rode one horse, whereas 6% of respondents stated that they rode 10 or more different horses.

Table 4.16: Number of horses currently riding

Answer Options	Response Count	Response Percent
1	39	47.0%
2	17	20.5%
3	8	9.6%
4	4	4.8%
5	6	7.2%
6	3	3.6%
7	0	0%
8	1	1.2%
9	0	0%
10+	5	6.0%
TOTAL:	**83**	**100%**

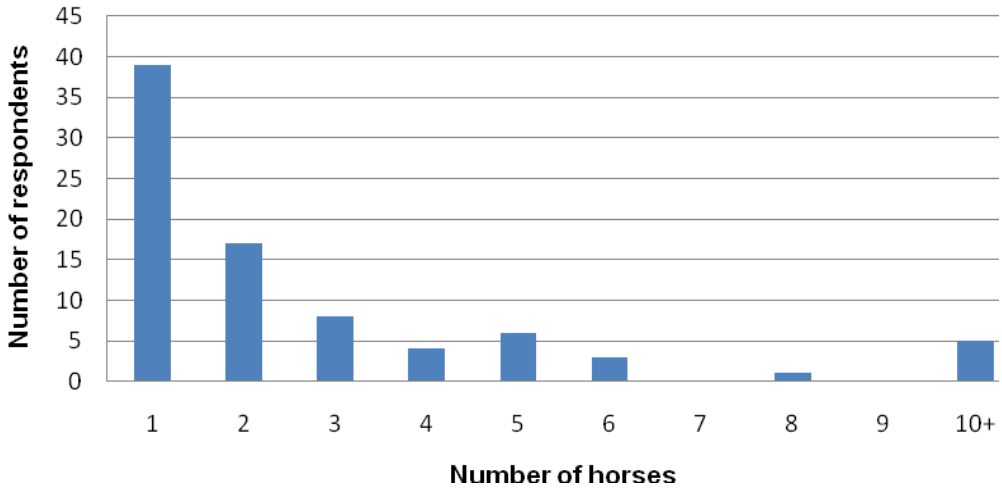


Figure 4.15: Number of horses currently riding

Q3.10: The horse you ride the most (respondents' main horse)

Q3.10.1: "Where does this horse stay predominantly?"

Table 4.17 shows the results for the above question; Figure 4.16 shows these results graphically. The respondents predominantly kept the horse that they rode the most in a stable (78.3%).

Table 4.17: Where the horse stays predominantly

Answer Options	Response Count	Response Percent
In the stable	65	78.3%
Paddock with grass	15	18.1%
Paddock with sand	3	3.6%
TOTAL:	**83**	**100%**

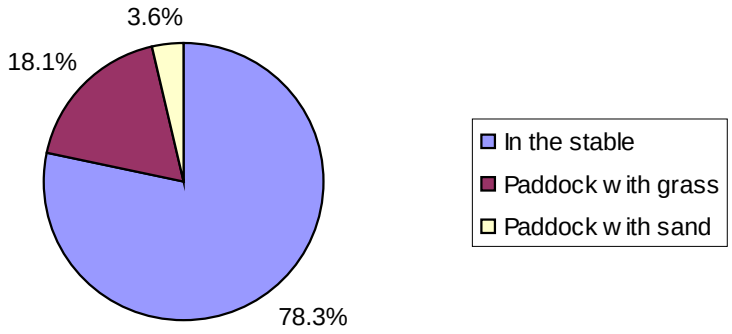


Figure 4.16: Where the horse stays predominantly

Q3.10.2: "How old is this horse?"

Table 4.18 shows the results for the above question; Figure 4.17 shows these results graphically. The horse that was ridden the most (main horse) was predominantly between the age of 5-10 years (44.6%), the least amount of respondents' main horse fell into the category of between the age of 15-20 years (8.4%).

Table 4.18: Age of the horse ridden the most

Answer Options	Response Count	Response Percent
0-5 years	12	14.5%
5-10 years	37	44.6%
10-15 years	27	32.5%
15-20 year	7	8.4%
20+ years	0	0%
TOTAL:	**83**	**100%**

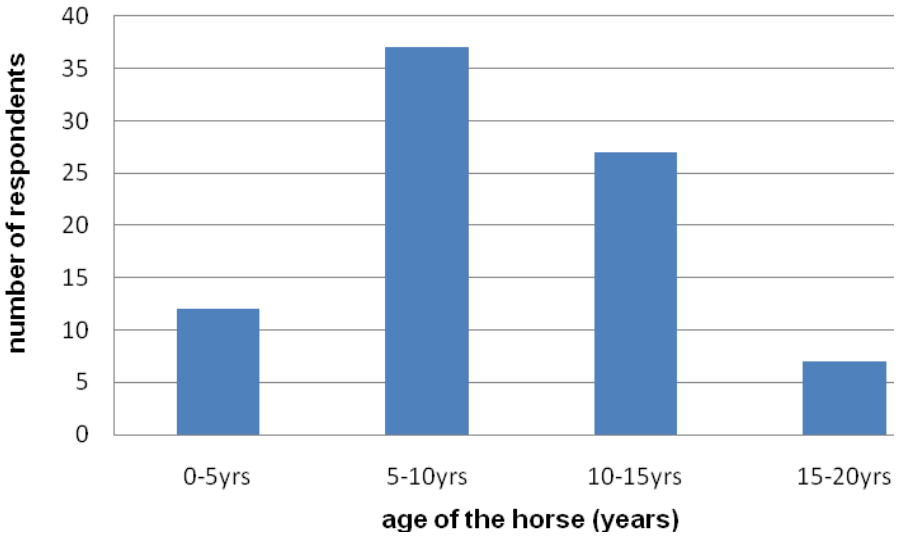


Figure 4.17: Age of the horse ridden the most

Q3.10.3 "Are you the owner/ rider or both for this horse?"

Table 4.19 shows the results for the above question; Figure 4.18 shows these results graphically. The majority of respondents were both the owner and the rider (83.1%) for the horse that they rode the most.

Table 4.19: Owner/ rider or both

Answer Options	Response Count	Response Percent
Rider	14	16.9%
Owner	0	0%
Rider+ Owner	69	83.1%
TOTAL:	**83**	**100%**

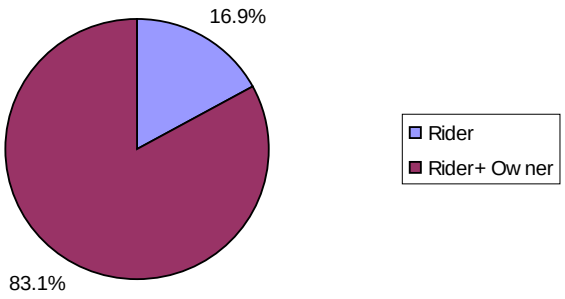


Figure 4.18: Owner/ rider or both

Q3.10.4: "In the last year what conditions has this horse been treated for? Please specify what treatment."

Table 4.20 shows the results for the above question; Figure 4.19 shows these results graphically. These results show the number of respondents that sought either Veterinary or Alternative treatment for conditions from which the horse had suffered in the last year. Respondents were allowed more than one answer. For example 10 respondents sought veterinary care to treat their horse for African horse sickness. Vaccines were the most popular treatment. A total of 68 respondents stated that the horse they rode the most, had been given a vaccine by a veterinarian in the last year. This amount is shown in Table 4.20 but has been excluded from Figure 4.19 as the high value made the scale on the graph too large resulting in the other values becoming unreadable.

Table 4.20: Treatments in the last year: Veterinary vs. Alternative

	Veterinary care	Alternative treatment	Other
African horse sickness	10	/	/
Behaviour or mood changes	1	2	/
Bowel, bladder and internal medicine	2	/	/
Chronic pain syndrome	1	1	/
Colic	10	/	1
Degenerative arthritis	/	/	/
Equine influenza	7	/	/
Equine protozoal myeloencephalitis	/	/	/
Head shaking	/	/	/
Improve performance	4	3	/
Infections	6	/	/
Injuries	16	3	/
Intervertabral disc problem	1	2	/
Jaw or TMJ problem	/	/	/
Lameness	13	2	
Laminitis/ Founder	2	/	/
Maintenance	2	3	1
Muscle spasm	1	3	/
Musculoskeletal injuries	2	4	/
Navicular disease	3	0	/
Neck, back, leg+ tail pain	1	5	/
Nerve problems, e.g. pinched nerve		1	/
Post-surgical care	/	/	/
Seizures or neurological problems	/	/	/
Uneven pelvis or hips	3	5	/
Vaccinations	68	/	/
Other:	Skin allergies: Veterinary + Alternative care Sarcoid: Veterinary care Bone chip removal: Veterinary care		

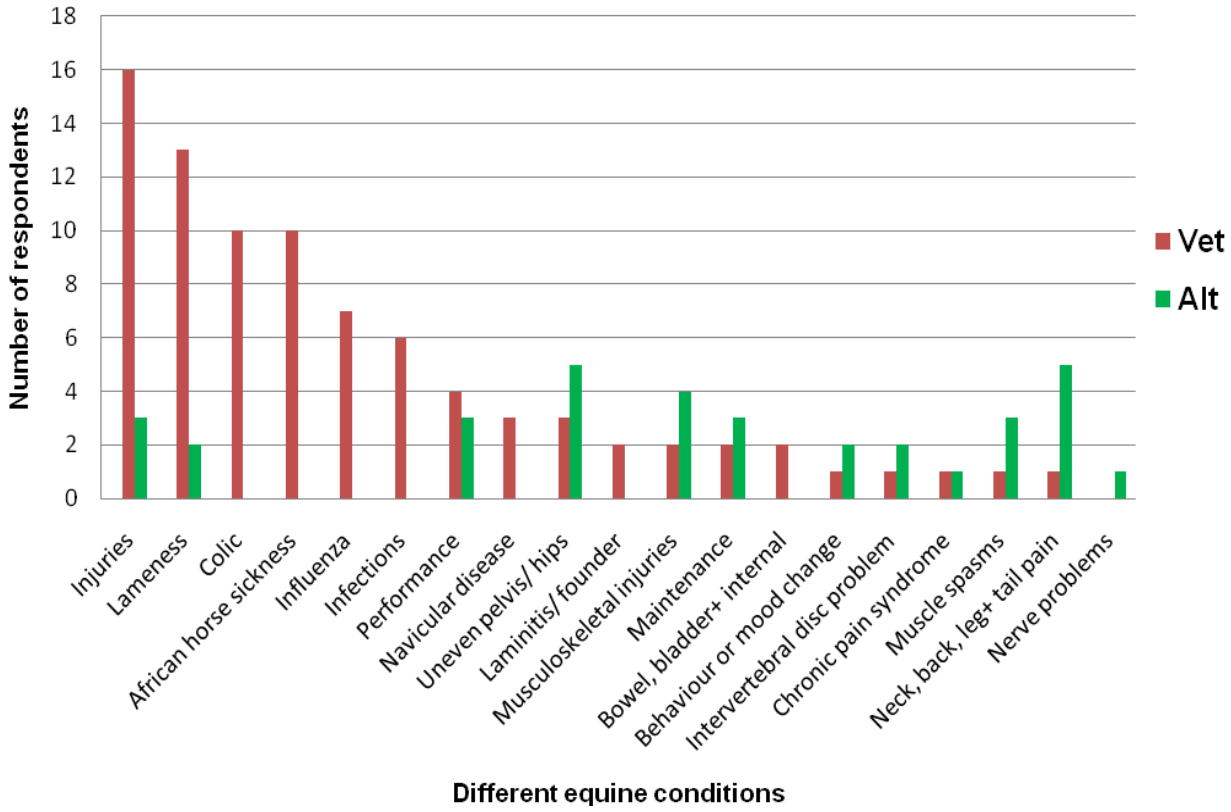


Figure 4.19: Treatments in the last year: Veterinary vs. Alternative

Q3.10.5: "Do you make use of any alternative treatments?"

Table 4.21 shows the results for the above question; Figure 4.20 shows these results graphically.This question was still pertaining to the horse that the respondents rode the most (their main horse). Table 4.21 shows that the divide was almost equal with 49.4% of the respondents stating that they have used alternative treatments for their horse and 50.6% of respondents stating that they have not used alternative treatment for their horse.

Table 4.21: Use of alternative treatments: Main Horse

Answer Options	Response Count	Response Percent
Yes	41	49.4%
No	42	50.6%
TOTAL:	**83**	**100%**

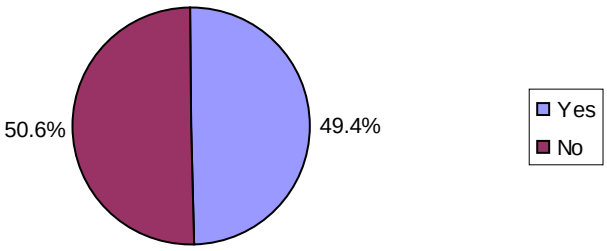


Figure 4.20: Use of alternative treatments: Main Horse

Q3.10.6: "If yes, what therapies do you make use of and what was the response?"

Table 4.22 shows the results for the above question; Figure 4.21 shows these results graphically. The most utilized alternative therapy for respondent's main horse was chiropractic, with 25 respondents stating that they have utilized chiropractic for their main horse at some point. Out of the 25 respondents, 23 respondents stated that this form of alterative therapy was beneficial for their horse but 2 stated that their horse remained the same post treatment. The mode for chiropractic treatments was one treatment a year.

One respondent stated that they had utilized Bowen technique on their main horse and that this type of alternative therapy had been beneficial. The mode for Bowen technique was 10 treatments a year.

Three respondents stated that they had utilized other forms of alternative therapy, these included Interferential therapy, Shockwave therapy and Feradic therapy. All these respondents stated that these forms of alternative therapy had been beneficial in treating their main horses.

The most successful to least successful therapy:

- Bowen technique, nutritional therapy, physiotherapy and other- all with a 100% success rate.
- Chiropractic- 92% success rate.
- Homeopathy- 91.7% success rate.
- Acupuncture- 78.6% success rate.
- Herbal therapy- 55.6% success rate.

Table 4.22: Alternative therapy outcomes and utilization: Main Horse

	Improved	Stayed same	Success rate	Total	Number of treatments per year (mode)
Acupuncture	11	3	78.6%	14	2
Bowen technique	1		100%	1	10
Chiropractic	23	2	92%	25	1
Herbal therapy	5	4	55.6%	9	10
Homeopathy	11	1	91.7%	12	2
Nutritional therapy	6		100%	6	12
Physiotherapy	19		100%	19	2
Other: -Interferential therapy -Shock wave therapy -Feradic therapy	3		100%	3	12

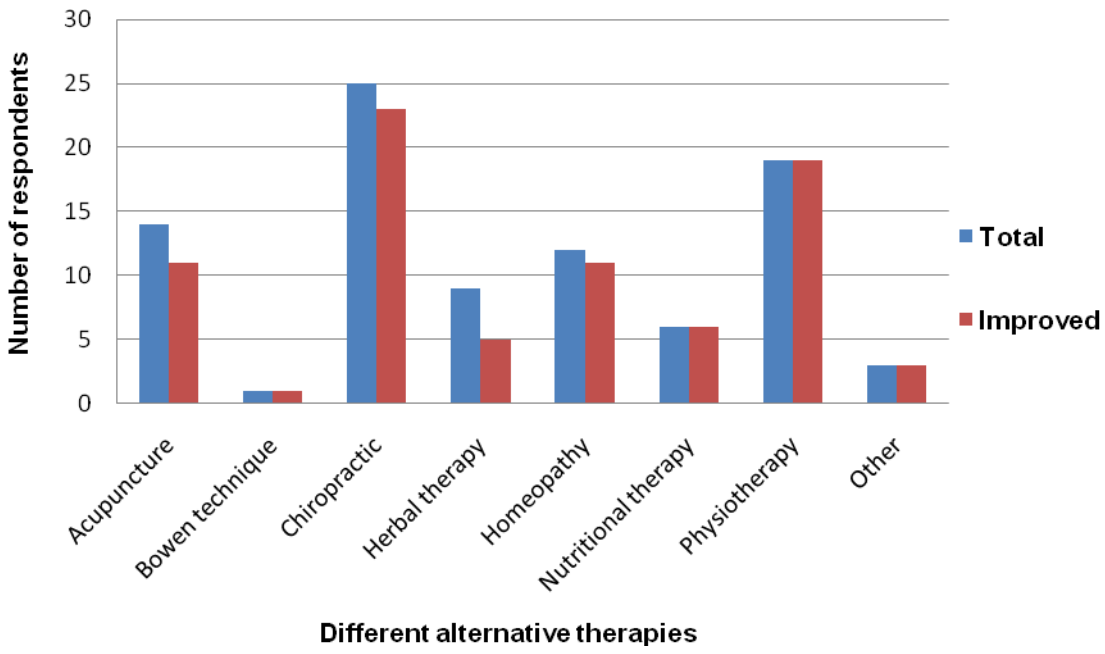


Figure 4.21: Alternative therapy outcomes and utilization: Main Horse

Q3.10.7: "On average how often does this horse see a vet per year?"

Table 4.23 shows the results for the above question; Figure 4.22 shows these results graphically. These results show the number of times per year respondents' main horse saw a veterinarian. Most (31%) respondents had on average visited the veterinarian twice a year for their main horse.

Table 4.23: Average veterinary visits per year

Answer Options (Average vet visits per year)	**Response Count**	**Response Percent**
1	16	19.3%
2	26	31.3%
3	17	20.5%
4	16	19.3%
5	7	8.4%
6	/	/
7	1	1.2%
8	/	/
9	/	/
10+ visits	/	/
TOTAL:	**83**	**100%**

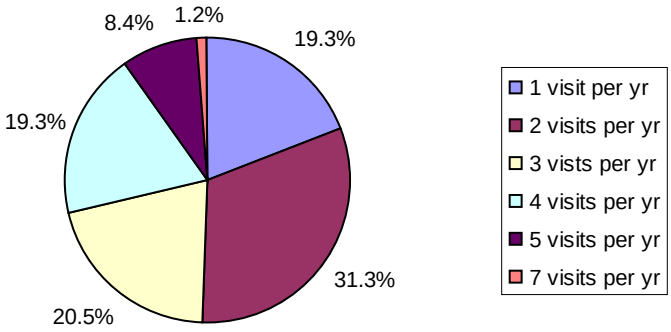


Figure 4.22: Average veterinary visits per year

Q3.11: "Other horses that you are currently riding or have ever ridden."

Q3.11.1: "Do you make use of alternative therapies?"

Q3.11.2: "If yes, what therapies do you make use of and what was the response?"

Table 4.24 shows the results for the above question; Figure 4.23 shows these results graphically. Most respondents (79.5%) stated that they had used alternative therapies with their other horses.

Table 4.24 shows the most frequently utilized alternative therapy for respondents other horse(s) was chiropractic, with a total of 24 respondents that stated that they had utilized chiropractic for their other horses. Of the 24 respondents who had stated this 21 found that chiropractic had been beneficial in treating their other horses, and 3 found that the treatment yielded no change in their horses. The mode for chiropractic utilization was 12 treatments a year.

The most successful to least successful therapy:

- Herbal therapy and nutritional therapy- both with a 100% success rate.
- Chiropractic and physiotherapy- both with 87.5% success rate.
- Homeopathy- 85.7% success rate.
- Acupuncture- 75% success rate.
-

Table 4.24: Alternative therapy outcomes and utilization: Other Horse(s)

	Improved	**Stayed same**	**Success rate**	**Total**	**Number of treatment(s) per year (mode)**
Acupuncture	9	3	75%	12	2
Bowen technique					
Chiropractic	21	3	87.5%	24	12
Herbal therapy	5		100%	5	12
Homeopathy	6	1	85.7%	7	3
Nutritional therapy	2		100%	2	12
Physiotherapy	14	2	87.5%	16	3
TOTAL:				**66**	
No to alternative therapy				17	

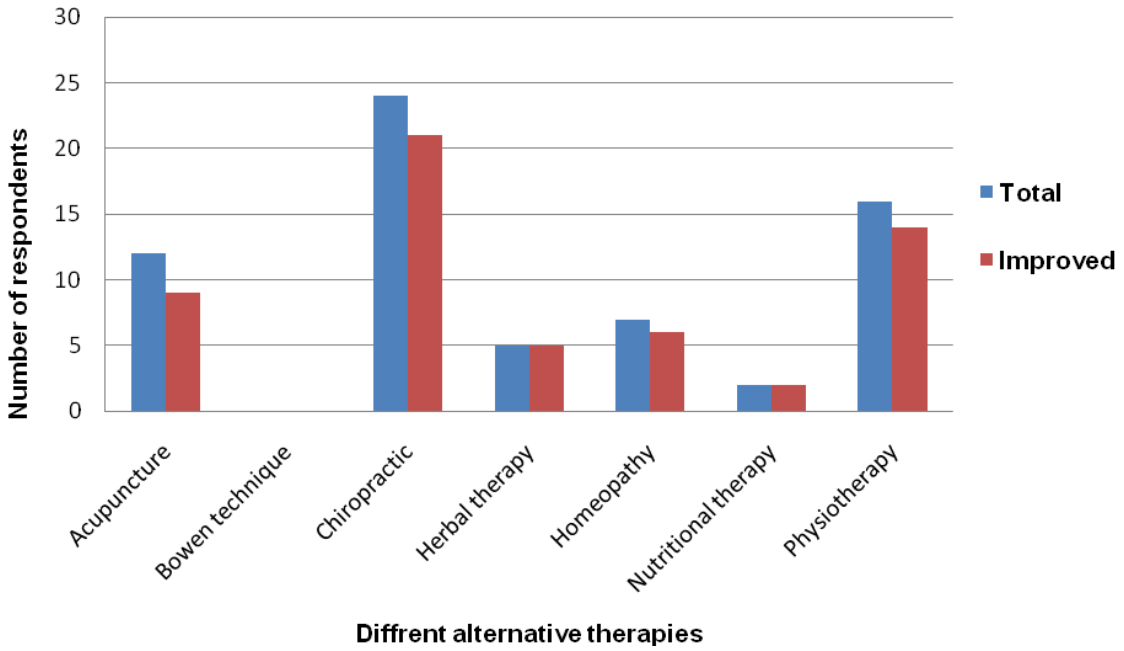


Figure 4.23: Alternative therapy outcomes and utilization: Other Horse(s)

4.5.3.2 Summary and Discussion of Question 3: Equine Experience

Horse society membership is necessary to compete competitively, regardless of the discipline (KwaZulu-Natal Horse Society, 2012). Of the 83 respondents that took part in this study, 73% stated that they had at some stage been a member of a horse society. This suggested that they had at some stage ridden competitively. Competitive horses are more prone to injury (Murray et al, 2006), and are usually more valuable. These two factors both increase the probability of that horse being previously treated either medically or alternatively. With strict rules and regulations on prohibited substances (South African Equestrian Association, 2012), drug free treatments such as equine chiropractic are more likely to be utilized for competitive horses.

An athletic horse's value often lies in the horses' performance in sports, whether show jumping or horse racing. Blood lines may initially make a horse valuable but this may be of little value if the horse does not perform athletically. In KZN, equine sports can only be competed in competitively if the rider and horse belong to a horse society. The horse society will be affiliated to the South African equestrian Association, which in turn is affiliated to the Federation Equestre Internationale (KwaZulu-Natal Horse Society, 2012). This is the method of keeping track of the horse's progress in a specific sport (i.e. the

correct grading) and a way to enforce the correct rules and regulations for each sport (KwaZulu-Natal Horse Society, 2012).

The 27% of respondents who were never a member of a horse society are likely to ride horses that are less valuable than their competitive counterparts. It can be assumed that the more valuable a horse, the more an owner may spend on health care for that horse. Thus, the 27% of respondents, who were never part of a horse society, are possibly the least likely to have investigated CAVM therapies for their horses.

Making up the majority, 50 respondents in this study stated that they belonged to the KwaZulu-Natal horse society (KZNHS). Respondents were able to select more than one horse society, as members might have changed from one horse society to another. An obvious explanation for the high number of respondents belonging to the KZNHS is that the research was based in KZN.

It was interesting to note that some respondents were members of horse societies of other provinces, which suggested that they had at some stage ridden and/or competed in more than one area. These respondents have thus had more interaction with different equine worlds and possibly had more exposure to different equine techniques. Certain horse societies may have more exposure to alternative equine therapies such as equine chiropractic, and thus distribute this information to members via their newsletters, website. Respondents who have been members of more than one horse society may then have been exposed to a wider range of information, consequently having had an increased chance of being exposed to equine chiropractic.

A total of 61.4% of the respondents stated that they had worked with horses in some capacity (Table 4.9). Equine work experience could be an indicator of the respondent's equine experience and knowledge surrounding equine health and wellbeing. People who work are more likely to be knowledgeable and to understand and the field in which they work. Thus, it is possible that these respondents may have been exposed to a slightly wider range of equine therapies. These respondents may then be more open to other forms of equine health care such as equine chiropractic. Equine work experience often involves being around horses for long periods of time, resulting in increased sensitivity to changes in these animals. Therefore, these respondents may be more in tune with their horse(s), and possibly be more sensitive to any changes post chiropractic treatment.

From the 51 respondents who answered 'Yes' to having worked with horses in some capacity (Table 4.10), the majority (18) were riding instructors, 5 were equine yard owners, 2 were horse race trainers. Riding instructors and horse race trainers spend the longest amount of time viewing a horses' locomotion, which increases their awareness to a horse experiencing problems, making them the two most likely groups to pick up an injury in a horse. Equine yard owners are also possibly the most likely to have dealt with a wide range of questions from their clients. They are often seen as the person to initially contact regarding questions on horses and their horses health care, and thus are usually well equipped with knowledge and experience. Therefore, it is more likely they would be aware of CAVM therapies and how they work.

It can be assumed that veterinary nurses may have a good understanding of equine injuries but might be apprehensive to use CAVM due to their training in orthodox veterinary medicine (Jones, 2004).
With the majority of respondents falling into the 'Other' category, the information gained from this question was too wide spread to draw a definitive conclusion.

Table 4.11 highlights that a total of 28 respondents had worked with horses in some capacity for 0-10 years. A longer duration of work experience could possibly lead to richer equine knowledge. However, the majority of respondents (28) fell into the category with the shortest duration of time (0- 10 years). A reason for this could be that 34% of respondents were still rather young (under 30 years old) and thus could only have worked for a shorter period.

Local vs. overseas work experience may again affect the respondents' exposure to CAM, and CAVM. CAM therapies have now been integrated into many educational institutions internationally (Hare, 1999), it is more likely that the international public is more aware of alternative forms of health care. Thus, international equine work experience may have exposed these respondents to a wider range of equine therapies.

Show jumping was the most popular sport among respondents in this study, with 64 respondents participating in this discipline. This is in keeping with the norm in KZN, where show jumping dominates as the most popular equine discipline (KwaZulu- Natal Horse Society, 2012). Show jumping has shown to increase the risk for forelimb injuries (Murray, 2006). Thus these horses are likely to have been treated at least once for forelimb injury at some stage. Equine chiropractic has shown to increase flexibility in the spine which can act as a preventative measure against known show jumping injuries (Schoen and Wynn, 1998).

Thus, it is possible that some show jumping riders know this and have sought chiropractic treatment for their horse. This may be because show jumping riders may be familiar with chiropractic for their own injuries; due to the high risk of musculoskeletal injuries they may incur (Moss, Wan and Whitlock, 2002).

The training involved in producing an elite show jumping horse takes many years. Unlike other equine disciplines such as racing, horses in this discipline reach their peak in mid to late teens. The process is lengthy and costly. Therefore, these athletic animals are often worth a great deal to their owners and thus more is spent on their health care. With the increased chance of musculoskeletal injury in these horses (Murray, 2006), as well as the strict regulation of prohibited substances in KZN show jumping (South African Equestrian Association, 2012), the likelihood of these animals being treated alternatively is increased.

Dressage was the second most popular sport with 49 respondents reporting participation. Dressage horses often end up with hind limb injury (Murray, 2006) and thus require a well maintained musculoskeletal system in order to prevent these injuries. Orthodox treatment of sport related injuries in horses has shown not to be 100% successful, resulting in owners and riders increasingly seeking CAVM options (Schoen and Wynn, 1998). This could contribute to the high utilization of equine chiropractic amongst horse riders in this study.

KZN has a number of equine disciplines that riders take part in. These include show jumping, dressage, vaulting, showing, equitation, eventing, driving, and reining (KwaZulu-Natal Horse Society, 2012). The last two disciplines were excluded from this study as the rider is not on the horse's back. This study included respondents from five of the six categories, plus additional categories such as endurance, gymkhana, polo, polo-crosse, racing, rodeo and trec. The variety of equine disciplines showed the diversity of the respondents that took part in this study. This was important as it indicated that the respondents were more likely to be representative of the population of interest.

The total number of years respondents had ridden for varied from 1 year to over 40 years (Table 4.15). The 42.2% of respondents had been horse riding for a time period of between 0-10years. A longer duration of riding could coincide with increased equine experience. Most riders in this study had only ridden for 0-10 years. Again looking at the age of respondents, this could be explained by the 34% of respondents who were under 30 years old.

Interesting to note, that although the overall population was young with only a few years of riding experience (i.e. limited time to be exposed to equine chiropractic), there was still a high utilization of equine chiropractic (Table 4.22 and Table 4.24), indicating a possible increase in its popularity.

Most of the respondents were currently riding 1 horse (47.0%). The more time a rider spends in a saddle, the more in tune that rider is with a horse's physical ability/ disability (Parelli, 2002), and the more riding experience the rider has. The number of horses a respondent rode could give an indication as to how experienced that rider was. Most respondents in this study rode only one horse. A possible explanation for this is that respondents, who were predominantly the rider and owner of the horse (83.1%), perhaps can only afford to ride one horse. The current global economic low would support this explanation (The Economist, 2008).

The Main Horse (i.e. the horse that respondents predominantly rode):

Seventy eight point three percent of the respondents kept the horse that they rode the most in a stable. The least number of respondents (3.6%) kept their horse in a paddock with sand. A possible explanation for the high number of horses kept in a stable is that often horses sustain injuries in the paddock, and stabling is a way to decrease paddock related injuries. However, the artificial spaces that horses are kept in have a direct impact on that horse's health and flexibility (Firth, 2006). Space constraints such as a stable or small paddock render the horse from getting free style exercise, which also not only improves cardiovascular fitness but also the horse's flexibility (Firth, 2006). This type and degree of flexibility is not achieved when the horse is being ridden. Equine chiropractic has a role to play in improving equine spine flexibility (Paulekas and Haussler, 2009). The literature has shown that horses are more likely to receive CAVM therapy if the horse suffers from stiff joints or a lack of flexibility (Ireland, Clegg, McGowan, McKane and Pinchbeck, 2011). Therefore, it was interesting to note that the majority of respondents' main horse stays in a stable, the most constraining environment. Thus, these horses were likely to have experienced some sort of musculoskeletal stiffness at some point, due to their environment. This could lead the owner to seek equine chiropractic treatment which could account for the high level of equine chiropractic utilization.

Forty four point six percent of respondents stated that the age of their main horse was between 5-10 years, whereas 8.4% of respondents rode their horse whose age was between 15-20 years. Horses older than 15 years are termed geriatric horses (Ireland et al, 2011). The older a horse, the more likely it may have sustained an injury or be diseased (Ireland et al, 2011), and the greater the chance that they may need treatment. Therefore, respondents with older horses have an increased likelihood of being exposed to CAVM. Ireland et al (2011) reported that almost a third of geriatric horses were being treated by some form of CAVM, but less than 10% of the horses had been treated by a chiropractor. Ireland et al (2011) also reported that for many geriatric horses a strong owner- pet bond existed, which increased the willingness of owners to finance health care of their horse. Therefore there is a high likelihood that the 8.4% of respondents who rode geriatric horses would seek CAVM treatment.

Fourteen point five percent of respondent rode fairly young horses that possibly had not yet sustained or been treated for an injury (Table 4.18). With the majority, 64 out of 83, of respondents' competing in show jumping, it was interesting that the majority of respondents rode fairly young horses. Elite show jumping horses are often older horse (Murray et al, 2006). However, the majority of horses were young (Table 4.18), yet respondents showed an overall high utilization of equine chiropractic (Table 4.22 and Table 4.24). This could show a trend that owners seek equine chiropractic treatment for musculoskeletal injury in younger horse as much as they seek this form of therapy for musculoskeletal injuries in geriatric horses.

The majority of respondents in this study were both the owner and the rider (83.1%) of their main horse (Table 4.19). A possible explanation for this is that most respondents rode only one horse (Table 4.16). When comparing the rider to the owner, the researcher could not find any literature as to whether the rider or owner has the most influence on the choice and amount spent on the horse's health care. However, this was not a concern in this study as the majority of respondents were both the rider and the owner of the horse, eliminating this dilemma. This places most respondents in control of the health care options that their main horse receives. Therefore, these respondents' perceptions towards equine chiropractic are significant as they have the final say when it comes to the possible utilization of CAVM.

The number of respondents that sought either Veterinary or Alternative treatment for conditions from which their horse had suffered in the last year was documented (Table 4.20). Respondents were allowed more than one answer. Vaccines were the most popular treatment with 68 respondents stating that their main horse had been given a vaccine by a veterinarian in the last year. Figure 4.19 shows the treatments for each condition and compares if the horse received either veterinary care or alternative treatment for a condition. It was interesting to note that the data showed that common conditions such as: injuries, laminitis, colic and African horse sickness were treated predominantly by veterinarians, where as musculoskeletal conditions such as: an uneven pelvis or hips, musculoskeletal injury, intervertebral disc problems, muscle spasm and neck, back and tail pain were treated predominantly by alternative therapies. Rarer conditions such as nerve problems were also treated by alternative therapies. This could be because many rarer conditions have not been as well researched by veterinary medicine and thus have a low success rate to orthodox equine care. Also, veterinary drug companies perhaps concentrate on finding medication for the more common equine conditions, as this is more financially feasible. Alternative therapies may be sought when the orthodox veterinary medicine does not yield results.

Respondents who stated to have previously utilized alternative therapy for their main horse amounted to 49.4%. The most utilized alternative therapy for this horse was chiropractic. The second most popular alternative therapy for the respondents' main horse was physiotherapy, followed by acupuncture, homeopathy, herbal therapy and lastly nutritional therapy. Chiropractic is the most utilized of all CAM therapies (Kelner and Wellman, 2003) and along with acupuncture and herbal therapy, chiropractic is also one of the most accepted CAVM therapies (Wynn and Wolpe, 2005). The top three alternative therapies that respondents in this study stated they had utilized for their main horses included chiropractic and acupuncture. Thus respondents' utilization of CAVM is indeed in keeping with the literature on CAVM utilization (Kelner and Wellman, 2003).

A possible explanation for the high utilization of chiropractic could be that the study was based in KZN where there is a chiropractic learning institution. This has increased the number of chiropractors and chiropractic students in the area and thus increased the public's likelihood of being exposed to chiropractic. As a result, it is possible that respondents in KZN had previously been exposed to chiropractic and were more familiar with it. This could have guided their choice of CAVM for their horse.

Out of all the CAVM therapies respondents stated to have utilized, herbal therapy showed to have the lowest success rate when it came to treatment of the respondents' main horse. Only 55.6% of the respondents stating they had an improvement with their horse post therapy. Physiotherapy, nutritional therapy and Bowen technique, however, showed to have the best success rate, with all respondents that had utilized this therapy stating that they had had an improvement in their horse post treatment. Equine chiropractic had a high success rate of 92%.

Respondents were asked how many times per a year 'the horse they rode the most' saw a veterinarian. Thirty one point three percent of respondents' horses saw the veterinarian on average twice a year. These results gave an indication of the health status of the respondents' horses. The average horse in South Africa requires at least two veterinary visits per year for African horse sickness vaccines alone (National Department of Agriculture Directorate Animal Production and Health, 1999). The majority of horses averaging two visits per year, it was presumed that overall the respondents' horses were relatively healthy. A possible explanation for this is that 44.6% of respondents' horses were relatively young (5-10 years) and they predominantly stayed in a stable, both of which could possibly reduce the chance of illness (Ireland et al, 2011).

Other Horses (i.e. other horses that the respondents rode):

A total of 66 (79.5%) respondents stated to have previously utilized alternative therapies for their other horses. This number was considerably higher than the 49.4% of respondents who had utilized alternative therapy for their main horse. A likely reason for this is that respondents were perhaps more cautious with the health care of their main horse. The main horse is likely to be more valuable compared to their other horses, hence the reason why they ride this horse the most. This could make riders/owners possibly more cautious with what equine health care options they choose, possibly resulting in more conservative/orthodox therapies being used for this horse.

According to WHO (2002), the percentage of the population who have used CAM therapies at least once is 75% in France, 70% in Canada, 48% in Australia, 42% in the USA and 38% in Belgium. As these numbers increase for the utilization of CAM therapies for people, they do too increase for the utilization for animals (Boldt, 2002). With these statistics indicating the CAM utilization throughout the world, it can be presumed that similar statistics may surround the utilization of CAVM therapies. The high percentage of CAVM utilization in this study could be an indication of this trend, and thus possibly consistent with the global picture of alternative health care for people and animals.

The most utilized alternative therapy for respondents' other horses was again chiropractic, followed by physiotherapy, acupuncture, homeopathy, herbal therapy, and lastly nutritional therapy. The order of most utilized alternative therapies to least utilized alternative therapies, by respondents in this study, is the same for both their main horses and other horses that they ride. Showing that these therapies are the most popular CAVM therapies amongst respondents, regardless of what horse they are treating.

Nutritional therapy and herbal therapy showed to have the best success rates (100%), with all respondents that utilized this therapy stating that they had noticed an improvement post treatment. Equine chiropractic showed again to have a high success rate, with 87.5% of the respondents reporting an improvement with their horse(s).

Nutritional therapy consistently achieved a 100% success rate for both the main horse and respondents other horses. It was also important to note that none of the alternative therapies had a success rate of below 50%. With the lowest success rates being 55.6% and 75%, the overall success rate was relatively high. A core characteristic among alternative therapies is the focus on aiding the body's ability to heal itself (Kelner and Wellman, 2003). This high success rate could be due to many of the respondents' horses being quite young and thus being able to heal faster and stronger and ultimately react very well to CAVM therapies.

4.5.4 <u>Objective 4</u>: To determine the respondents' perception and knowledge of equine chiropractic

4.5.4.1 Question 4: Knowledge and Perception of Equine Chiropractic

Q 4.1: "How would you describe your knowledge of Equine chiropractic?"

Table 4.25 shows the results for the above question; Figure 4.24 shows these results graphically. Most respondents (41.0%) stated that they knew something about equine chiropractic, the least number of respondents (9.6%) had never heard of equine chiropractic.

Table 4.25: Knowledge of equine chiropractic

Answer Options	Response Count	Response Percent
Never heard of it	8	9.6%
I have heard about it but do not know a lot about it	31	37.3%
I know something about it	34	41.0%
My knowledge on equine chiropractic is good	10	12.0%
TOTAL:	**83**	**100%**

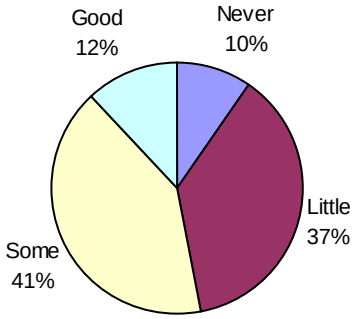


Figure 4.24: Knowledge of equine chiropractic

Q4.2: "How did you get this information?"

Table 4.26 shows the results for this question; Figure 4.25 shows these results graphically. The results showed respondents different sources of information on equine chiropractic. More than one answer was allowed for this question. The most common source of information on equine chiropractic was from a friend or family member, the second most common source was through their own chiropractor.

Table 4.26: Source of information

Answer Options	Response Count
Chiropractor	31
Friend/ family	36
Informal/ non-professional lecture on chiropractic	2
Internet	10
Magazine	11
Medical journal	2
My Doctor	3
People/person who has had a horse/ animal treated by a chiropractor	30
People/person who has been treated by a chiropractor	13
Radio	1
TV	1
Other	9

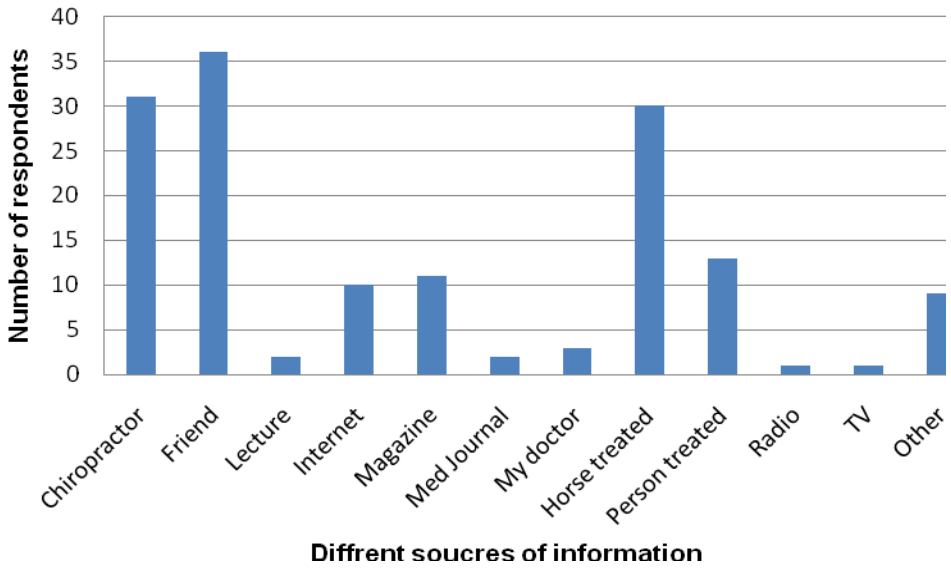


Figure 4.25: Source of information

Q4.3: "Was the information favourable?"

Table 4.27 shows the results for the above question; Figure 4.26 shows these results graphically. This question was only valid if the respondent had in fact received information. Table 4.27 shows that most respondents (88%) stated that the information that they had received on equine chiropractic was indeed favourable.

Table 4.27: Was the information favourable

Answer Options	Response Count	Response Percent
Yes	73	88.0%
No	5	6.0%
Had no information on equine chiropractic	5	6.0%
TOTAL:	**83**	**100%**

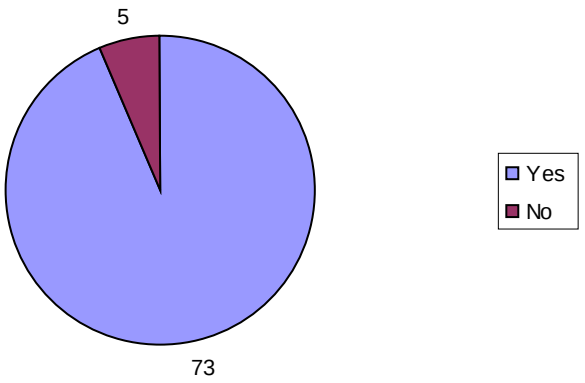


Figure 4.26: Was the information favourable

Q4.4 "Please choose whether you believe these statements to be True or False"

Table 4.28 shows the results for the above questions; Figure 4.27 shows these results graphically.

Table 4.28: True and False statements

Statements:	True	False	Unknown
Equine chiropractors can only administer treatment under referral in SA	50	7	25
Equine chiropractors can diagnose a horse patient in SA	13	40	29
Equine chiropractic treats the horse's spine only	4	62	17
Equine chiropractic can make use of mechanical adjusting devices (e.g. mallet)	61	6	15

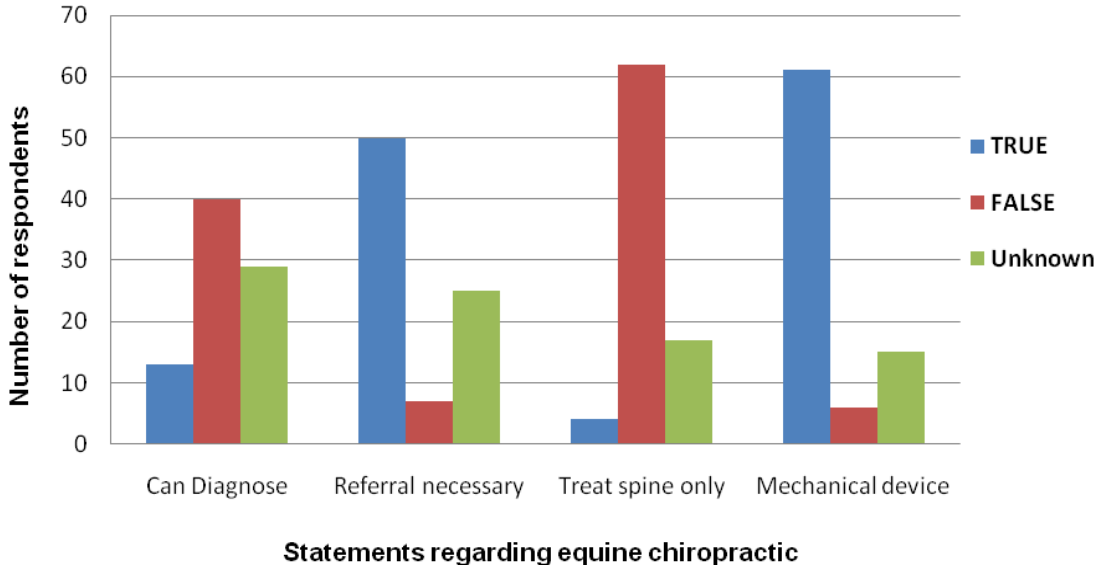


Figure 4.27: True and False statements

4.5.4.2 Summary and Discussion of Question 4: Knowledge and Perception of Equine Chiropractic

There were more respondents that stated to have good or some knowledge of equine chiropractic compared with the group that knew nothing about it (Figure 4.24). This indicated that horse riders' overall perceived knowledge was that they felt they knew something about equine chiropractic. This also showed that there is a good possibility in improving respondents' perceived knowledge of equine chiropractic, as it is easier to improve a person's knowledge if they already know something about the topic. Contrary improving someone's perceived knowledge if they have never heard of a topic is far more difficult. Thus, future educational drives could possibly focus first on the areas that are easier to improve, which in this case have shown to incorporate the higher number of respondents.

Where respondents had gained their knowledge of equine chiropractic is equally important in understanding the growth of this profession. The growth of CAM is being driven predominantly by the public (Kelner and Wellman, 2003). In keeping with this notion, Figure 4.25 shows that the majority of respondents gained their knowledge from a friend. This could indicate that horse riders know enough about equine chiropractic to be able to hold a conversation on it. An area that is easily accessible to many people is the internet. The internet is also one of the easiest areas to address in improving the amount and quality of information that it holds. The internet, however, was the source of only 10 respondents' information on equine chiropractic. This could be due to a lack of information or contradicting information found on the internet. It could also possibly be due to a lack of internet access.

Figure 4.25 shows that 31 respondents received their information from a chiropractor. This is another area that is easy to address and improve. Chiropractors' knowledge on equine chiropractic can easily be improved with the introduction of animal/ equine chiropractic into the chiropractic curriculum. However, it was still positive to note that chiropractors were informing respondents on equine chiropractic as they are possibly the best equipped in delivering the most accurate information as they have been exposed to the most knowledge on chiropractic through their academic studies.

A total of 73 respondents (out of the 78) stated that they received favourable information on equine chiropractic. This was important to note as it could give an indication as to the respondents' perception towards equine chiropractic. An explanation for the high number of respondents receiving favourable information may be because a large number of respondents received their information from a chiropractor. Chiropractors understand the profession and since they are chiropractors themselves, they are more likely to speak positively about chiropractic in general. Therefore, it is likely that respondents, who received information from a chiropractor, received positive information on equine chiropractic.

Figure 4.27 depicted the respondents' objective knowledge of equine chiropractic. The graph shows that the most confusion was found around the statement 'Equine Chiropractors can diagnose a horse patient in SA'. This statement had a high number of 'unknowns' and the 'true' and 'false' bars were the closest in size to each other in comparison to the other four statements depicted in Figure 4.27. On the contrary, the least confusion surrounded the statement 'Equine Chiropractic treats the horse's spine only'. This statement was almost unanimously agreed on to be false. A reason for this could be that this statement can be clarified from observing an equine chiropractic treatment, respondents either see the horse's spine being treated in conjunction with other areas or they do not.

The **correct** answers for these four statements were:

- Equine chiropractors can only administer treatment under referral in SA- TRUE (according to an email from Dr Louis Mullinder (Registrar from AHPC) on the 11 May 2012).
- Equine chiropractors can diagnose a horse patient in SA- UNKNOWN (to date the researcher has come across no definitive facts pertaining to this statement)
- Equine chiropractic treats the horse's spine only- FALSE (Schoen and Wynn, 1998)
- Equine chiropractic can make use of mechanical adjusting devices (e.g. mallet) - TRUE (Schoen and Wynn, 1998).

The **majority of respondents** had these answers:

- Equine chiropractors can only administer treatment under referral in SA- TRUE
- Equine chiropractors can diagnose a horse patient in SA- FALSE
- Equine chiropractic treats the horse's spine only- FALSE
- Equine chiropractic can make use of mechanical adjusting devices (e.g. mallet)- TRUE

Therefore, respondents got 3 out of the 4 statements correct. This shows that respondents' objective knowledge was relatively good surrounding these four statements on equine chiropractic in South Africa.

Therefore, overall the respondents' subjective and objective knowledge of equine chiropractic regarding these statements was high. The high number of respondents who received information from a chiropractor may explain the accuracy of their information, and thus, the high objective knowledge scores. The respondents' accurate knowledge of equine chiropractic could indicate favourable utilization of equine chiropractic in the future.

4.5.5 Objective 5: To determine the respondents' utilization of equine chiropractic.

4.5.5.1 Question 5: Utilization of Equine Chiropractic

Q 5.1: "How many equine chiropractors do you know of?"

Table 4.29 shows the results for the above question; Figure 4.28 shows these results graphically. The highest number of respondents (29) knew of one equine chiropractor, 15.7% of respondents knew of no equine chiropractors, and only 7.2% of respondents knew of four equine chiropractors.

Table 4.29: Known number of equine chiropractors

Answer Options **(Number of equine chiropractors with whom respondents had acquainted)**	**Response Count**	**Response Percent**
0	13	15.7%
1	29	35.0%
2	27	32.5%
3	8	9.6%
4	6	7.2%
TOTAL:	**83**	**100%**

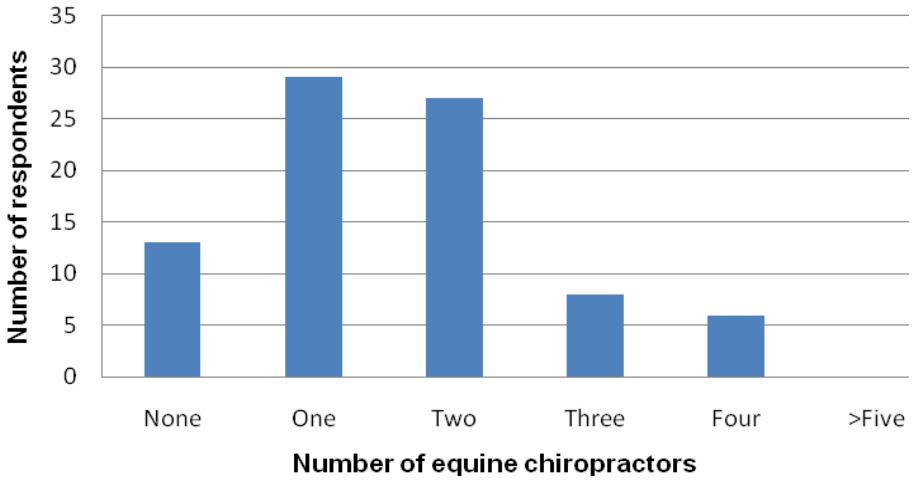


Figure 4.28: Known number of equine chiropractors

Q5.2 "Have one of these equine chiropractors ever treated the horse you ride?"

Table 4.30 shows the results from the above question; Figure 4.29 shows these results graphically. A total of 50.6% of the respondents had not had an equine chiropractor treat the horse they ride and 49.4% have had an equine chiropractor treat the horse that they ride.

Table 4.30: Utilization of an equine chiropractor

Answer Options	Response Count	Response Percent
Yes	41	49.4%
No	42	50.6%

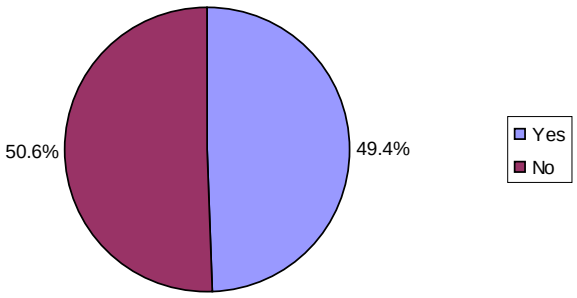


Figure 4.29: Utilization of an equine chiropractor

Q5.3 "Have any of the following suggested you to consult with an equine chiropractor?"

Table 4.31 shows the results for the above question; Figure 4.29 shows these results graphically. The highest numbers of respondents (42.2%) said that they had been referred to an equine chiropractor by a person not listed as an option in the answer section.

Table 4.31: Suggested consultation with an equine chiropractor

Answer Options	Response Count	Response Percent
Human chiropractor	11	13.3%
Riding instructor	24	28.9%
Veterinarian	12	14.5%
Veterinary nurse	1	1.2%
Other	35	42.2%
TOTAL:	**83**	**100%**

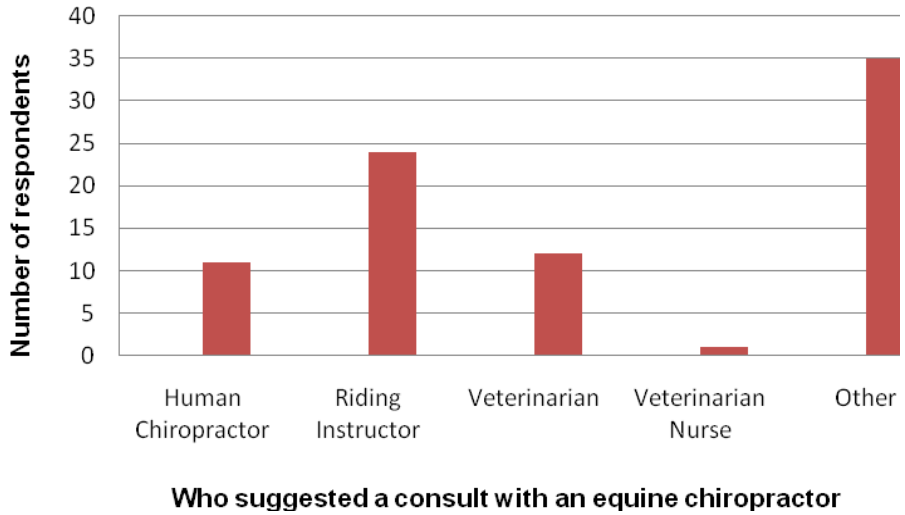


Figure 4.30: Suggested consultation with an equine chiropractor

Q5.4 "For which of the following would you consider getting an equine chiropractor for?"

Table 4.32 shows the number of respondents that said 'Yes' or 'No' to conditions to which they would consider asking an equine chiropractor to treat; Figure 4.31 shows this information graphically. A 'Yes' answer would indicate that a respondent felt that this condition was within the scope of practice of an equine chiropractor. A 'No' answer would indicate that a respondent felt that this condition was out of the scope of practice of an equine chiropractor.

Conditions that were considered by most respondents to be **within** the scope of practice of an equine chiropractor were:

- chronic pain syndrome
- to improve performance
- injuries
- intervertebral disc problems
- Jaw or temporomandibular joint (TMJ) problems
- Lameness
- Maintenance
- muscle spasm
- musculoskeletal injuries
- neck, back leg and tail pain
- nerve problems e.g. pinched nerve, and an uneven pelvis or hip.

Conditions that most respondents felt were **out** of the scope of practice of an equine chiropractor were:

- African horse sickness
- behaviour or mood changes
- bowel, bladder and internal medicine
- colic
- degenerative arthritis
- equine influenza
- equine protozoal myelonencephalitis
- head shaking
- infections, laminitis/ founder
- post surgical care
- seizures or neurological problem.

Table 4.32: Equine conditions for which one would consider an equine chiropractor

Conditions:	**Yes**	**No**
African horse sickness	1	82
Behaviour or mood changes	38	45
Bowel, bladder and internal medicine	4	79
Chronic pain syndrome	52	31
Colic	3	80
Degenerative arthritis	17	66
Equine influenza	1	82
Equine protozoal myelonencephalitis	0	83
Head shaking	41	42
Improve performance	52	31
Infections	0	83
Injuries	50	33
Intervertabral disc problem	61	22
Jaw or TMJ problems	46	37
Lameness	57	26
Laminitis/ founder	5	78
Maintenance	46	37
Muscle spasm	49	34
Musculoskeletal injuries	56	27
Neck, back, leg and tail pain	70	13
Nerve problems e.g. pinched nerve	49	34
Post surgical care	23	60
Seizures or neurological problems	10	73
Uneven pelvis or hips	70	13

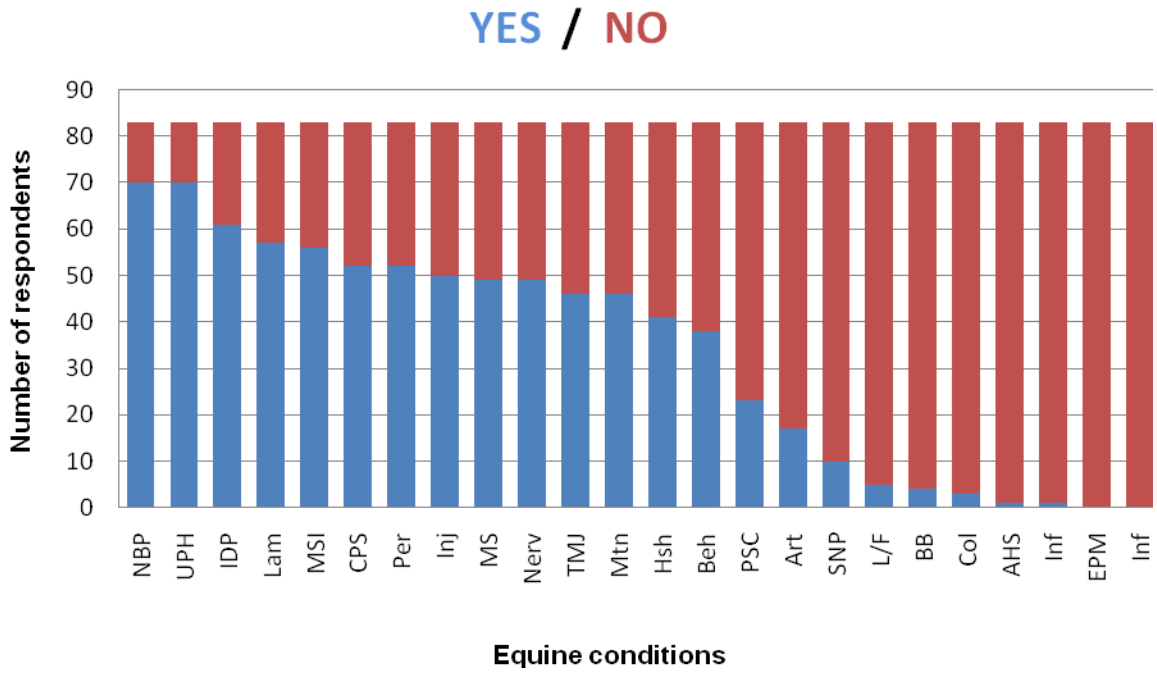


Figure 4.31: Equine conditions for which one would consider an equine chiropractor

4.5.5.2 Summary and Discussion of Question 5: Utilization of Equine Chiropractic

As Table 4.29 depicts, a large percentage (35% + 32.5% + 9.6% + 7.2% = 84.3%) of respondents knew of one or more equine chiropractors.

Figure 4.29 shows an almost even divide between respondents who have had their horse treated by an equine chiropractor (49.4%) and respondents who have not had their horse treated by an equine chiropractor (50.6%). Of the 84.3% of respondents who knew of one or more equine chiropractor, only 49.4% of them had utilized an equine chiropractor. Therefore, a difference of 84.3%- 49.4%= 34.9% of respondents knew of equine chiropractors but were not utilizing them. This could be due to the 34.8% of respondents' horses suffering from conditions that did not require an equine chiropractor. A total of 88% of respondents stated to support the future utilization of equine chiropractic.It can be assumed that these respondents (or at least some of these respondents) are just waiting for the right opportunity to seek equine chiropractic help.

Figure 4.30 shows that most horse riders stated that 'Other' suggested a consult with an equine chiropractor. This may be an area that needs further investigation in future studies to determine who make up this 'Other' group, as it was not someone that was listed in the answer section for this question. This result was however, interesting to note as it showed that there was a person beside the obvious people (that were listed), who was suggesting the use of an equine chiropractor.

Figure 4.30 shows that riding instructors were the second highest people to suggest to horse riders that equine chiropractic may benefit their horse(s). This could show that riding instructors have an essential role to play in the utilization of equine chiropractic. Riding instructors have a lot of contact with riders at a yard and thus are more likely to have been exposed to equine chiropractic. This could possibly warrant their high referral rate to equine chiropractors. It could also suggest that they have had a positive exposure to equine chiropractic.

Ireland et al (2011) found that veterinarians are slow to recommend CAVM therapies. Previous research has also shown great resistance by veterinarians towards the acknowledgement of CAVM (Jones, 2004). Thus, it was unsurprising to see that only 14.5% of respondents had been referred by a veterinarian. This may indicate that veterinarians in SA are also hesitant to refer horse riders to equine chiropractors. An explanation for this could be because of the ambiguity in the legislation of equine chiropractic in South Africa.

Figure 4.31 shows the respondents perception on what conditions should be treated by an equine chiropractor. Neck, back, leg and tail pain as well as uneven pelvis or hips were the conditions for which respondents were most likely to seek chiropractic help. These conditions are often treated by equine chiropractors (Schoen and Wynn, 1998). Thus respondents showed to be quite accurate with their knowledge of equine chiropractic. The conditions that respondents were least likely to consider an equine chiropractor for were infections, African horse sickness and influenza. The graph in Figure 4.31 showed an almost equal divide (blue verse red) between conditions that were considered for an equine chiropractor (blue) and ones that were not (red). Conditions that had the most conflicting data were head shaking and behavioural issues. This was consistent with the literature for these two conditions, as they have shown to have an array of etiologies and thus are difficult to treat (Newton, Knottenbelt and Eldridge, 2000), regardless of the type of treatment. Looking at the shape of the graph, it can be noted that conditions that were more commonly treated by equine chiropractors (Schoen and Wynn, 1998) coincided with what respondents thought equine chiropractors were most capable of treating.

A possible reason for this accuracy on equine chiropractic indications is perhaps due to the high interaction of respondents with equine chiropractors (49.4%) and that high (31 respondents) number of respondents who had received information on equine chiropractic from a chiropractor.

4.5.6 Objective 6: To document what information on equine chiropractic respondents would like made more accessible, and to evaluate the percentage of respondents who were for or against the future utilization of equine chiropractic.

4.5.6.1 Question 6: Information

Q6.1 "What information about chiropractic on horses would you like to be more available?"

Table 4.33 shows the results for the above question; Figure 4.32 shows these results graphically. This question allowed for more than one answer. The highest number of respondents (54) stated that they would like more information on different equine chiropractic techniques. Six respondents did not want any information on equine chiropractic at all and 2 respondents wanted other information not listed in the answer section.

Table 4.33: Information on equine chiropractic

Answer Options	Response Count
Different equine chiropractic techniques	54
Education, including equine chiropractic courses	35
Effects/ safety	36
Ethical/ legal situation	18
Indications for equine chiropractic treatment	33
Scientific research	18
Terminology	21
None	6
Other	2

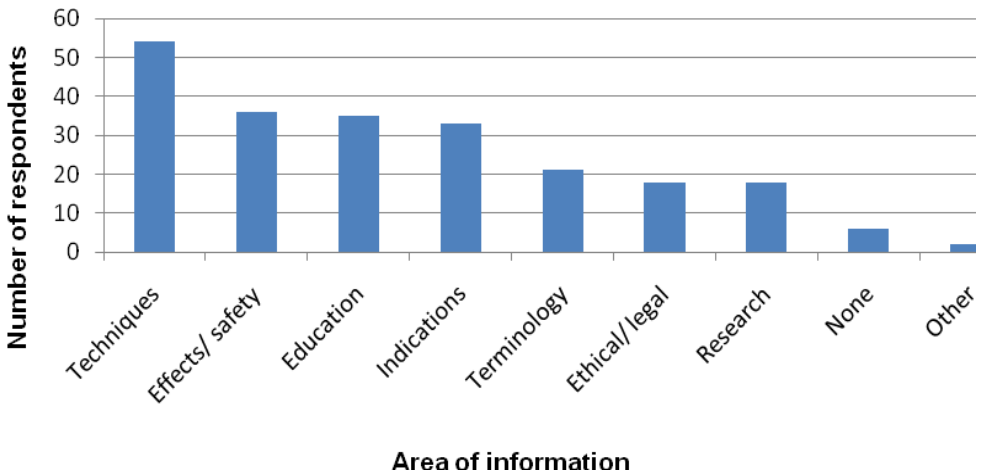


Figure 4.32: Information on equine chiropractic

Q 6.2: "Would you be interested in having an equine chiropractor treat your horse in the future?"

Table 4.34 shows that 88% of respondents answered "Yes" to having an equine chiropractor treat their horse in the future, and 12% of respondents stated that they would not be interested in having an equine chiropractor treat the horse they ride in the future. Figure 4.33 shows these results graphically.

Table 4.34: Future utilization of equine chiropractic

Answer Options	Response Count	Response Percent
Yes	73	88.0%
No	10	12.0%
TOTAL:	**83**	**100%**

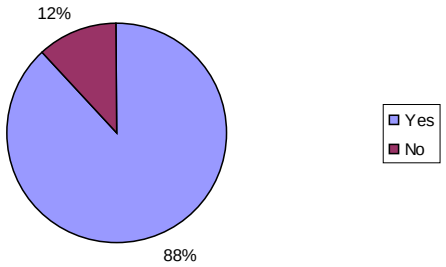


Figure 4.33: Future utilization of equine chiropractic

4.5.6.2 Summary and Discussion of Question 6: Information

Many respondents did want more information on equine chiropractic. This was evident by the high number of responses this question (Q6.1) received. This question indicated that 54 respondents wanted more information on different equine chiropractic. This could be a possible area to address with regards to equine chiropractic awareness. The lack of representation by a professional body in South Africa, could have contributed to the confusion around which equine chiropractic techniques are utilized in South Africa. A professional body could allow for the legislation of the profession so that information, such as which equine chiropractic techniques are used in South Africa, may be clear. The professional body would undoubtedly have a website/ newsletter, which could aim at ensuring the correct information, is accessible to the public. The professional body, would in addition, help market equine chiropractic in SA. Thus, the lack of a professional body may contribute to the lack of information and awareness of equine chiropractic in Africa.

With the lack of scientific research on equine chiropractic (Gomez Alvarez et al, 2008), it was interesting to note that information on research was one of the least sought information. The notion that CAM therapy utilization is influenced more by the public perception of it, than by the research that has been investigated (Kelner and Wellman, 2003) is thus supported by the results in this study where respondents' main source of information is from a friend and very few wanted further information on research. Another reason may be because of the perceived complexity research often portrays and the possible fear of information in the form of research being longwinded and time consuming to read.

A total of 88% of respondents supported the utilizing equine chiropractic in the future (Figure 4.33), and with 84.3% of respondents knowing of one or more equine chiropractor (Table 4.29), there were respondents (88%- 84.3%) that supported the future utilization of equine chiropractic but did not know of any equine chiropractors. This shows an immense willingness towards the utilization of equine chiropractic that should possibly be taken advantage of by the chiropractic profession. From these results it can be presumed that horse riders in KZN have an overall positive perception towards equine chiropractic.

There are a number of factors that could be responsible for this, the first being the demographics (i.e. female, 41- 50 years, white) of most of respondents, which were in line with the literature on who CAM consumers are (Bishop and Lewith, 2008; Eisenberg et al, 1993); the second is the relatively high interaction with chiropractors (68% of respondents had been treated by a chiropractor) and equine chiropractors (49.4% of the respondents had utilized an equine chiropractor), both of which would undoubtedly speak of their profession positively; the last factor being that 73, thus most of the respondents had stated to have received favourable information on equine chiropractic.

4.5.7 <u>Objective 7:</u> To determine any association between the respondents' previous utilization of a chiropractor for themselves and the utilization of an equine chiropractor for their horses.

.

4.5.7.1: Q1.4 vs. Q3.10.6 + Q3.11.2.

Figure 4.34 shows the results for the above question. Figure 4.34 shows that from the 56 respondents who had seen a chiropractor for themselves 28 of them had utilized an equine chiropractor for the horse that they ride. From the 27 respondents who stated that they had never been to a chiropractor themselves, 9 of these respondents had utilized an equine chiropractor for the horse that they ride.

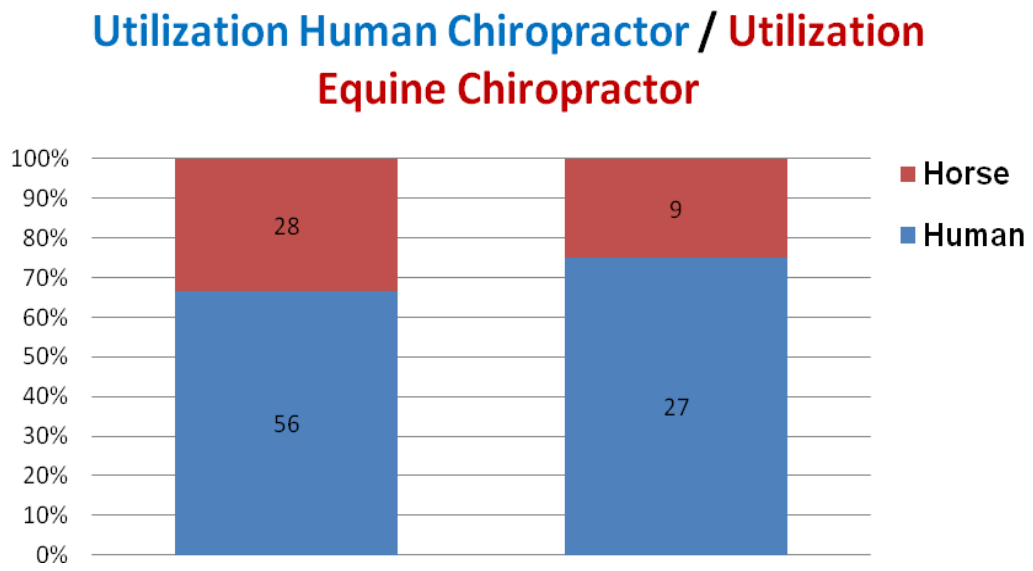


Figure 4.34: Correlation between utilization of a human chiropractor and utilization of an equine chiropractor

4.5.7.2 Summary and Discussion of Objective 7: To determine any association between the respondents' previous utilization of a chiropractor for themselves and the utilization of an equine chiropractor for their horses.

There was no significant difference between these two groups. This was a surprising result as the literature shows that the use of CAM therapies such as chiropractic coincides with the use of CAVM therapies such as equine chiropractic (Lin et al, 2003). A possible explanation for this is that human chiropractors do not have a lot of exposure to equine chiropractic as it is not part of the chiropractic curriculum in SA chiropractic schools.

4.5.8 <u>Objective 8:</u> To determine if there was an association between the age of respondents and the knowledge that these respondents had of equine chiropractic.

4.5.8.1: Q 1.2 verses Q4.1

Figure 4.35 shows the results for the above question. No significant difference was found between the age of the respondents and knowledge on equine chiropractic.

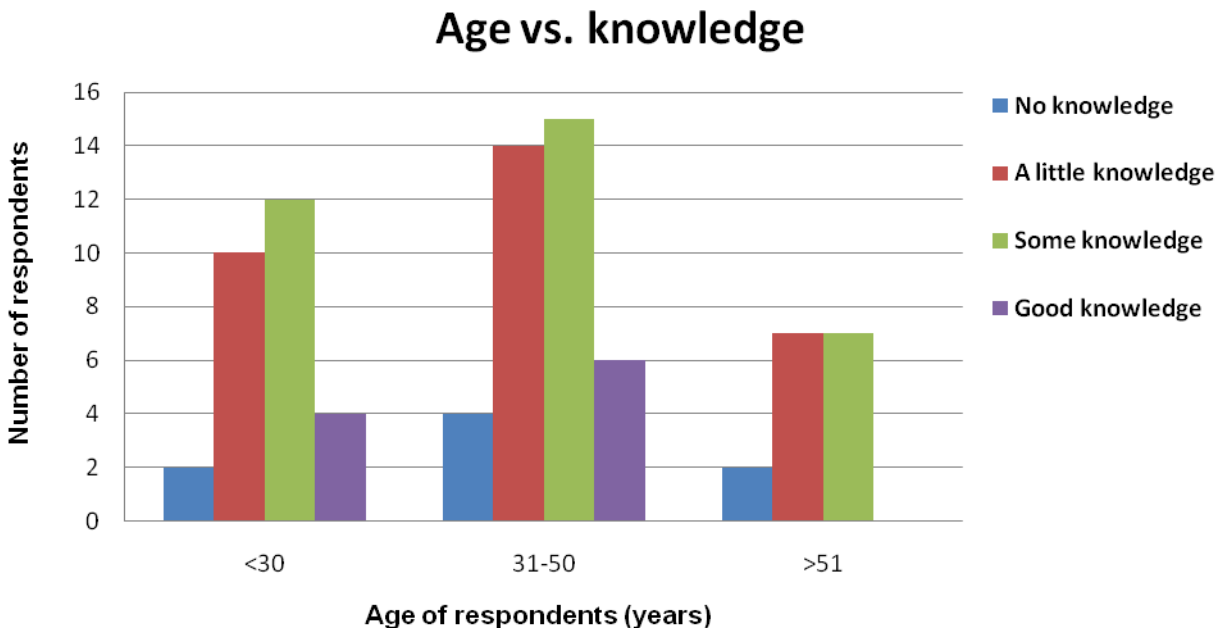


Figure 4.35: Relationship between the age of respondents and their knowledge of equine chiropractic

4.5.8.2: Summary and Discussion of Objective 8: To determine if there was an association between the age of respondents and the knowledge that these respondents had of equine chiropractic.

It was interesting to note that 90% (37.3% + 41.0% + 12%) of respondents had some knowledge of equine chiropractic (Figure 4.24). This was in keeping with the current literature on equine chiropractic, with the rise in the number of people interested in this therapy being evident (Briggs, 1996). People who are interested in something will seek out more information in whatever they are interested in (Baron and Byrne, 2004). Older respondents may have previously been thought of as having more knowledge due to having been exposed to life experience over a longer period of time, but with the increased availability of knowledge via sources such as the internet, younger people are just as knowledgeable, if not more as they are exposed to a huge amount of knowledge. In addition equine chiropractic utilization is still relatively young in South Africa, thus the knowledge of equine chiropractic for different age groups could be more on par with each other.

4.5.9 <u>Objective 9:</u> To determine if respondents that utilized alternative therapies for their horses had enhanced knowledge of equine chiropractic. Furthermore to determine if respondents had increased knowledge of equine chiropractic if they had had an equine chiropractor treat the horse that they ride.

4.5.9.1: Q3.10.5 + Q3.11.2 versus Q4.1

Figure 4.36 and Figure 4.37 show the results for the above question. Figure 4.36 reveal that there is a trend showing that the utilization of alternative equine therapies corresponds with increase knowledge of equine chiropractic. Alternatively there is a trend showing that an increased knowledge of equine chiropractic corresponds with an increase in utilization of equine chiropractic. However, the small numbers mean that it is not possible to show a significant difference.

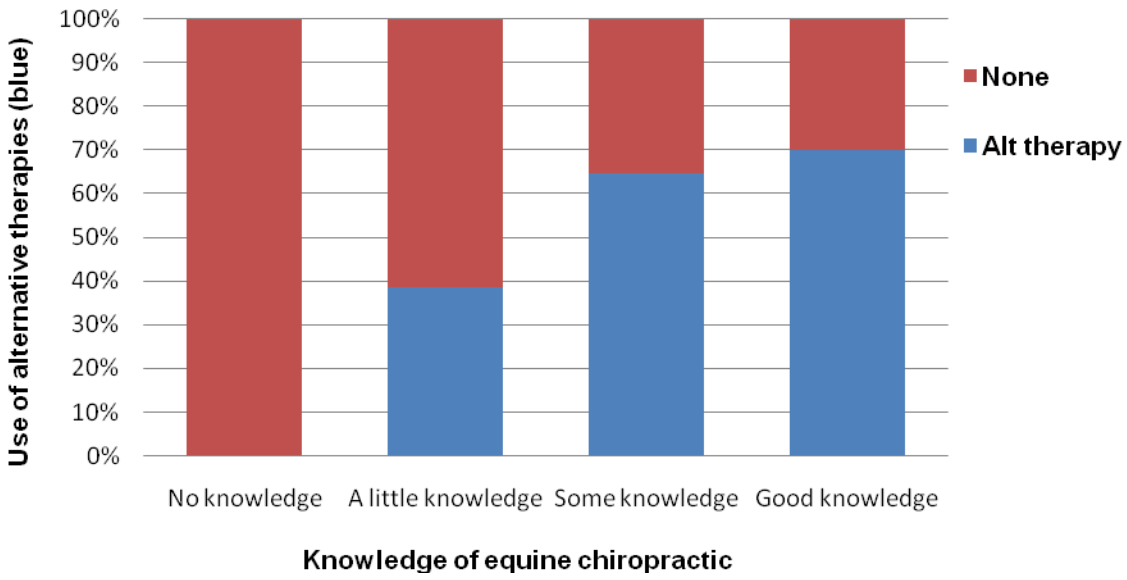


Figure 4.36: Relationship between the utilization of alternative equine therapies and knowledge of equine chiropractic

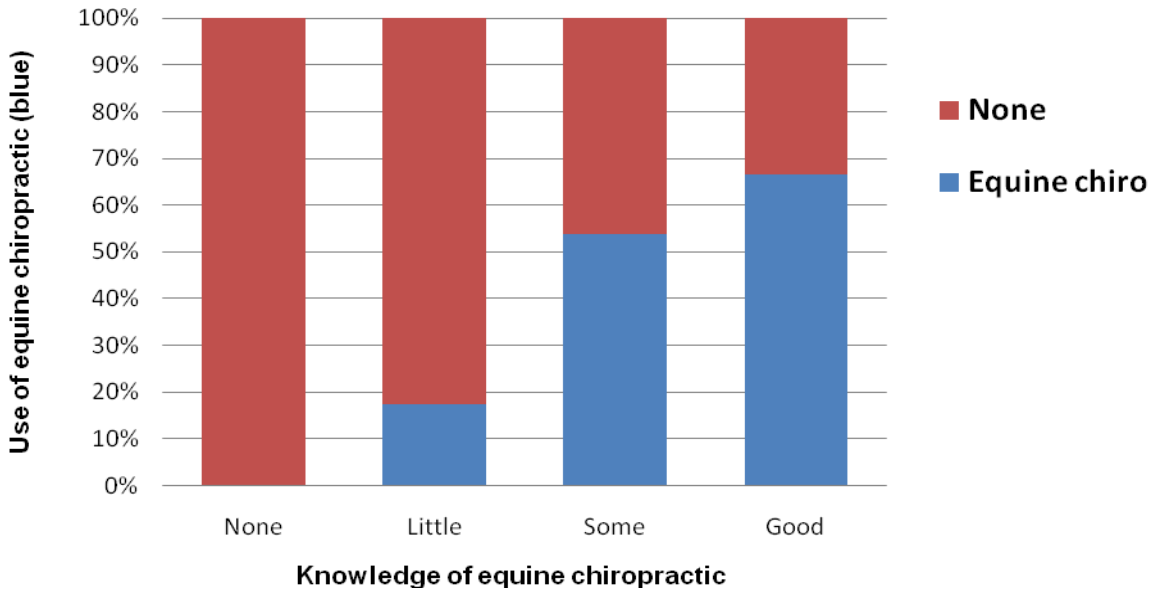


Figure 4.37: Relationship between the utilization of an equine chiropractor and knowledge of equine chiropractic

4.5.9.2: Summary and Discussion of Objective 9: To determine if respondents that utilized alternative therapies for their horses had enhanced knowledge of equine chiropractic. Furthermore to determine if respondents had increased knowledge of equine chiropractic if they had had an equine chiropractor treat the horse that they ride.

Once people do start utilizing a therapy, frequently their knowledge on that therapy may increases by virtue of being exposed to it. Horse owners who have some knowledge of CAVM therapies and understand what a more holistic approach to equine health can do for their horse; have shown to utilize equine chiropractic more readily (Schoen and Wynn, 1998). Thus, understanding develops from knowledge which can be due to exposure which can lead to utilization. However, the small numbers mean that it is not possible to show a significant difference.

4.5.10 <u>Objective 10:</u> To determine if there was a trend amongst respondents who were against the future use of equine chiropractic for their horses.

4.5.10.1: Trends amongst respondents who were against the future utilization of equine chiropractic in Q6.2

The following data was looked at for any possible trends:

- The respondents' age
- The respondents' gender
- The respondents' education
- Equine courses that respondents attended
- Equine work experience

This data was analysed and statistically compared utilizing the Fischer Exact test. However, no conclusions were drawn on any specific trends amongst respondents who were against the future use of equine chiropractic. The Fischer's Exact test revealed no statistical significance regarding the above mentioned variables between respondents who supported the future use of equine chiropractic and respondents who were against it (Appendix G). More data may have revealed otherwise.

4.5.10.2: Summary and Discussion of Objective 10: To determine if there was a trend amongst respondents who were against the future use of equine chiropractic for their horses.

As only 10 respondents stated they were against the future use of chiropractic, there was not much data to investigate. This said it is also possible that there are no trends amongst these individuals and that their decision to not use equine chiropractic in the future was based on a wide variety of factors, none that were related to each other, and thus a larger data sample may reveal the same result.

4.5.11 <u>Objective 11:</u> To graphically assess if there was an association between respondents who knew of multiple equine chiropractors and the utilization of equine chiropractic

4.5.11.1: Q5.1 versus Q3.10.5 + Q3.11.2

Figure 4.38 and Figure 4.39 show the results for the above question. The utilization of equine chiropractic for respondents' main horses and for their other horse(s), versus how many equine chiropractors to whom they were acquainted, was statistically compared. Figure 4.38 shows graphically the respondents who utilized equine chiropractic for their main horse versus how many equine chiropractors they knew of. Figure 4.38 illustrates that from the 6 respondents who knew of four equine chiropractors, 4 of these respondents utilized equine chiropractic for their main horse; from the 8 respondents who knew of 3 equine chiropractors, 4 of them had utilized an equine chiropractor for their main horse; 27 respondents knew of 2 equine chiropractors and from these 27 respondents 9 utilized an equine chiropractor for their main horse; 29 respondents stated that they knew of 1 equine chiropractor, 8 of these respondents had utilized an equine chiropractor for their main horse; 13 respondents knew of no equine chiropractors, all 13 of these respondents had never utilized an equine chiropractor for their main horse.

Figure 4.39 shows graphically the respondents who utilized equine chiropractic for their other horse(s) that they ride, versus how many equine chiropractors they knew of. Of the 6 respondents who knew of 4 equine chiropractors, 3 of these respondents utilized equine chiropractic for their other horses; 8 respondents knew of 3 equine chiropractors and 3 of these respondents utilized equine chiropractic for their other horses; 27 respondents knew of 2 equine chiropractors and 14 of these 27 respondents had utilized equine chiropractic for their other horses; 29 respondents knew of 1 equine chiropractor and 4 out of these 29 respondents utilized equine chiropractic for their other horses; 13 respondents knew of no equine chiropractors and none of these respondents had utilized equine chiropractic for their other horses.

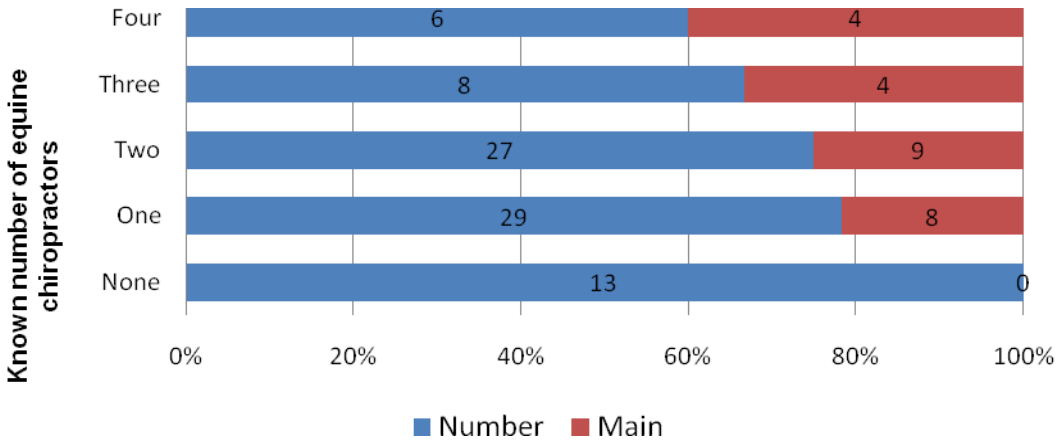


Figure 4.38: Respondents who knew of equine chiropractor(s) (blue) vs. the utilization of equine chiropractors for their main horse (red)

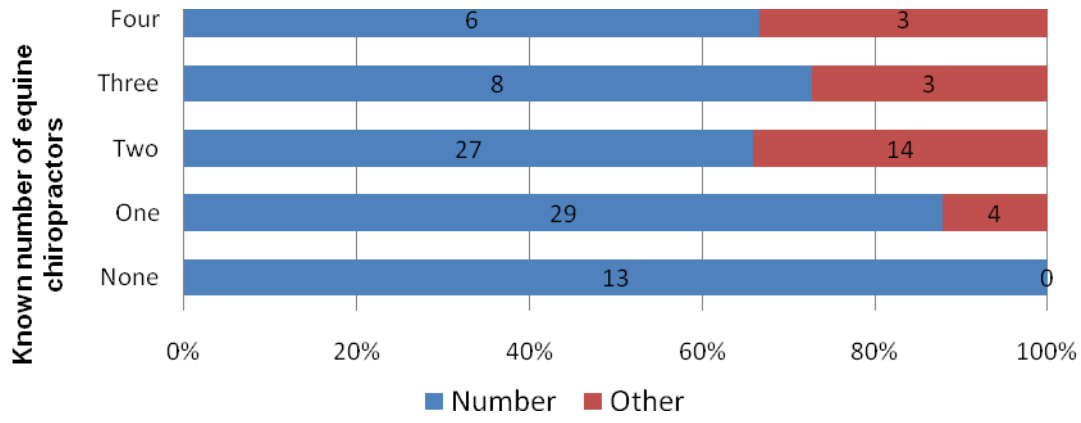


Figure 4.39: Respondents who knew of equine chiropractor(s) (blue) vs. the utilization of equine chiropractic for their other horses i.e. apart from their main horse (red)

4.5.11.2: Summary and Discussion of Objective 11: To graphically assess if there was an association between respondents who knew of multiple equine chiropractors and the utilization of equine chiropractic

The conclusion of for this comparison was based on the shape of each graph. The graph in Figure 4.38 shows that the red bars get progressively less indicating that the more equine chiropractors respondents knew of, the more respondents utilized equine chiropractic for their main horse.

Figure 4.39 shows graphically that the red bars do not progressively decrease in size. A more staggered picture is noted. This illustrates that the trend that was noted in Figure 4.38 is not seen here exactly. With respondents other horses, the number of equine chiropractors that they knew of did not parallel the utilization of equine chiropractic exactly. No definitive conclusion was drawn from this graph. However, the overall picture of this graph (Figure 4.39) does indicate a similar trend to Figure 4.38.

Respondents who knew of more equine practitioners showed to utilize equine chiropractors for their main horse more frequently. Exposure to equine chiropractic has shown to be a catalyst to the utilization of equine chiropractic (Kelner and Wellman, 2003). Equine chiropractic is still a relatively new and unknown equine treatment option, therefore, the more familiar it is to the consumer, the less threatening or alternative it may seem. This allows for the growth of confidence in the profession. The literature states that CAVM therapies, such as equine chiropractic are being driven not by the health care professionals or the funders of health care, but by the end-users (Ernst et al, 2001). In this study direct exposure to equine chiropractic has shown to be an overall positive for the utilization of equine chiropractic.

4.5.12 <u>Objective 12:</u> To determine if there was an association between the duration of time the respondents had horse ridden for and their knowledge of equine chiropractic

4.5.12.1: Q3.8 vs. Q4.1

Figure 4.40, Figure 4.41, Figure 4.42, Figure 4.43 and Figure 4.44 show the results for the above question. The number of years respondents had horse ridden versus their knowledge of equine chiropractic was statistical analysed. Figure 4.40 shows the respondents who had never heard of and had no knowledge of equine chiropractic versus the number of years these respondents had been horse riding. Figure 4.41 shows the respondents who had heard of equine chiropractic but did not know a lot about it versus the number of years these respondents had been horse riding for. Figure 4.42 shows the respondents who knew something about equine chiropractic versus the number of years these respondents had horse ridden for. Figure 4.43 shows the respondents who had good knowledge of equine chiropractic versus the number of years these respondents had horse ridden for. Figure 4.44 shows the comparison of all the data in one graph. No significant difference was found in the comparison of the number of years a respondent had horse ridden for and their knowledge of equine chiropractic.

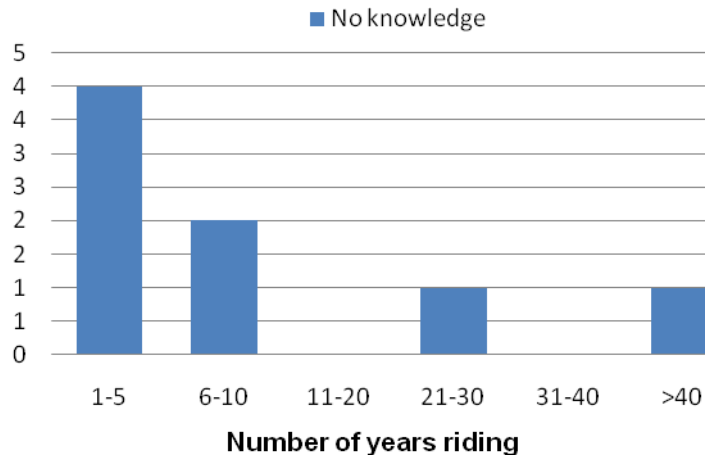


Figure 4.40: Respondents who had no knowledge of equine chiropractic vs. the number of years in which they had ridden

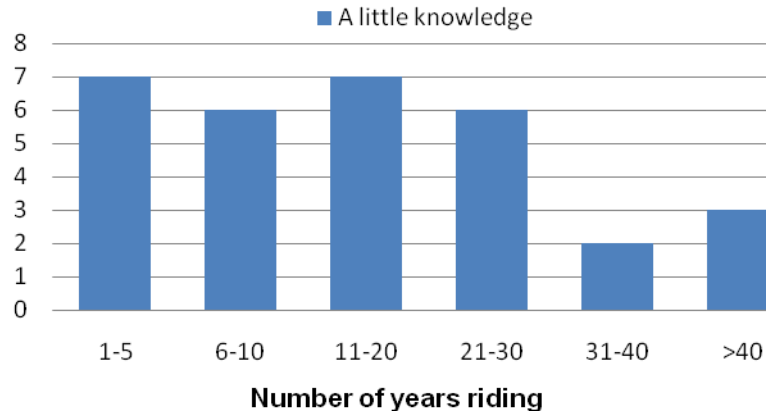


Figure 4.41: Respondents who had little knowledge on equine chiropractic vs. the number of years in which they had ridden

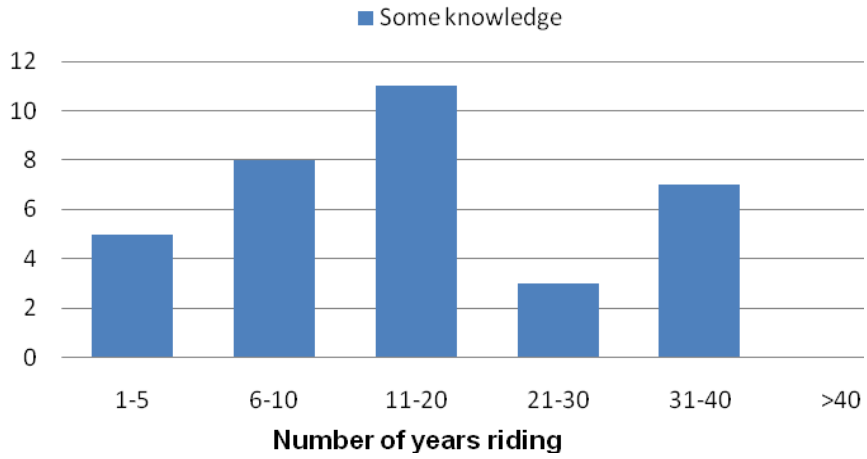


Figure 4.42: Respondents who had some knowledge on equine chiropractic vs. the number of years in which they had ridden

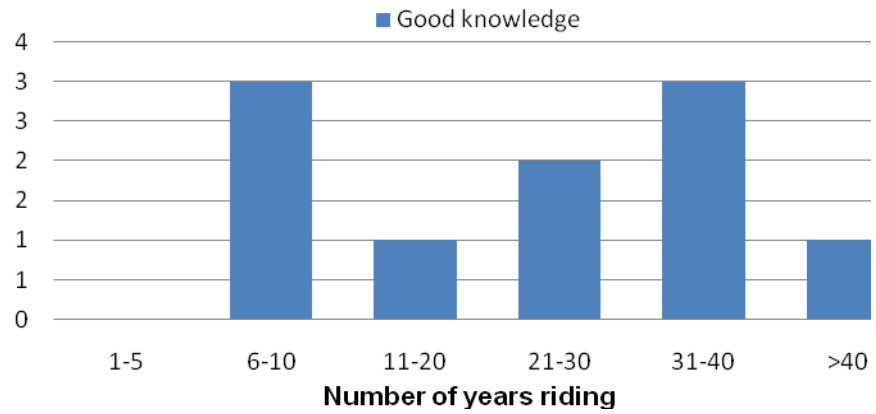


Figure 4.43: Respondents who had good knowledge on equine chiropractic vs. the number of years in which they had ridden

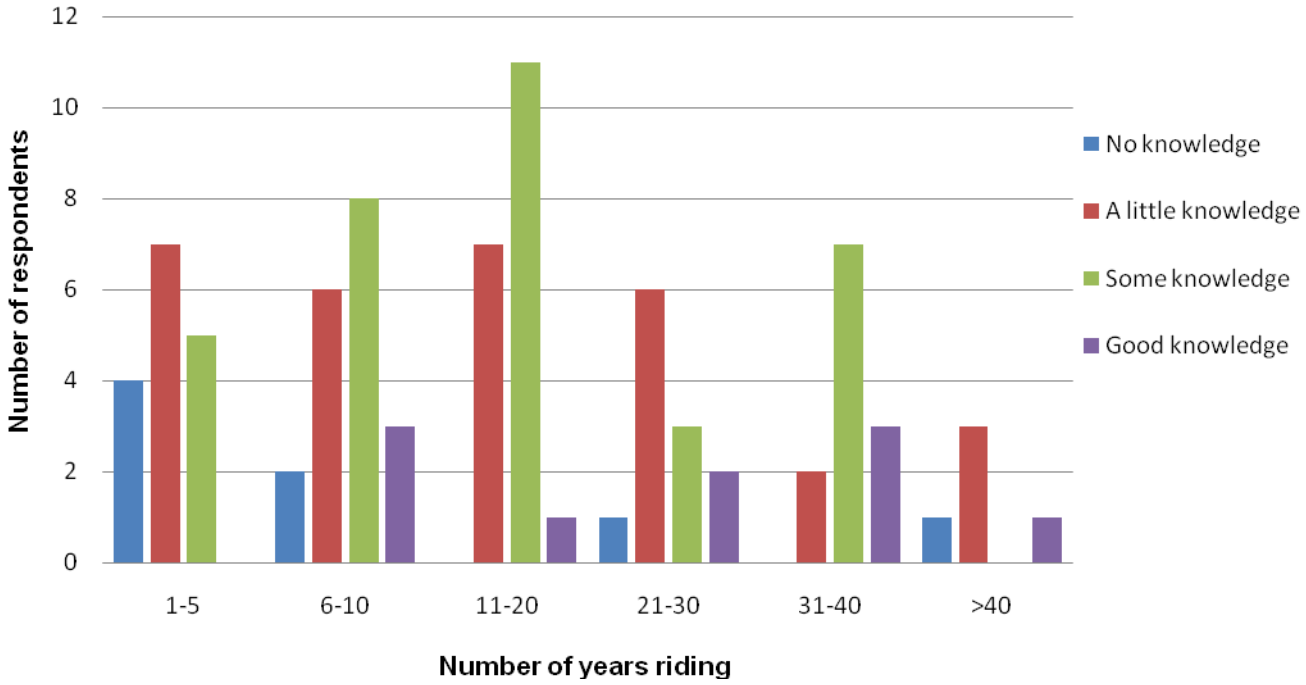


Figure 4.44: The different knowledge levels of respondents vs. the number of years in which they had ridden

4.5.12.2: Summary and Discussion of Objective 12: To determine if there was an association between the duration of time the respondents had horse ridden for and their knowledge of equine chiropractic

The number of years respondents had been horse riding for versus the respondents knowledge of equine chiropractic was analysed. Four levels of knowledge were cross analysed with the number of years the respondents had ridden. These levels included knowing nothing about equine chiropractic, having heard of it but not knowing much about equine chiropractic, knowing something about it and lastly having a good knowledge of equine chiropractic. The results concluded that there was no significant difference found. Thus, there was no association between the number of years a respondent had horse ridden and their knowledge of equine chiropractic. One reason for this outcome could be, as mentioned before, equine chiropractic utilization is still relatively young in South Africa, and thus the riders who had ridden for many years may have only recently heard of equine chiropractic. Riders that had only ridden for a short amount of time may have found out about equine chiropractic at the same time as the older riders. Respondents that had horse ridden for a longer period of time are also more likely to be stuck in old traditional methods of equine handling.

This may filter down to their choice in treatment for equine conditions, i.e. orthodox and not alternative. On the other hand, riders who have not been riding for very long may have less experience with equine conditions and being aware of equine chiropractic, may be more open to its utilization. The result that was found may be due to the small research sample, and a larger sample may reveal a different result.

4.6 Review of Hypothesis

- **Null Hypothesis 7:** No association was expected to be found between the respondents previous utilization of a chiropractor for themselves and the utilization of an equine chiropractor for their horses.

  The data failed to reject the null hypothesis at a 5% significance level.

- **Null Hypothesis 8:** No association was expected to be found between the age of horse riders and the knowledge that these horse riders had of equine chiropractic.

  The data failed to reject the null hypothesis at a 5% significance level.

- **Null Hypothesis 9a:** No association was expected to be found between respondents that had previously utilized alternative therapies for their horses and their knowledge of equine chiropractic.

  The data revealed that there was a trend showing that the utilization of alternative therapies corresponds with increase knowledge of equine chiropractic. However, the small numbers mean that it was not possible to show a significant difference. Thus, the data failed to reject the null hypothesis at a 5% significant level. Nevertheless, due to the trend that was noted, it could be expected that with a larger sample the null hypothesis would be rejected.

- **Null Hypothesis 9b:** No association was expected to be found between respondents who had had an equine chiropractor treat the horse they ride and respondents' knowledge of equine chiropractic.

  The data revealed that there was a trend showing that an increased knowledge of equine chiropractic corresponds with an increase in utilization of equine chiropractic. However, the small numbers mean that it was not possible to show a significant difference. Therefore, the null hypothesis had neither failed to be reject or been rejected. Thus, no conclusions were drawn.

- **Null Hypothesis 10:** No trend was expected to be found amongst respondents who were against the future use of equine chiropractic for their horses

  The data failed to reject the null hypothesis at a 5% significance level.

- **Null Hypothesis 12:** No association was expected to be found between the duration of time respondents had horse ridden for and their knowledge on equine chiropractic.

  The data failed to reject the null hypothesis at a 5% significance level.

4.7 Conclusion

This concludes the presentation of the results of this study as well as the related discussion. This chapter has provided a number of observations that should be noted when considering the future perception and education of horse riders with regard to equine chiropractic. This chapter has also given an indication of which areas in the chiropractic profession need to be looked at and developed. The conclusions and recommendations of this research are discussed further in Chapter Five.

Chapter Five: Conclusion and Recommendations

5.1 Introduction

This chapter concludes this study in determining the knowledge, perception and utilization of Equine Chiropractic by horse riders in the KZN region.
Conclusions are drawn from Chapter Four with recommendations made based on the outcomes and conclusions of the study and include possible methodological shortcomings.

5.2 Conclusion

Objective 1: To document the respondents' personal demographic data

The respondents' demographic data showed that the majority of respondents were female, between the ages of 41- 50 years old, white and had previously been treated successfully by a chiropractor. These demographics were in line with the demographics of CAM consumers internationally (Bishop and Lewith, 2008; Eisenberg et al, 1993). This indicated that most of the respondents were likely to be receptive to equine chiropractic.

Objective 2: To document the respondents' educational background.

Over half of all the respondents had some sort of tertiary education. The most common field of education, apart from the 'Other', was an education in equine studies. These respondents were likely to have been exposed to a greater amount of information on equine health through their studies and possibly more likely to have been exposed to CAVM.

Objective 3: To document the respondents' equine experience

The majority of respondents stated that they had at some point been a member of a horse society. Most respondents had or are currently members of the KZNHS. Generally, respondents stated that they had done some form of equine work experience, the most popular type being that of a riding instructor. Most respondents had gained their equine work experience locally as opposed to internationally. Just under half of the respondents had attended an equine specific course.

The findings showed that respondents took part in a broad spectrum of equine disciplines. The most popular being show jumping. Predominantly, respondents rode one horse that was between the age of 5-10 years, for which they were both the owner and rider, which stayed for the most part in a stable. Most respondents had been horse riding for duration of 0-10 years. Their main horse saw the veterinarian on average twice a year.

Just under half of the respondents showed to utilize alternative therapies for their main horse, and just over half showed to use these therapies for their other horses. Equine chiropractic was the most popular alternative therapy utilized for both the main horse and their other horses. Nutritional therapy showed to be the overall most successful therapy. However, equine chiropractic showed to have a high success rate, with the majority of respondents reporting a positive outcome in their horses post chiropractic treatment.

Thus, generally respondents had equine experience, utilized alternative therapies and took part in a wide range of equine disciplines.

Objective 4: To determine the respondents' perceptions and knowledge of equine chiropractic

The majority of respondents' subjective/ perceived knowledge of equine chiropractic was that they knew something about equine chiropractic. The majority of respondents scored well on their objective knowledge of equine chiropractic. Therefore, the respondents' subjective and objective knowledge of equine chiropractic was good.

The majority of respondents stated that their information on equine chiropractic was overall favourable. The data revealed that respondents gained most of their information from the internet and through interactions with chiropractors. The latter may be the reason for respondents' largely positive perception towards equine chiropractic.

The data from this section revealed an overall positive perception towards equine chiropractic. Respondents also showed to have good knowledge of equine chiropractic. Looking back to the respondents' demographics and level of education, as well as their positive attitude towards alternative health care for their horses, this result was to some extend expected.

Objective 5: To determine the respondents' utilization of equine chiropractic.

This question revealed that a high number of respondents knew of one or more equine chiropractic practitioners. Just under half of the respondents stated that they had utilized an equine chiropractor. Therefore, the overall knowledge of and utilization of equine chiropractic was positive.

Most respondents were referred to an equine chiropractor by their riding instructors. This showed that horse riding instructors may be very influential in recommending equine chiropractic to riders. Riding instructors could thus be targeted as the people who should receive education pamphlets.

The respondents' perceptions toward equine chiropractic interventions revealed that neck, back, leg and tail pain were conditions that they were most likely to seek an equine chiropractor for. These conditions are often treated by equine chiropractors (Gomez Alvarez et al, 2008). Therefore, overall respondents' perceptions were correct in understanding what equine chiropractors treat.

On the whole, respondents revealed that they knew of equine chiropractors, were familiar with the conditions that they treated and had previously utilized equine chiropractic for their horses. Their overall perception towards equine chiropractic was again positive and accurate.

CAVM therapies have shown to be driven predominantly by consumers (Caldis et al, 2001). As most respondents revealed a positive relationship with regards to the utilization of equine chiropractic, it can expected that respondents who felt and acted otherwise may be influenced and educated by their surrounding peers, possibly increasing the consumer demand for this therapy.

Objective 6: To document what information on equine chiropractic respondents would like made more accessible, as well as to evaluate the percentage of respondents who were for or against the future utilization of equine chiropractic.

The data revealed that most respondents would like more information on equine chiropractic. Table 4.33 shows that respondents mostly requested more information on different equine chiropractic techniques. Yet information on equine chiropractic research was one of the least selected areas of information. This may be because research is often perceived as being complex.

Consumers are more likely to want time saving information that is simple and to the point. In addition, CAM therapy utilization has shown to be influenced more by the public perception towards it as opposed to the amount of research done on it (Kelner and Wellman, 2003).

As 88% of respondents stated that they would utilize equine chiropractic, an overall positive perception towards equine chiropractic was again noted.

This objective shows that respondents were enthusiastic about gaining further knowledge on equine chiropractic; showed support for future utilization of this therapy; and perceived equine chiropractic positively.

Objective 7: To determine any association between the respondents' previous utilization of a chiropractor for themselves and the utilization of an equine chiropractor for their horses.

There was no significant difference between these two groups. A possible explanation for this is that human chiropractors do not have a large amount of exposure to equine chiropractic as it is not part of the chiropractic curriculum at the Universities that offered the chiropractic qualification in SA. KZN chiropractors possibly do not educate/ inform their patients about equine chiropractic and the role this therapy has to offer because the chiropractor does not possess the knowledge of equine chiropractic. This could indicate a lack of communication between chiropractors and equine chiropractors.

Objective 8: To determine if there was an association between the age of the horse riders and the knowledge that these horse riders had on equine chiropractic.

No significant difference was found between the age of respondents and their knowledge on equine chiropractic. However, it was interesting to note that 90% of respondents had some knowledge on equine chiropractic. This highlighted that the age of a respondent was independent to the knowledge that a respondent had of equine chiropractic.

Objective 9: To determine if respondents that utilized alternative therapies for their horses had enhanced knowledge of equine chiropractic. Furthermore, to determine if respondents had increased knowledge on equine chiropractic if they had had an equine chiropractor treat the horse that they ride.

The data revealed a trend showing that the utilization of alternative equine therapies corresponded with increased knowledge of equine chiropractic. The trend was again noted, showing that an increased knowledge of equine chiropractic corresponded with an increase in utilization of equine chiropractic. However, no significant differences were found. It was expected that a larger sample may produce a significant difference.

The trends that were noted revealed that the utilization of CAVM therapies, such as equine chiropractic, increases the amount of knowledge consumers have of equine chiropractic. Thus, knowledge is dependent on utilization when it comes to equine chiropractic.

Objective 10: To determine if there was a trend amongst respondents who were against the future use of equine chiropractic for their horses.

No trends were noted amongst respondents who were against the future use of equine chiropractic. Furthermore, no significant differences were noted between respondents who were in support of the future use of equine chiropractic and respondents who were against it. A larger collection of data may have revealed otherwise.

Objective 11: To graphically assess if there was an association between respondents who knew of multiple equine chiropractors and the utilization of equine chiropractic.

The more equine chiropractors respondents knew of, the more respondents' utilized equine chiropractic for their main horse. This exact pattern did not correlate when looking at the respondents other horses. However, a similar trend was noted when looking at the overall pattern in Figure 4.39. This concluded that the utilization of equine chiropractic was dependent on the knowledge of equine chiropractic practitioners.

Objective 12: To determine if there was an association between the duration of time the respondents had horse ridden for and their knowledge of equine chiropractic.

The data revealed no significant differences between these two groups. Thus, the duration a horse rider had ridden is independent to the knowledge a rider has of equine chiropractic. This was possibly due to the equine chiropractic profession in South Africa still being relatively young and the horse rider possibly having had minimal/ no exposure to equine chiropractic.

5.3 Recommendations and Limitations

The small sample size in this study was a limitation. This was revealed with the testing of the hypothesis. However, this was restricted by the small population size of KZN horse riders. Future studies should look at incorporating a larger area into their research e.g. the other provinces. For this reason, it is recommended that a follow up study be undertaken in the same format but incorporating a larger area in South Africa. This will allow for a larger target population and thus a larger research sample. The hypotheses that yielded no significant difference can be retested and evaluated to see if the limited results of the hypotheses were indeed due to the small sample size of this study.

This study focused on horse riders in KZN which limited the study to one province in South Africa. As there were no similar studies conducted in other areas of South Africa, the data obtained in this research had no comparable data to measure against. For this reason, it is recommended that future research on the perceptions, utilization and knowledge of equine chiropractic be conducted in different provinces in South Africa. This will not only decrease the gap in the literature on equine chiropractic, but also give insight into different national trends regarding equine chiropractic. Both of which will impact on the future of equine chiropractic in South Africa.

In this study chiropractors showed to be poorly informed on equine chiropractic. As no significant difference was found between respondents who had been to a chiropractor and the utilization of equine chiropractic, a possible gap in the knowledge that chiropractors have on equine chiropractic, was revealed. The future of equine chiropractic relies partly on the perceptions and knowledge that chiropractors have on equine chiropractic. For this reason, it is recommended that a future study be conducted on the perceptions and knowledge that chiropractors have of equine chiropractic.
This will hopefully reveal the missing link into the relationship between previous utilization of a chiropractor and the utilization of equine chiropractic. It may lead to the future development of the equine chiropractic profession.

Equine chiropractic is not represented by a professional association in South Africa. The legislation of equine chiropractic in SA is thus somewhat ambiguous. Horse riders in this study utilize equine chiropractic and are open to the future utilization of this profession. Therefore, this research revealed a consumer demand for this profession. It is therefore recommended that equine chiropractic be represented by a professional association in South Africa. As CASA represents human chiropractors in South Africa and the SAVC represents veterinarians, so should a similar council represent equine chiropractic.

The self administered method utilized to distribute the questionnaires in this study revealed to be successful. Future studies with larger population might find this method not feasible. However, it was successful because this method of delivery decreases both compliance bias and non-respondent bias and should be considered in future studies of this nature.

References

Baron, R. A. and Byrne, D. 2000. *Social Psychology*. 9th ed. Massachusetts: Allyn and Bacon.

Baron, R. A. and Byrne, D. 2004. *Social Psychology*. 10th ed. Boston: Allyn and Bacon.

Barry, C. A. 2006. The role of evidence in alternative medicine: Contrasting biomedical and anthropological approaches. *Social Science and Medicine*, 62(2006): 2646–2657.

Belknap M. A. 1997. *The Allen Equine Dictionary*. 1st ed. London: J. A. Allen & Company Limited.

Berg, K. E. and Latin, R. W. 2004. *Essentials of research methods in health, physical education, exercise science, and recreation.* 2nd ed. USA: Lippincott Williams & Wilkins.

Bishop, F. L. and Lewith, G. T. 2008. Who uses Cam? A Narrative Review of Demographic Characteristics and Health Factors Associated with CAM use. *eCAM.* 7(1): 11-28.

Black, T. R. 1999. *Doing Quantitative Research in the Social sciences: An Integrated Approach to Research Design, Measurement and Statistics.* London: Sage Publications Ltd.

Boldt, E. D. 2008. Complementary Therapeutic Options for Horses. *Article # 12416* (online): 1-2. Available WWW: http://www.thehorse.com/ViewArticle.aspx?ID=12416 (Accessed 13 august 2011).

Briggs, K. 1996. Complementary Therapies for Horses. *Article # 769* (online): 1-4. Available WWW: http://www.thehorse.com/ViewArticle.aspx?ID=769 (Accessed 13 August 2011).

Brink, H. 2007. Fundamentals of research methodology for health care practitioners. 2nd edition. Junta and Co. Cape Town.

Broster C. E., Burn, C. C., Barr, A. R. S. And Whay, H. R. 2009. The range and prevalence of pathological abnormalities associated with lameness in working horses from developing countries. *Equine Vet J* [online], 41(5):474-81. Available WWW: http://www.ncbi.nlm.nih.gov/pubmed/19642408 [Accessed 2 June 2010].

Caldis, K. S., McLeod, H. D. and Smith, P. R. 2001. The Fall of the Bamboo Curtain: A Review of Complementary Medicine in South Africa. *South African Actuarial Journal.* Actuarial Society of South Africa, 63-93.

Catlin, J. 2010. *A profile of horse riding injuries in adult horse riders registered with the KwaZulu-Natal Horse Society.* MTech Chiropractic, Durban University of Technology.

Carterette, E. C. and Friedman, M. P. (ed). 1978. *Handbook of Perception*. 4th ed. London: Academic Press.

Coren, S. and Ward L M. 1989. *Sensation and Perception*. 3rd ed. Florida: Harcourt Brace Jovanovich.

Coulter, I. D. and Shekelle, P. G. 2005. Chiropractic in North America: A Descriptive Analysis. *Journal of Manipulative and Physiological Therapeutics.* 28(2): 83-89.

Cripps, R. A. 2000. *Horse related injury in Australia* (online). Available WWW: http://nisu.flinders.edu.au/pubs/bulletin24/bulletin24.pdf (Accessed 1 September 2012).

Dey, E. L. 1997. Working with a low survey response rate: the efficacy of weighting adjustments. *Research in higher education.* 38(2): 215-227.

Eaker, S., Bergstrom, R., Bergstrom, A., Adami, H. O. and Nyren, O. 1998. Response Rate to Mailed Epidemiologic Questionnaires: A Population- based Randomized Trial of Variations in Design and Mailing Routines. *American Journal of Epidemiology* (online), 147(1): 74-82. Available WWW: http://aje.oxfordjournals.org/content/147/1/74.full.pdf+html (Accessed 1 September 2012).

Edwards, J. E., Thomas, M. D., Rosenfeld, P. and Booth-Kewley, S. 1997. *How to conduct organizational surveys: a step-by-step guide.* London: Sage Publications.

Eisenberg, D. M., Kessler, R. C., Foster, C., Norlock, F. N., Calkins, D. R. and Delbanco, T. L. 1993. Unconventional Medicine in the United States: Prevalence, Costs and Patterns of Use. *The New England Journal of Medicine.* 328(4): 246-252.

Equine Dictionary: The Ultimate Reference Book for the Horse Owner. 1997. London: J.A. Allen & Company Limited.

Ernst, E., Cohen, M. H. and Stone, J. 2004. Ethical problems arising in evidence based complementary and alternative medicine. *Symposium on evidence based medicine* (online), 30(2): 156-159. Available WWW: http://jme.bmj.com/content/30/2/156.full (Accessed 16 April 2012).

Feist, G. J. 1998. A Meta-Analysis of Personality in Scientific and Artistic Creativity. *Personality and Social Psychology Review* (online), 2(4): 290-309. Available WWW: http://psr.sagepub.com/content/2/4/290.short (Accessed 27 September 2012).

Fink, A and Kosecoff, J. 1985. *How to conduct a survey; a step by step guide*. California: Sage Publications.

Firth, E. C. 2006. The response of bone, articular cartilage and tendon to exercise in the horse. *Journal of Anatomy* (online), 208: 513- 526. Available WWW: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2100207/pdf/joa0208-0513.pdf (Accessed 1 September 2012).

Gomez Alvarez, C.B., L'ami, J. J., Moffat, D., Black, W. And van Weeren, P. R. 2008. Effect of chiropractic manipulations on the kinematics of back and limbs in horses with clinically diagnosed back problems. *Equine Vet J* [online], 40(2):153-9. Available WWW: http://www.ncbi.nlm.nih.gov/pubmed/18089466 [Accessed 20 June 2010].

Hammett, D. B. 1995. Horse Related Fractures: National Electronic Injury Surveillance System Age and Gender (online). Available WWW: http://asci.uvm.edu/equine/law/amea/feb95nws.htm#NEISS (Accessed 1 September 2012).

Hare, D. 1999. Complementary and Alternative Veterinary Medicine: Editorial. *Canadian Veterinary Journal*. 40(6): 376-377.

Haussler, K. K. 1999. Back problems. Chiropractic evaluation and management. *Vet Clin North Am Equine Pract* [online], 15(1):195-209. Available WWW: http://www.ncbi.nlm.nih.gov/pubmed/10218250?ordinalpos=&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.SmartSearch&log$=citationsensor. [Accessed 7 August 2010].

Haussler, K. K., Bertram J E A. and Gellman K. 1999. In Vivo Segmental Kinematics of the Thoracolumbar Spinal Region in Horses and Effects of Chiropractic Manipulations. *AAEP Proceedings* [online], 45:327-329. Available WWW: http://www.ivis.org/proceedings/aaep/1999/327.pdf. [Accessed 7 August 2010].

Haussler, K.K. 2000. Equine chiropractic: general principles and clinical applications. *AAEP Proceedings*, 46: 84–93.

Haussler, K. K. 2009. Clinical Techniques: Current Status of Integrative Medicine Techniques Used in Equine Practice. *Journal of Equine Veterinary Science.* 29(8): 639-641.

Horse Trading KZN (online). 2012. Available WWW: http://www.horsetradingkzn.co.za/yards.php (Accessed 10 June 2012).

Ireland, J. L., Clegg, P. D., McGowan, C. M., McKane, S. A. and Pinchbeck, G. L. 2011. A cross-sectional study of geriatric horses in the United Kingdom. Part 2: Health care and disease. *Equine Veterinary Journal* (online), 43(1): 37-44. Available WWW: http://onlinelibrary.wiley.com/doi/10.1111/j.2042-3306.2010.00142.x/abstract?deniedAccessCustomisedMessage=&userIsAuthenticated=false (Accessed 15 September 2012).

Jeffcott, L. B. and Dalin, G. 1980. Natural rigaidity of the horse's backbone. *Equine Vet J* [online], 12(3):101-8.Available WWW: http://www.ncbi.nlm.nih.gov/pubmed/6447593 [accessed 2 June 2010].

Jones, W. E. 2004. Complementary Veterinary Medicine. *Changing Times*. 24(4): 175.

Kamen, D. 2001. Politics and technique. *Dyn Chiropr* [online], 19 (13). Available WWW: http://www.chiroweb.com/archives/19/13/07.html. [Accessed 2 June 2010].

Kane, A. J., Traub-Dargatz, J., Losinger, C. and Garber, L. P. 2000. The Occurrence and Causes of Lameness and Laminitis in the U.S. Horse Population. *AAEP Proceedings* [online], 46: 177-180. Available WWW: http://www.ivis.org/proceedings/AAEP/2000/277.pdf [Accessed 7 August 2010].

Kayne, S. and McGuire, A. 1993. Attitudes to homeopathy in a sample of veterinarians. *Complementary Therapies in medicine*. 1:185-188.

Kayne, S. 1992. Homeopathic veterinary prescribing. *British Homeopathic Journal*. 81:25-28.

Kelner, M., Wellman, B., Boon, H. and Welsh, S. 2004. The role of the state in the social inclusion of complementary and alternative medical occupations. *Complementary Therapies in* Medicine. 12:79-89.

Kelner, M. and Wellman, B. 2003. Complementary and Alternative Medicine: How do we know if it works?. *HealthcarePapers*. (online), 3(5): 12-20. Available WWW: http://www.utoronto.ca/CAMlab/publications/Healthcarepapers.pdf

Kienle, G. S., Albonico, H., Fischer, L., Frei-Erb, M., Hamre, H.J., Heusser, P., Matthiessen, P.F., Renfer, A., and Kiene, H. 2011. Explore: Complementary therapy systems and their integrative evaluation. *The Journal of Science and Healing,* 7(3): pp 175-187.

Kleine, L. J., Terkla, D. G. and Kimball, G. 2002. Outcome Assessment at Tufts University of Veterinary Medicine. *Journal of veterinary medicine education.* 29(1): 32-35.

Kruger, J. S., Smit, E. and du Pre le Roux, W. J. 1996. *Basic Psychology: For Human Resource Practitioners.* Cape Town: Juta & Co.

KwaZulu- Natal Horse Society (online). 2012. Available WWW: http://kznhs.co.za/web/index.php?option=com_content&view=article&id=2&Itemid=4 (Accessed 10 September 2012).

Lawrence, L. 2001. *National Economic Cost of Equine Lameness, Colic, and Equine Protozoal Myeloencephalitis (EPM) in the United States* (online). Available WWW: http://www.sites.ext.vt.edu/newsletter-archive/livestock/aps-01_12/aps-0446.html (Accessed 1 October 2011).

Lin, J.H., Kaphle, K., Wu, L.S., Yang, N. Y. J., Lu, G., Yu, C., Yamada, H. and Rogers, P.A.M. 2003. Sustainable veterinary medicine for the new era. 22(3): 949-946.

Litwin, M. S. 1995. *How to measure survey reliability and validity.* USA: Sage Publications.

Loken, T. 2001. Alternative Therapy of Animals- Homeopathy and Other Alternative Methods of Therapy. *Acta Veterinaria Scandinavica.* Suppl 95: 47-50.

MedicineNet.com: We Bring Doctors Knowledge to You (online). 2012. Available WWW

Moss, P. S., Wan, A. and Whitlock, M. R. 2002. A changing pattern of injuries to horse riders. *Emergency Medical Journal* (online), 19: 412-414. Available WWW: http://emj.bmj.com/content/19/5/412.full.pdf+html (Accessed 20 August 2012).

Murray, R. C., Dyson, S. J., Tranquille, C. and Adams, V. 2006. Association of type of sport and performance level with anatomical site of orthopaedic injury diagnosis. *Equine veterinary journal.* Suppl. 36: 411-416.

National Department of Agriculture Directorate Animal Production and Health, 1999. *African Horse Sickness* (online). Available WWW: http://www.nda.agric.za/docs/Infopaks/horse.htm (Accessed 27 September 2012).

National Economic Cost of Equine Lameness, Colic, and Equine Protozoal Myeloencephalitis (EPM) in the United States [online]. 2001. Available WWW: http://nahms.aphis.usda.gov/equine/equine98/economics.PDF [Accessed 12 June 2011].

Neuman, W. L. 1997. *Social Research Methods: Qualitative and Quantitative approaches.* 3rd ed. Massachusetts: Allyn & Bacon.

Newton, S. A., Knottenbelt, D. C. and Eldridge, P. R. 2000. Headshaking in horses: possible aetiopathogenesis suggested by the results of diagnostic tests and several treatment regimes used un 20 cases. *Equine Veterinary Journal* (online), 32(3): 208-216. Available WWW: http://onlinelibrary.wiley.com/doi/10.2746/042516400776563617/abstract (Accessed 9 September 2012).

Parelli, P. 2002. *Natural Horse-Man-Ship.* Colorado Srings: Western Horseman magazine.

Paulekas, R. and Haussler, K.K. 2009. Principles and Practice of Therapeutic Exercise for Horses. *Clinical Techniquies*. 29(12): 870-893.

Phillips, C. 2002. *Statistics 1: Economics, Management, Finance and the Social Sciences.*University of London: Univeristy of London Press.

Ross, W. A., and Kaneene, J. B. 1996. An operation-level prospective study of risk factors associated with the incidence density of lameness in Michigan (USA) equine operations. *Prev Vet Med* [online], 28:209–224. Available WWW: http://www.ivis.org/proceedings/AAEP/2000/277.pdf [Accessed 10 July 2011].

Salant, P. and Dillman, D. 1994. How to conduct your own survey. United States of America: John Wiley & Sons, Inc.

Schoen, A. M. 2000. Results of a survey on educational and research programs in complementary and alternative veterinary medicine at veterinary medical schools in the United States. *Journal of American Veterinary Medical Association*, 216(4): 502-509. Available WWW: http://avmajournals.avma.org/doi/abs/10.2460/javma.2000.216.502?journalCode=javma [Accessed 10 February 2013].

Schoen, A M. (ed.) and Wynn, S G. (ed.) 1998. *Complementary and Alternative Veterinary Medicine.* 1st ed. St. Louis: Mosby.

Silver, J. R. 2002. Research Review: Spinal injuries resulting from horse riding accidents. *International Spinal Cord Society*. Spinal Cord (40): 264-271.

Soong, T. T. 2004. *Fundamentals of Probability and Statistics for Engineers*. England: John Wiley & Sons Ltd.

South African Equestrian Association (online). 2012. Available WWW: http://www.horsesport.org.za/athletes.htm (Accessed 10 September 2012).

Spitzig, B. 2006. Remember: The horse cannot give you what it does not have when subluxations exist: complete and full motion. *Equine Chiropractic Article* [online]. Available WWW: http://www.ontarioequine.net/EquineChiropracticArticle.html [Accessed 22 November 2010].

Taverner, C. B. 2011. *The perception of veterinarians towards chiropractic and the chiropractic treatment of animals in South Africa.* M.A. thesis. Durban University of Technology.

The Economist. 2008. The financial system: What went wrong. The Economist (online), March 19. Available WWW: http://www.economist.com/node/10881318 (Accessed 12 September 2012).

Turner, T L. 2005. *A survey to determine the perceptions of veterinarians towards homeopathy and the utilization of homeopathy by* veterinarians *in KwaZulu-Natal.* M.A. thesis, Durban Institute of Technology.

Vernon, M. D. 1970. *Perception through Experience*. Edinburgh: T. & A. Constable Ltd.

Veterinary Medicine Today (VMT). (2001). An insight into the AVMA Guidelines for Complementary and alternative veterinary medicine by the alternative and complementary therapies task force. *Journal of American Veterinary Medical Association,* 218(11): pp 1729-1731.

de Vos, A. S., Strydom, H., Fouche, C. B. and Delport, C. S. L. 2011. *Research at Grass Roots: for the social sciences and human service professions*. 4th ed. Pretoria: Van Schaik Publishers.

Weinberg, B. A. and Galenson, D. W. 2005. Creative Careers: The Life Cycles of Nobel Laureates in Economics. Journal of Economic Literature (online), National Bureau of Economic Research Working Paper Series: 1- 26. Available WWW: http://www.nber.org/papers/w11799.pdf?new_window=1 (Accessed 14 September 2012).

Weishaupt, M.A., Wiestner, T., Hogg, P. J. and Auer, J.A. 2004. Compensatory load redistribution of horses with induced weight- bearing forelimb lameness trotting on a treadmill. *The Veterinary Journal*. Elsevier: 135-146.

Willoughby, S. 2002. *Animal chiropractic history* [online]. Available at: http://www.animalchiropractic.org/animal_chiropractic_history.htm [Accessed 22 April 2012].

World Health Organization (WHO) 2002. WHO Traditional medicine strategy 2002–2005 [online]. Available at: http://apps.who.int/medicinedocs/en/d/Js2297e/11.html [Accessed: 8 March 2012].

Wortmann, L. 1997. The perceptions of veterinary surgeons in South Africa to the role of acupuncture and homeopathy in veterinary medicine. M. Tech (Hom). Technikon Natal, Durban.

Wynn, S. G. and Wolpe, P. R. 2005. The majority view of ethics and professionalism in alternative medicine. *Journal of the American Veterinary Medical Association*. 226(4): 516-520.

Xue, C.C. 2008. Traditional, complementary and alternative medicine: Policy and public health perspectives. *Bulletin of the World Health Organization* [online], 86(1): pp 77-78. Available at: http://www.who.int/bulletin/volumes/86/1/07-046458.pdf [Accessed 31 October 2011].

Zollman, C. And Vickers, A. 1999. ABC of complementary medicine: What is complementary medicine. *British Medical Journal* (online), 319: 693- 696. Available WWW: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1116545/pdf/693.pdf (Accessed 10 September 2012).

APPENDIX A

7/11/11

Bryce Taverner brycetav@gmail.com
to me

Hey Kirsten

Sorry about the late reply but I have been living in a caravan in Spain. Long story. I will write a paragraph at the bottom that you can copy to word to print for permission if need be. Your topic sounds good, you can use whatever you like from my thesis. Read the second and last chapters for some quotable stuff.

Still looking at the animal chiro course but need to start work as a chiro first. Beggining of next year back in S.A

Good luck, let me know if you have any problems.

Bryce

To Whom it May Concern

I Bryce Taverner (i.d number: 0803285289088) hereby grant permission to Kirsten Snow to use the questionnaire utilized in the research dissertation "The Perception of Veterinarians Towards Chiropractic and the Chiropractic Treatment of Animals in South Africa" undertaken by myself in 2011.

Kind Regards

APPENDIX B1

Letter of Information

Dear Participant,

I would like to welcome you into my study, the Title of my Research Study is:

The Knowledge, Perception and Utilization of Equine Chiropractic by horse riders in KwaZulu-Natal.

Principle Investigator: Kirsten Snow

Supervisor: Dr Grant Matkovich

Brief Introduction and Purpose of the Study

Background to the study:

Equine Chiropractic involves the use of adjustment techniques to treat the horse's musculoskeletal system. Equine chiropractic has shown to be a successful method of treatment for the athletic horse. Equine Chiropractic provides additional therapeutic resources that may help equine practitioners treat the primary causes of lameness and poor performance. Many equine back problems do not respond to traditional medical-based treatments. Equine Chiropractic allows horses to be treated without the use of drugs or other therapies that are banned in many equine sports. This said, as more and more people seek out complementary and alternative medicine for their own health care, they begin to seek out these forms of therapy for their animals.

Perception is the human mind's ability to process information from the surrounding environment. Perceptions are an important method of gathering data on a subject. People's perceptions are forever changing, thus keeping up to date with the latest perceptions is important. The change in perception over time based on experience is known as perceptual learning. This study aims to identify the latest perceptual learning amongst horse riders towards Equine Chiropractic.

Equine Chiropractic has shown to be affective in the treatment of equine back pain, neck pain and lameness. Concluding that there is a place for Equine Chiropractic in the horse world. However the perceptions and knowledge of horse riders towards Equine Chiropractic ultimately play a significant role in the utilization of Equine Chiropractic. The perceptions of horse riders towards Equine Chiropractic influence the acceptance of Chiropractic as a whole. The Chiropractic profession can only develop once it understands what the end user requires.

This study aims to gather data that can contribute to the professional development of Chiropractic and Equine Chiropractic.

Objective of the study:

The data obtained by means of this questionnaire will allow for further assessment and advancement of Chiropractic with regards to Equine Chiropractic. It will allow for an understanding of the current status of Equine Chiropractic within KZN and provide a knowledge base from which to formulate future educational and promotional drives.
The questionnaire will cover questions on the horse riders:

- Equine Experience
- Knowledge and Utilization of Equine Chiropractic
- Perception towards Equine Chiropractic

➢ The questionnaire will only take approximately 10 minutes to complete, as most of the questions require you to tick or circle the appropriate answer. Only a few short written responses are required.

Outline of the Procedures:

The questionnaire will be hand delivered to the entire sample population (horse riders) at the various stable yards whose owners have given written permission for the research to take place at their yards. The questionnaire will be hand delivered along with information about the study and an informed consent form. The informed consent form will include the participating person's name and contact details and will be placed into a sealed box (box A) immediately after completion by the participant. The sealed box will not be opened unless needed. The questionnaire form will have a box that can be ticked to indicate that the participant has filled in the consent form and is happy to participate in the study. The participants will then fill out the questionnaire immediately and then place the questionnaire into a sealed box (box B) - so that no association is made between a particular person and a questionnaire. The same process will be repeated with each participant. Names of the participants will not be visible to either the researcher or supervisor as the questionnaire will direct the respondents not to write their name anywhere on the questionnaire and the consent forms will remain sealed.

Once all questionnaires are complete- the sealed box will be shaken up so as to mix up the questionnaires. The data will then be sent to a statistician for analysis.

Risks or Discomforts to the Subject:

This study involves no risk or harm to the participants. All participants' details will remain fully confidential.

Benefits:

There is a possibility that the research will be published. The research will form a stepping stone for further research and development within the Equine Chiropractic field.

Reason/s why the Subject May Be Withdrawn from the Study:

Participants are free to withdraw from this study at any time, without reasons given.

Remuneration:

There is unfortunately no remuneration involved with the participation in this research.

Costs of the Study:

The participants are expected to cover NO costs in this study.

Confidentiality:

This is discussed in more detail under the procedure of the study (see above). Participants' details will remain fully confidential.

Research-related Injury:

Not applicable. The participants are only required to fill out a questionnaire.

Persons to Contact in the Event of Any Problems or Queries:

Kirsten Snow (Researcher): Cell- 084 8188 997, email- kirstenmoyasnow@gmail.com

Dr Grant Matkovich (Supervisor): Cell- 0825683986, email- grantmatko@mweb.co.za

Thank You

Your participation in this study is appreciated and you are assured that your comments and contributions to the discussion will be kept confidential. The results of the discussion will be used for research purposes only. If you have any further questions please feel free to contact either my supervisor/or myself (Kirsten Snow).

APPENDIX B2

Informed Consent Form

Statement of Agreement to Participate in the Research Study:

I,….....

ID number ……......, have read this document in its entirety and understand its contents. Where I have had any questions or queries, these have been explained to me by …….....to my satisfaction. Furthermore, I fully understand that I may withdraw from this study at any stage without any adverse consequences and my future health care will not be compromised. I, therefore, voluntarily agree to participate in this study.

Subject's name (print) ……...

Subject's signature:……..…….. Date:……..…

Researcher's name (print) ……..…….....

Researcher's signature:…….....Date:.....

Witness name (print) …….....

Witness's signature:…….....Date:……..

APPENDIX B3

Equine Chiropractic Questionnaire

Instructions:	**1. For those questions where necessary please tick. For those questions where a response is required please be accurate.**	
	2. Please tick the box if you have signed the informed consent form.	
	3. Please do not write your name or details anywhere on the questionnire.	

1. Demographic Data					
1.1 Gender?	Male				Female
1.2 Age at last birthday? (yrs)					
1.3 Race? (statistical purposes only)	Asian	Black	Coloured	White	Other, please specify..
1.4 Have you ever been to a Chiropractor?	Yes (proceed to 1.5)				No (proceed to 2.1)
1.5 Was the treatment benificial?	Yes				No

2. Education :		
2.1 What is the highest qualification(s) you have obtained?	Primary School	
	Secondary/ High School	
	Matric (completion of high school)	
		In what field is your qualification (e.g. Medicine, Accounting, Zoology)?
	Certificate	
	Higher Certificate	
	Degree	
	Diploma	
	Honours/ BTech	
	Masters	
	PHD	
2.2. Where did you obtain your education?		

3. Equine Experience:		
3.1 Have you ever been a member of a horse society?	Yes	No (proceed to 3.3)
3.2 If Yes, please specify which horse society and for how long you were a member (years)?	(NB- Avoid Abbreviations!)	
3.3 Have you attended any courses that are equine specific?	Yes	No
3.4 Have you ever worked with horses in any capacity?	Yes	No (proceed to 3.7)
3.5 If Yes, in what capacity and for how long?		
3.6 Where did you work?	Local	International

3.7 Which equine sports do you participate in and for how long (years)? (more than one answer possible)	Dressage							yrs		
	Endurance							yrs		
	Equitation							yrs		
	Eventing							yrs		
	Gymkhana							yrs		
	Horse-racing							yrs		
	Polo							yrs		
	Polo crosse							yrs		
	Rodeo							yrs		
	Showing							yrs		
	Showjumping							yrs		
	Trec							yrs		
	Vaulting							yrs		
	Other, please specify:							yrs		
3.8 For how many years (total) have you been horse riding?										
3.9 How many horses do you ride currently?	1	2	3	4	5	6	7	8	9	10+
3.10 The horse you ride the most:										
3.10.1 Where does this horse stay predominantly?	In a stable			Paddock with grass				Paddock with sand		
3.10.2 How old is this horse?	0-5 years		5-10 years		10-15 years		15-20 years		20+ years	
3.10.3 Are you the owner/ rider or both for this horse?	Owner			Rider			Owner+Rider			

3.10.4 In the last year what conditions has this horse been treated for? Please specify what treatment.	**Condition**	**Type of Treatment**			
		Veterinary care	Alternative treatment	No treatment	Other:
	African Horse Sickness				
	Behaviour or mood change				
	Bowel,bladder+internal medicine				
	Chronic pain syndrome				
	Colic				
	Degenerative arthritis				
	Equine influenza				
	Equine protozoal myeloencephalitis				
	Head shaking				
	Improve performance				
	Infections				
	Injuries				
	Intervertebral disc problem				
	Jaw or TMJ problems				
	Lameness				
	Laminitis/ Founder				
	Maintenance				
	Muscle spasms				
	Musculoskeletal injuries				
	Navicular disease				
	Neck,back,leg+tail pain				
	Nerve problems, e.g. pinched nerve				
	Post-surgical care				
	Seizures or neurological problems				
	Uneven pelvis or hips				
	Vaccinations				
	Other, please specify:				

3.10.5 Do you make use of any alternative therapies?	Yes	No (proceed to 3.10.7)

3.10.6 If yes, what therapies do you make use of and what was the response?	**Therapy**	**Response**			**How many visits per yr?**
		Improved	Stayed same	Got worse	
	Acupuncture				
	Bowen technique				
	Chiropractic				
	Herbal therapy				
	Homeopathy				
	Nutritional Therapy				
	Physiotherapy				
	Other, please specify:				

3.10.7 On average how often does this horse see a vet per year?	1	2	3	4	5	6	7	8	9	10+

3.11 Other horses that you are currently riding or have ever riden.		
3.11.1 Do you make use of any alternative therapies?	Yes	No (proceed to 4.1)

3.11.2 If yes, what therapies do you make use of and what was the response?	**Therapy**	**Response**			**Visits per year?**
		Improved	Stayed same	Got worse	
	Acupuncture				
	Bowen technique				
	Chiropractic				
	Herbal therapy				
	Homeopathy				
	Nutritional Therapy				
	Physiotherapy				
	Other, please specify:				

4. Knowledge and Perception of Equine Chiropractic:				
4.1 How would you describe your knowledge of Equine Chiropractic?	Never heard of it (proceed to section 5)	I have heard of it but I do not know a lot about it	I know something about it	My knowledge on Equine Chiropractic is good

4.2 How did you get this information? (More than one answer possible)	Chiropractor
	Friends/Family
	Informal/Non-professional lecture on chiropractic
	Internet
	Magazine
	Medical journal
	My Doctor

	People/person who has had a horse/animal treated by a chiropractor			
	People/person who have been treated by a chiropractor			
	Radio			
	TV			
	Other, please specify:			
4.3 Was the information favourable?	Yes	No		
4.4 Please choose whether you believe these statements to be True or False.	Equine Chiropractors can only administer treatment under referral in South Africa(SA)	True	False	Unknown
	Equine Chiropractors can diagnose a horse patient in SA	True	False	Unknown
	Equine Chiropractic treats the horse's spine only	True	False	Unknown
	Equine Chiropractic can make use of mechanical adjusting devices (e.g. mallet)	True	False	Unknown

5.Utilization of Equine Chiropractic										
5.1 How many Equine Chiropractors do you know of?	0	1	2	3	4	5	6	7	8	9+
5.2 Have one of these Equine Chiropractors ever treated the horse you ride?	Yes					No				
5.3 Have any of the following suggested you to consult with an Equine Chiropractor?	Human Chiropractor	Riding Instructor	Veterinarian	Veterinary Nurse	Other:					
5.4 For which of the following would you consider getting an Equine Chiropractor for?	African Horse Sickness	Yes	No							
	Behaviour or mood change	Yes	No							
	Bowel, bladder, and internal medicine	Yes	No							
	Chronic pain syndrome	Yes	No							
	Colic	Yes	No							
	Degenerative arthritis	Yes	No							
	Equine influenza	Yes	No							
	Equine protozoal myeloencephalitis	Yes	No							
	Head shaking	Yes	No							
	Improve performance	Yes	No							
	Infections	Yes	No							
	Injuries	Yes	No							
	Intervertebral disc problem	Yes	No							
	Jaw or TMJ problems	Yes	No							
	Lameness	Yes	No							
	Laminitis/ Founder	Yes	No							

	Maintenance	Yes	No
	Muscle spasms	Yes	No
	Musculoskeletal injuries	Yes	No
	Neck, back, leg, and tail pain	Yes	No
	Nerve problems, e.g. pinched nerve	Yes	No
	Post-surgical care	Yes	No
	Seizures or neurological problems	Yes	No
	Uneven pelvis or hips	Yes	No

6. Information		
6.1 What information about Chiropractic on horses would you like to be available? (more than one answer possible)	Different Equine Chiropractic techniques	
	Education, including Equine Chiropractic courses	
	Effects/ safety	
	Ethical/ legal situation	
	Indications for Equine Chiropractoc treatment	
	Scientific research	
	Terminology	
	None	
	Other:	
6.2 Would you be interested in having an Equine Chiropractor treat your horse in the future?	Yes	No
Thank You for Participating!		

APPENDIX C1

LETTER OF INFORMATION – FOCUS GROUP

Dear Participant,

I would like to welcome you into the focus group of my study, the title of my research project is:

The Perceptions of Horse Riders towards Equine Chiropractic.

Background to the study:

Chiropractic is a division of health care that incorporates diagnosing, treatment and care to its patients. Chiropractic has been successful in providing an alternative health option for people with musculoskeletal disorders for generations. As more and more people seek out complementary and alternative medicine for their own health care, they begin to seek out these forms of therapy for their animals. This said, horses are often not only pets but athletes in a competitive sport where top physical functioning is vital. Thus maintenance and treatment of these athletic horses is priority amongst the horse sports.

Equine chiropractic has been shown to be a successful method of treatment for the athletic horse. Equine Chiropractic provides additional diagnostic and therapeutic resources that may help equine practitioners to identify and treat the primary causes of lameness and poor performance. Many equine back problems seem to have a lack of responsiveness to traditional medical-based treatments, thus leaving alternative and integrative therapies being used more.

Perceptions are an important method of gathering data on a subject. Perceptions play a vital role in society as they influence the general public's attitude towards things (health care). And although there is evidence that chiropractic is successful in treating equine back pain- there is very little scientific data on this subject. Particularly the perceptions towards equine chiropractic. If one can understand the attitude towards equine chiropractic then equine chiropractors as well as human chiropractors will have an understanding about how to go about informing and educating the public on chiropractic. Also it is important to start to make equine chiropractic more available to the horse riding community as an alternative option to treating their horses. Finally by understanding the public's views towards chiropractic will allow the profession to put forward methods so that the profession can grow in new directions.

Objective of the study:

The data obtained by means of this questionnaire will allow for further assessment and advancement of chiropractic with regards to equine chiropractic It will allow for an understanding of the current status of Equine Chiropratic within KZN and provide a knowledge base from which to formulate future educational and promotional drives.

The questions are concerned with the horse riders:

- Equine Experience

- Knowledge of Human Chiropractic
- Knowledge and Utilization of Equine Chiropractic

The questionnaire will only take a few minutes to complete, as most of the questions require you to tick or circle the appropriate answer. There are only a few short written responses that are required.

Your participation in this study is much appreciated and you are assured that your comments and contributions to the discussion will be kept confidential. The results of the discussion will only be used for research purposes. If you have any further questions please feel free to contact either my supervisor/or myself.

KIRSTEN SNOW

APPENDIX C2

INFORMED CONSENT FORM

(TO BE COMPLETED BY THE PARTICIPANTS OF THE FOCUS GROUP)

DATE: :

TITLE OF RESEARCH PROJECT:

The Perceptions of horse riders towards equine chiropractic

NAME OF SUPERVISOR : Dr G. MATKOVICH

NAME OF RESEARCH STUDENT : KIRSTEN SNOW

Please circle the appropriate answer

		YES/NO	
1.	Have you read the research information sheet?	Yes	No
2.	Have you had an opportunity to ask questions regarding this study?	Yes	No
3.	Have you received satisfactory answers to your questions?	Yes	No
4.	Have you had an opportunity to discuss this study?	Yes	No
5.	Have you received enough information about this study?	Yes	No
6.	Do you understand the implications of your involvement in this study?	Yes	No
7.	Do you understand that you are free to		
	a) withdraw from this study at any time?	Yes	No
	b) withdraw from the study at any time, without reasons given	Yes	No
	c) withdraw from the study at any time without affecting your future health care or relationship with the Chiropractic day clinic at the Durban Institute of Technology.	Yes	No
8.	Do you agree to voluntarily participate in this study	Yes	No
9.	Who have you spoken to regarding this study?		

If you have answered NO to any of the above, please obtain the necessary information from the researcher and / or supervisor before signing. Thank You.

Please Print in block letters:

Focus Group Member: _____ Signature: _____

Witness Name: _____ Signature:_____

Researcher's Name: _____ Signature:_____

Supervisor's / Co-supervisor's Name: _____ Signature:_____

APPENDIX C3

<u>IMPORTANT NOTICE</u>: THIS FORM IS TO BE READ AND FILLED IN BY EVERY MEMBER PARTICIPATING IN THE FOCUS GROUP, BEFORE THE FOCUS GROUP MEETING CONVENES.

<u>CONFIDENTIALITY STATEMENT – FOCUS GROUP DECLARATION</u>

1. All information contained in the research documents and any information discussed during the focus group meeting will be kept private and confidential. This is especially binding to any information that may identify any of the participants in the research process.

2. The returned questionnaires will be coded and kept anonymous in the research process.

3. None of the information shall be communicated to any other individual or organisation outside of this specific focus group as to the decisions of this focus group.

4. The information from this focus group will be made public in terms of a journal publication, which will in no way identify any participants of this research.

Once this form has been read and agreed to, please fill in the appropriate information below and sign to acknowledge agreement.

<u>Please Print in block letters:</u>

Focus Group Member: _____ Signature:_____

Witness Name: _____ Signature:_____

Researcher's Name: _____ Signature:_____

Supervisor's /
Co-supervisor's Name: _____ Signature:_____

APPENDIX C4

CODE OF CONDUCT

This form needs to be completed by every member of the Focus Group prior to the commencement of the focus group meeting.

As a member of this committee I agree to abide by the following conditions:

1. All information contained in the research documents and any information discussed during the focus group meeting will be kept private and confidential. This is especially binding to any information that may identify any of the participants in the research process.
2. None of the information shall be communicated to any other individual or organisation outside of this specific focus group as to the decisions of this focus group.
3. The information from this focus group will be made public in terms of a journal publication, which will in no way identify any participants of this research.

Member represents	Member's Name	Signature	Contact Details

APPENDIX C5

Equine Chiropractic Questionnaire

Instructions: Please tick or cross the appropriate answer.

1. Demographic Data					
1.1 Gender?	Male				Female
1.2 Age at last birthday?					
1.3 Race (statistical purposes only)?	Black	White	Coloured	Indian	Other, please specify..

2. Education :			
2.1 What is the highest education that you have obtained? (or currently studying for)	Primary School	Secondary School	Matric
	Diploma	Undergraduate	Postgraduate
	PhD		
2.2. Where did you obtain your education?			

3. Equine Experience:					
3.1 Are you a member of the Natal Horse Society?	Yes		No		
3.2 If yes, how many years have you been a member of the Natal Horse Society?	0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs
3.3 Are you are registered with any para-equine associations?					

3.4 Have you attended any courses on equine management?	Yes				No (continue to 3.6)	
3.5 If yes, what course(s) have you attended?						
3.6 What equine sport(s) do you participate in, and for how long (years)? (more than one answer possible)	Show-jumping	0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs
	Dressage	0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs
	Equitation	0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs
	Endurance	0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs
	Horse-racing	0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs
	Showing	0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs
	Gymkhana	0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs
	Other, please specify:	0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs
3.7 How many years(total) have you been horse riding for?	0-5 yrs	6-10 yrs	11-15 yrs	16-20 yrs	21+ yrs	
3.8. How many horses do you ride?	1	2	3	4	5	6	7	8	9	10+
3.9 Where does the horse you ride the most stay predominantly?	In a stable		Paddock with grass		Paddock with sand	
3.10 How old is the horse you ride the most?	0-5 years	5-10 years	10-15 years	15-20 years	20+ years	
3.11 Who looks after the horse you ride the most?	Groom	Stable Owner	Horse Owner	You (the rider)		

3.12 In the last year what conditions has the horse you ride the most been treated for?	Colic		Laminitis		Fonder		EPM			
	Equine Influenza		Horse Sickness		Injuries		Other, please specify:			
3.13 What treatment for the above conditions did the horse you ride the most receive?	Veterinary care		Alternative treatment		No treatment		Other, please specify:			
3.14 Do you make use of any alternative veterinary therapies?	Yes				No (proceed to 3.16)					
3.15 If yes, what therapies do you make use of?	Acupuncture		Massage Therapy		Chiropractic		Herbal therapy			
	Physiotherapy		Homeopathy		Nutritional therapy		Bowen technique			
	Other, please specify:									
3.16 How often does the horse you ride the most see a vet per year?	1	2	3	4	5	6	7	8	9	10+

4. Knowledge of Human Chiropractic:				
4.1 How would you describe your knowledge of chiropractic?	Never heard of chiropractic (proceed to section 5)	I have heard of it but I do not know a lot about it	I know something about it	My knowledge about chiropractic is good
4.2 How did you get this information? (More than one answer possible)	Lay lecture about chiropractic	I have read about chiropractic in a medical journal	I have read about chiropractic in a (lay) journal	From friends and my family
	From my doctor	Through the media	Interaction with a chiropractor	From people/persons who have been treated by a chiropractor
	Other, please specify:			

4.3 Was the information favourable?	Yes	No	
4.4 Have you ever been treated by a chiropractor	Yes (proceed to 4.5)	No (proceed to 4.6)	
4.5 If yes, did you find the treatment beneficial?	Yes	No	
4.6 Please choose weather you believe these statements to be True or False.	Chiropractic does not make use of manipulation when treating	True	False
	Chiropractic is a form of primary health care	True	False
	Chiropractic makes use of electro-modalities (e.g.: ultrasound)	True	False
	Surgery falls under a chiropractor's scope of practice	True	False
	Chiropractic treatment is covered but most major medical aids	True	False
	Dry needling is an adjunct treatment available to chiropractors	True	False

5. Knowledge and Utilization of Equine Chiropractic:				
5.1 How would you describe your knowledge of Equine Chiropractic?	Never heard of Equine chiropractic (proceed to section 6)	I have heard of it but I do not know a lot about it	I know something about it	My knowledge about Equine chiropractic is good
5.2 How did you get this information? (More than one answer possible)	Lay lecture about Equine chiropractic	I have read about Equine chiropractic in a medical journal	I have read about Equine chiropractic in a (lay) journal	The horse I ride is being treated by an equine chiropractor.
	From my veterinarian	Through the media	Interaction with a Equine chiropractor	From people/persons who have had there horse's treated by an Equine chiropractor

	Through information at my stable yard		Interaction with a Human chiropractor		Other, please specify:					
5.3 Was the information favourable?	Yes				No					
5.4 Please choose whether you believe these statements to be True or False.	Equine chiropractic makes use of manipulation of limbs in treatment				True	False				
	chiropractic is a form of primary health care				True	False				
	Equine chiropractors can diagnose a horse patient in South Africa				True	False				
	Equine chiropractors can only administer treatment under referral in South Africa				True	False				
	Chiropractic on horses treats the spine only				True	False				
	Chiropractic on horses does not make use of an activator gun				True	False				
	yes, what type of response did the horse have to the treatment?				True	False				
5.5 Has an Equine Chiropractor ever treated the horse that you ride?	Yes				No (proceed to 5.11)					
5.6 If Yes what type of response did the horse have to the treatment?	Improved			Stayed the same			Got worse			
5.7 How regularly does the horse you ride see an equine chiropractor? (per year)	1	2	3	4	5	6	7	8	9	10+
5.8 Who referred/ informed/ suggested an equine chiropractor?	Veterinarian		Veterinary Nurse		Human Chiropractor		Other, please specify:			
5.9 Would you be interested in having an Equine Chiropractor treat the horse you ride in the future?	Yes				No (continue to 5.12)					

5.10 For what reason would you be interested in having an Equine Chiropractor treat the horse you ride?	Improve performance		Maintenance		Treat a condition		Other, please specify:			
5.11 Which equine conditions would you consider getting an Equine Chiropractor to treat?	Behaviour or mood change							Yes	No	
	Bowel, bladder, and internal medicine							Yes	No	
	Chronic pain syndrome							Yes	No	
	Degenerative arthritis							Yes	No	
	Intervertebral disc problem							Yes	No	
	Infections							Yes	No	
	Jaw or TMJ problems							Yes	No	
	lameness							Yes	No	
	Head shaking							Yes	No	
	Muscle spasms							Yes	No	
	Musculoskeletal injuries							Yes	No	
	Neck, back, leg, and tail pain							Yes	No	
	Nerve problems, e.g. sciatica neuralgia							Yes	No	
	Post-surgical care							Yes	No	
	Seizures or neurological problems							Yes	No	
	Navicular disease or laminitis							Yes	No	
	Uneven pelvis or hips							Yes	No	
	Other, please specify:							Yes	No	
5.12 How many Equine Chiropractors do you know of?	1	2	3	4	5	6	7	8	9	10+
5.13 What qualification(s) do they hold? (more than one answer possible)	None		Course Certificate		Honours in Equine Chiropractic		Masters in Equine Chiropractic			
	Masters in Human Chiropractic		Veterinary degree		I don't know					
5.14 Where did they obtain their qualification?										
5.15 How many years did they study for their qualification?	< 1yr		1-2 yrs		3-4 yrs		5-6 yrs		6+ yrs	

6. Information				
6.1 What information about chiropractic on horses would you like to be available? (more than one answer possible)	Education, including equine chiropractic courses		Yes	No
	Scientific research		Yes	No
	Indications for Equine chiropractic treatment		Yes	No
	Different Equine chiropractic techniques		Yes	No
	Terminology		Yes	No
	Effects/ safety		Yes	No
	Ethical/ legal situation		Yes	No
	None		Yes	No
	Other, please specify:		Yes	No
6.2 In what form would you be interested in receiving it?	Pamphlet	Phone call	Oral presentation	E-mail
	Magazine article	None	Other, please specify:	

APPENDIX D

Equine Chiropractic Questionnaire

Instructions:	**1. For those questions where necessary please tick. For those questions where a response is required please be accurate.**	
	2. Please tick the box if you have signed the informed consent form.	
	3. Please do not write your name or details anywhere on the questionnire.	

1. Demographic Data					
1.1 Gender?	Male				Female
1.2 Age at last birthday? (years)					
1.3 Race (statistical purposes only)?	Asian	Black	Coloured	White	Other, please specify..
1.4 Have you ever been to a Chiropractor?	Yes (proceed to 1.5)			No (proceed to 2.1)	
1.5 Was the treatment benificial?	Yes			No	

2. Education :	
2.1 What is the highest qualification(s) you have obtained?	Primary School
	Secondary/ High School
	Matric (completion of high school)
	Certificate
	Higher Certificate
	Diploma
	Honours/ BTech
	Masters
	PHD
2.2 In what field is the qualification (e.g. Medicine, Accounting, Zoology)?	
2.3. Where did you obtain your education?	

3. Equine Experience:			
3.1 Have you ever been a member of a horse society?	Yes	No (proceed to 3.3)	
3.2 If Yes, please specify which horse society and for how long you were a member (years)?			
3.3 Have you ever been a member of the KwaZulu Natal Horse Society?	Yes	No (proceed to 3.5)	
3.4 If yes, for how many years have you been a member?			
3.5 Have you attended any courses that are equine specific?	Yes	No (proceed to 3.7)	
3.6 If yes, what course(s) have you attended and where did you attend them (local vs overseas)?			
3.7 Have you ever worked with horses in any capacity?	Yes	No (proceed to 3.10)	
3.8 If Yes, in what capacity and for how long?			
3.9 Where did you work?	Local	International	
3.10 Which equine sports have you participated in and are you participating in currently and for how long (years)? (more than one answer possible)	Dressage		yrs
	Endurance		yrs
	Equitation		yrs
	Eventing		yrs
	Gymkhana		yrs
	Horse-racing		yrs
	Polo		yrs
	Polo crosse		yrs
	Rodeo		yrs
	Showing		yrs
	Showjumping		yrs
	Trec		yrs
	Vaulting		yrs
	Other, please specify:		yrs
3.11 For how many years (total) have you been horse riding?			

3.12 How many horses do you ride currently?	1	2	3	4	5	6	7	8	9	10+

3.13 The horse you ride the most:										
3.13.1 Where does this horse stay predominantly?	In a stable			Paddock with grass			Paddock with sand			
3.13.2 How old is this horse?	0-5 years		5-10 years		10-15 years		15-20 years		20+ years	
3.13.3 Who looks after this horse?	Groom		Stable Owner		Horse Owner		You (the rider)			
3.13.4 Are you the owner/ rider or both for this horse?	Owner		Rider		Both the owner and rider					
3.13.5 In the last year what conditions has this horse been treated for? Please specify what treatment.	**Condition**	**Type of Treatment**								
		Veterinary care	Alternative treatment	No treatment	Other:					
	African Horse Sickness									
	Behaviour or mood change									
	Bowel, bladder, and internal medicine									
	Chronic pain syndrome									
	Colic									
	Degenerative arthritis									
	Equine influenza									
	Equine protozoal myeloencephalitis									
	Head shaking									
	Improve performance									
	Infections									
	Injuries									
	Intervertebral disc problem									
	Jaw or TMJ problems									
	Lameness									
	Laminitis/ Founder									
	Maintenance									
	Muscle spasms									
	Musculoskeletal injuries									
	Navicular disease									
	Neck, back, leg, and tail pain									
	Nerve problems, e.g. pinched nerve									
	Post-surgical care									

	Seizures or neurological problems				
	Uneven pelvis or hips				
	Vaccinations				
	Other, please specify:				

3.13.6 Do you make use of any alternative therapies?	Yes					No (proceed to 3.12.7)				
3.13.7 If yes, what therapies do you make use of and what was the response?	**Therapy**				**Response**				**How many visits per year?**	
					Improved		Stayed same	Got worse		
	Acupuncture									
	Bowen technique									
	Chiropractic									
	Herbal therapy									
	Homeopathy									
	Nutritional Therapy									
	Physiotherapy									
	Other, please specify:									
3.13.8 How often does this horse see a vet per year?	1	2	3	4	5	6	7	8	9	10+
3.14 Other horses that you are currently riding or have ever riden.										
3.14.1 Do you make use of any alternative therapies?	Yes					No (proceed to 4.1)				
3.14.2 If yes, what therapies do you make use of and what was the response?	**Therapy**				**Response**				**How many visits per year?**	
					Improved		Stayed same	Got worse		
	Acupuncture									
	Bowen technique									
	Chiropractic									
	Herbal therapy									
	Homeopathy									
	Nutritional Therapy									
	Physiotherapy									
	Other, please specify:									

4. Knowledge and Perception of Equine Chiropractic:					
4.1 How would you describe your knowledge of Equine Chiropractic?	Never heard of Equine Chiropractic (proceed to section 5)	I have heard of it but I do not know a lot about it	I know something about it	My knowledge about Equine Chiropractic is good	
4.2 How did you get this information? (More than one answer possible)	Chiropractor				
	Friends/Family				
	Informal/Non-professional lecture on chiropractic				
	Internet				
	Magazine				
	Medical journal				
	My Doctor				
	People/person who have been treated by a chiropractor				
	Radio				
	TV				
	Other, please specify:				
4.3 Was the information favourable?	Yes		No		
4.4 Please choose whether you believe these statements to be True or False.	Equine Chiropractic adjustment to joints when treating		True	False	Unknown
	Chiropractic is a form of primary health care		True	False	Unknown
	Equine Chiropractors can diagnose a horse patient in South Africa		True	False	Unknown
	Equine Chiropractors can only administer treatment under referral in South Africa		True	False	Unknown
	Chiropractic treatmenr of horses treats the spine only		True	False	Unknown
	Chiropractic on horses does not make use of an mechanical adjusting device (e.g. mallet)		True	False	Unknown

5.Utilization of Equine Chiropractic										
5.1 How many Equine Chiropractors do you know of?	0	1	2	3	4	5	6	7	8	9+
5.2 Have one of these Equine Chiropractors ever treated the horse you ride?	Yes					No (proceed to 5.5)				
5.3 Name of that Equine Chiropractor										
5.4 Where did they obtain their qualification?	Local					International				
5.5 Have any of the following suggested you to consult with an Equine Chiropractor?	Human Chiropractor	Riding Instructor	Veterinarian	Veterinary Nurse	Other:					

5.6 For which of the following would you consider getting an Equine Chiropractor for?			
	African Horse Sickness	Yes	No
	Behaviour or mood change	Yes	No
	Bowel, bladder, and internal medicine	Yes	No
	Chronic pain syndrome	Yes	No
	Colic	Yes	No
	Degenerative arthritis	Yes	No
	Equine influenza	Yes	No
	Equine protozoal myeloencephalitis	Yes	No
	Head shaking	Yes	No
	Improve performance	Yes	No
	Infections	Yes	No
	Injuries	Yes	No
	Intervertebral disc problem	Yes	No
	Jaw or TMJ problems	Yes	No
	Lameness	Yes	No
	Laminitis/ Founder	Yes	No
	Maintenance	Yes	No
	Muscle spasms	Yes	No
	Musculoskeletal injuries	Yes	No
	Navicular disease or laminitis	Yes	No
	Neck, back, leg, and tail pain	Yes	No
	Nerve problems, e.g. pinched nerve	Yes	No
	Post-surgical care	Yes	No

	Seizures or neurological problems	Yes	No
	Uneven pelvis or hips	Yes	No

6. Information		
6.1 What information about Chiropractic on horses would you like to be available? (more than one answer possible)	Different Equine Chiropractic techniques	
	Education, including Equine Chiropractic courses	
	Effects/ safety	
	Ethical/ legal situation	
	Indications for Equine Chiropractoc treatment	
	Scientific research	
	Terminology	
	None	
	Other:	
6.2 Would you be interested in having an Equine Chiropractor treat the horse you ride in the future?	Yes	No

Thank You for Participating!

APPENDIX E1

Letter of Information

Dear Participant,

I would like to welcome you into my study, the Title of my Research Study is:

The Knowledge, Perception and Utilization of Equine Chiropractic by horse riders in KwaZulu-Natal.

Principle Investigator: Kirsten Snow

Supervisor: Dr Grant Matkovich

Brief Introduction and Purpose of the Study

Background to the study:

Equine Chiropractic involves the use of adjustment techniques to treat the horse's musculoskeletal system. Equine chiropractic has shown to be a successful method of treatment for the athletic horse. Equine Chiropractic provides additional therapeutic resources that may help equine practitioners treat the primary causes of lameness and poor performance. Many equine back problems do not respond to traditional medical-based treatments. Equine Chiropractic allows horses to be treated without the use of drugs or other therapies that are banned in many equine sports. This said, as more and more people seek out complementary and alternative medicine for their own health care, they begin to seek out these forms of therapy for their animals.

Perception is the human mind's ability to process information from the surrounding environment. Perceptions are an important method of gathering data on a subject. People's perceptions are forever changing, thus keeping up to date with the latest perceptions is important. The change in perception over time based on experience is known as perceptual learning. This study aims to identify the latest perceptual learning amongst horse riders towards Equine Chiropractic.

Equine Chiropractic has shown to be affective in the treatment of equine back pain, neck pain and lameness. Concluding that there is a place for Equine Chiropractic in the horse world. However the perceptions and knowledge of horse riders towards Equine Chiropractic ultimately play a significant role in the utilization of Equine Chiropractic.

The perceptions of horse riders towards Equine Chiropractic influence the acceptance of Chiropractic as a whole. The Chiropractic profession can only develop once it understands what the end user requires.

This study aims to gather data that can contribute to the professional development of Chiropractic and Equine Chiropractic.

Objective of the study:

The data obtained by means of this questionnaire will allow for further assessment and advancement of Chiropractic with regards to Equine Chiropractic. It will allow for an understanding of the current status of Equine Chiropractic within KZN and provide a knowledge base from which to formulate future educational and promotional drives.

The questionnaire will cover questions on the horse riders:

- Equine Experience
- Knowledge and Utilization of Equine Chiropractic
- Perception towards Equine Chiropractic

➢ The questionnaire will only take approximately 10 minutes to complete, as most of the questions require you to tick or circle the appropriate answer. Only a few short written responses are required.

Outline of the Procedures:

The questionnaire will be hand delivered to the entire sample population (horse riders) at the various stable yards whose owners have given written permission for the research to take place at their yards. The questionnaire will be hand delivered along with information about the study and an informed consent form. The informed consent form will include the participating person's name and contact details and will be placed into a sealed box (box A) immediately after completion by the participant. The sealed box will not be opened unless needed. The questionnaire form will have a box that can be ticked to indicate that the participant has filled in the consent form and is happy to participate in the study. The participants will then fill out the questionnaire immediately and then place the questionnaire into a sealed box (box B) - so that no association is made between a particular person and a questionnaire. The same process will be repeated with each participant. Names of the participants will not be visible to either the researcher or supervisor as the questionnaire will direct the respondents not to write their name anywhere on the questionnaire and the consent forms will remain sealed. Once all questionnaires are

complete- the sealed box will be shaken up so as to mix up the questionnaires. The data will then be sent to a statistician for analysis.

Risks or Discomforts to the Subject:

This study involves no risk or harm to the participants. All participants' details will remain fully confidential.

Benefits:

There is a possibility that the research will be published. The research will form a stepping stone for further research and development within the Equine Chiropractic field.

Reason/s why the Subject May Be Withdrawn from the Study:

Participants are free to withdraw from this study at any time, without reasons given.

Remuneration:

There is unfortunately no remuneration involved with the participation in this research.

Costs of the Study:

The participants are expected to cover NO costs in this study.

Confidentiality:

This is discussed in more detail under the procedure of the study (see above). Participants' details will remain fully confidential.

Research-related Injury:

Not applicable. The participants are only required to fill out a questionnaire.

Persons to Contact in the Event of Any Problems or Queries:

Kirsten Snow (Researcher): Cell- 084 8188 997, email- kirstenmoyasnow@gmail.com

Dr Grant Matkovich (Supervisor): Cell- 0825683986, email- grantmatko@mweb.co.za

Thank You

Your participation in this study is appreciated and you are assured that your comments and contributions to the discussion will be kept confidential. The results of the discussion will be used for research purposes only. If you have any further questions please feel free to contact either my supervisor/or myself (Kirsten Snow).

APPENDIX E2

Informed Consent Form

Statement of Agreement to Participate in the Research Study:

I,….....

ID number ……......, have read this document in its entirety and understand its contents. Where I have had any questions or queries, these have been explained to me by …….....to my satisfaction. Furthermore, I fully understand that I may withdraw from this study at any stage without any adverse consequences and my future health care will not be compromised. I, therefore, voluntarily agree to participate in this study.

Subject's name (print) ……...

Subject's signature:……..…….. Date:……..…

Researcher's name (print) ……..…….....

Researcher's signature:…….....Date:.....

Witness name (print) …….....

Witness's signature:…….....Date:……..

APPENDIX F

DURBAN UNIVERSITY of TECHNOLOGY

INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREC)

16 January 2012

IREC Reference Number: **REC 8/11**

Ms K Snow
P O Box 947
Westville
3630

Dear Ms Snow

The knowledge, perception and utilization of Equine Chiropractic by horse riders in KwaZulu Natal

I am pleased to inform you that Full Approval has been granted to your proposal REC 8/11 subject to the following amendment:

- The expert group is being referred to a focus group. Remove focus group, which was placed in brackets.

The Proposal has been allocated the following Ethical Clearance number IREC 007/11. Please use this number in all communication with this office.

Approval has been granted for a period of one year, before the expiry of which you are required to apply for safety monitoring and annual recertification. Please use the Safety Monitoring and Annual Recertification Report form which can be found in the Standard Operating Procedures [SOP's] of the IREC. This form must be submitted to the IREC at least 3 months before the ethics approval for the study expires.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC SOP's. In addition, you will be responsible to ensure gatekeeper permission.

Please note that ANY amendments in the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely

[redacted]

Prof T Puckree
Chairperson: IREC

APPENDIX G

Statistical significance: Chi-sq analysis and Fisher's Exact Test analysis calculations

Correlation between utilization of a human chiropractor and utilization of an equine chiropractor

	Human	%	Equine	%		Chi-Sq
Yes	56	67.5	28	75.7		0.82058
No	27	32.5	9	24.3		0.82058
	83	100.0	37	100.0		
OBS	56	28	84			
	27	9	36		Chi-sq	
	83	37	120		0.365	
EXP	58.1	25.9	84		If Chi-sq=3.8 shows p<0.05	
	24.9	11.1	36			

Relationship between the age of respondents and their knowledge of equine chiropractic

Age group	None	%	Little	%	Some	%	Good	%	Total
<30	2	7.1	10	35.7	12	42.9	4	14.3	28
31-50	4	10.3	14	35.9	15	38.5	6	15.4	39
>51	2	12.5	7	43.8	7	43.8	0	0.0	16
	8	9.6	31	37.3	34	41.0	10	12.0	83

Age group	Observed				
	No knowledge	A little knowledge	Some knowledge	Good knowledge	
<30	2	10	12	4	28
31-50	4	14	15	6	39
>51	2	7	7	0	16
	8	31	34	10	83
	Expected				
<30	3	10	11	3	
31-50	4	15	16	5	
>51	2	6	7	2	

Chi-sq=	0.8002	Not significant
A chi-sq >=3.84 gives a p value <= 0.05		

Relationship between the utilization of alternative equine therapies and knowledge of equine chiropractic

	Knowledge								
	A	%	B	%	C	%	D	%	Total
Equine chiro	0	0.0	4	16.7	14	58.3	6	25.0	24
Other Alt therapy	0	0.0	8	47.1	8	47.1	1	5.9	17
None	8	19.0	19	45.2	12	28.6	3	7.1	42
	8	9.6	31	37.3	34	41.0	10	12.0	83

OBSERVED	Knowledge						
	None	B	C	D	Total		
Equine chiro	0	4	14	6	24		Chi-sq
Other Alt therapy	0	8	8	1	17		0.0029
None	8	19	12	3	42		
	8	31	34	10	83		
EXPECTED							
	A	B	C	D			
Equine chiro	2	9	10	3			
Other Alt therapy	2	6	7	2			
None	4	16	17	5			

OBSERVED			Knowledge				
	None	Little	Some	Good	Total		
Alt therapy	0	12	22	7	41		Chi-sq
None	8	19	12	3	42		0.0028
	8	31	34	10	83		

EXPECTED							
	A	B	C	D			
Alt	4	15	17	5			
None	4	16	17	5			

Relationship between the utilization of an equine chiropractor and knowledge of equine chiropractic

	Knowledge								
	A	%	B	%	C	%	D	%	Total
Equine chiro	0	0.0	4	16.7	14	58.3	6	25.0	24
Other Alt therapy	0	0.0	8	47.1	8	47.1	1	5.9	17
None	8	19.0	19	45.2	12	28.6	3	7.1	42
	8	9.6	31	37.3	34	41.0	10	12.0	83

OBSERVED	**Knowledge**						
	None	B	C	D	Total		
Equine chiro	0	4	14	6	24		Chi-sq
Other Alt therapy	0	8	8	1	17		0.0029
None	8	19	12	3	42		
	8	31	34	10	83		
EXPECTED							
	A	B	C	D			
Equine chiro	2	9	10	3			
Other Alt therapy	2	6	7	2			
None	4	16	17	5			

OBSERVED			**Knowledge**				
	None	Little	Some	Good	Total		
Equine chiro	0	4	14	6	24		Chi-sq
None	8	19	12	3	42		0.0017
	8	23	26	9	66		

EXPECTED							
	A	B	C	D			
Equine	3	8	9	3			
None	5	15	17	6			

Respondents who knew of equine chiropractor(s) vs. the utilization of equine chiropractors

		Use chiro	**Use chiro**		
Know	**Number**	**Main**	**Other**	**Total**	**%**
None	13	0	0	0	0.0
One	29	8	4	11	37.9
Two	27	9	14	18	66.7
Three	8	4	3	4	50.0
Four	6	4	3	4	66.7
1-4	70	25	24	37	

To determine if there was a trend amongst respondents who were against the future use of equine chiropractic for their horses

Age

No to future chiropractic													
		Gender		%		**AGE**		%		**AGE**			%
NO		M	3	30.0		18-20	0	0.0		<30	1		10.0
10		F	7	70.0		21-30	1	10.0		>30	9		90.0
						31-40	3	30.0			10		
						41-50	3	30.0					
						51-60	1	10.0					
						61-70	2	20.0					
							10						

Yes to future chiropractic												
YES		M	13	17.8		**Age**		%		**Age**		%
73		F	60	82.2		18-20	11	15.1		<30	27	37.0
						21-30	16	21.9		>30	46	63.0
						31-40	10	13.7			73	
						41-50	23	31.5				
						51-60	9	12.3				
						61-70	4	5.5				
							73					

Chi-sq=	2.86	p=+-0.06
Fisher's exact		**p=0.073**
A p value less than 0.05 is significant		
Therefore no statistical significance was found		

Equine courses that respondents attended

No to future chiropractic								
		Gender		%		**Courses**		%
NO		M	3	30.0		Y	2	20.0
10		F	7	70.0		N	8	70.0
						UNK	0	0.0
							10	
Yes to future chiropractic								
YES		M	13	17.8		**Courses**		%
73		F	60	82.2		Y	36	43.4
						N	37	44.6
							73	

OBSERVED		
2	36	38
8	37	45
10	73	83
EXPECTED		
4.6	33.4	38
5.4	39.6	45
Chi-sq=	0.081	NS

Fisher's exact	**p=0.062**
A p value less than 0.05 is significant	
Therefore no statistical significance was found	

The respondents' education

No to future chiropractic									
		Gender		%			**EDUCATION**		%
NO		M	3	30.0			High	1	10.0
10		F	7	70.0			Matric	6	60.0
							Certificate	0	0.0
							Higher Cert	0	0.0
							Degree	1	10.0
							Diploma	2	20.0
							Honours	0	0.0
							Masters	0	0.0
Yes to future chiropractic								10	
YES		M	13	17.8			**EDUCATION**		%
73		F	60	82.2			High	2	2.7
							Matric	30	41.1
							Certificate	6	8.2
							Higher Cert	4	5.5
							Degree	11	15.1
							Diploma	15	20.5
							Honours	1	1.4
							Masters	4	5.5
								73	

EDUCATION		%
Lower qualification	7	70.0
Higher qualification	3	30.0
	10	
EDUCATION		%
Lower qualification	38	52.1
Higher qualification	35	47.9
	73	

Fisher's exact	**p=0.157**
A p value less than 0.05 is significant	
Therefore no statistical significance was found	

OBSERVED		
1	2	3
6	30	31
0	6	6
0	4	9
1	11	12
2	15	17
0	1	1
0	4	4
10	73	83

EXPECTED		
0.4	2.6	3
3.7	27.3	31
0.7	5.3	6
1.1	7.9	9
1.4	10.6	12
2.0	15.0	17
0.1	0.9	1
0.5	3.5	4
10	73	83
Chi-sq=	0.368	NS

The respondents' gender

No to future chiropractic				
		Gender		%
NO		M	3	30.0
10		F	7	70.0
Yes to future chiropractic				
YES		M	13	17.8
73		F	60	82.2

Fisher's exact	**p=0.200**
A p value less than 0.05 is significant	
Therefore no statistical significance was found	

Equine work experience

No to future chiropractic												
					Work with							
					horses		%					
NO					Y	4	40.0					
10					N	6	60.0		OBSERVED			
					UNK	0	0.0		4	47	51	
						10			6	26	32	
									10	73	83	
Yes to future chiropractic												
									EXPECTED			
YES					Work with				6.1	44.9	51	
73					horses		%		3.9	28.1	32	
					Y	47	64.4					
					N	26	35.6		Chi-sq=	0.137	NS	
					UNK	0	0.0					
						73						

Fisher's exact	**p=0.093**
A p value less than 0.05 is significant	
Therefore no statistical significance was found	

To determine if there was an association between the duration of time the respondents had horse ridden for and their knowledge of equine chiropractic

Years riding vs. Knowledge									
Years	**None**	**%**	**Little**	**%**	**Some**	**%**	**Good**	**%**	**Total**
1-5	4	25.0	7	43.8	5	31.3	0	0.0	16
6-10	2	10.5	6	31.6	8	42.1	3	15.8	19
11-20	0	0.0	7	36.8	11	57.9	1	5.3	19
21-30	1	8.3	6	50.0	3	25.0	2	16.7	12
31-40	0	0.0	2	16.7	7	58.3	3	25.0	12
>40	1	20.0	3	60.0	0	0.0	1	20.0	5
	8	9.6	31	37.3	34	41.0	10	12.0	83
OBSERVED									
Years	**None**	**Little**	**Some**	**Good**					
1-5	4	7	5	0	16				
6-10	2	6	8	3	19				
11-20	0	7	11	1	19				
21-30	1	6	3	2	12				
31-40	0	2	7	3	12			If Chi-sq = 3.8 p=0.05	
>40	1	3	0	1	5				
	8	31	34	10	83				
EXPECTED									
	2	6	7	2			Chi-sq		
	2	7	8	2			0.143		
	2	7	8	2					
	1	4	5	1					
	1	4	5	1		No significant difference			
	0	2	2	1					