Consumer Attitudes towards Medical Information: An Exploratory Study of Direct-To-Consumer Prescription Drug Advertising in Australia

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DECLARATION

The present thesis contains no material, which has been accepted for the award of any other degree in any university or other institution. To the best of my knowledge, it also contains no material previously published or written by another person, except where reference is made in the text of the thesis.

Signed:.. [redacted] .....

Date:.....14 Feb 2004.....

DEDICATON

This work is dedicated to all of my teachers.

ABSTRACT

The present exploratory study examined consumer attitudes towards medical information, particularly, from Direct-To-Consumer Prescription Drug Advertising (DTCA) in Australia. Nowadays, consumers require more information about prescription medicines that they may be interested in. Further, a modern information technology, such as the Internet, provides a great opportunity to access such information easily. Also, little is known about the issues regarding prescription drug advertising in Australia. As a result, there is an increased demand for exploratory studies in the area of DTCA in Australia. Even though this type of drug advertising is not allowed in many countries including Australia, the investigation of consumer attitudes towards medical information from healthcare providers and DTCA would provide a better understanding of what the general public want and create a valuable guidance for the future research.

Increasingly, DTCA is viewed as an alternative avenue for providing medical information directly to consumers, and as an instrument to eliminate the idiosyncratic healthcare provider-patient relationship. The increase in DTCA for prescription medicines is occurring all over the world. This globalisation of DTCA may reflect the realisation that health consumers want more information than ever. However, professional organisations and healthcare providers have expressed their concerns over the potential problems, quality and truthfulness of information from drug advertising, and actual effects of DTCA on the public.

Although in the U.S., Canada, New Zealand, and European countries, consumer surveys regarding DTCA appear frequently in literature, no exploratory and empirical research has been undertaken in Australia. The present exploratory study investigated various topics surrounding DTCA for prescription medicines, such as the relationships between consumer attitudes towards DTCA, consumer backgrounds and characteristics, and consumer intentions regarding advertised

medicines. The study explored these issues by utilising a range of sound theoretical frameworks, such as the A-B-C Attitude Components Model (Rosenberg and Hovland 1960), the Theory of Reasoned Action - TRA (Ajzen and Fishbein 1980), and the Social Cognitive Theory (Bandura 1986). Moreover, it developed a theoretical framework for examining consumer attitudes towards DTCA. This theoretical framework aimed to explore the relationships between the level of consumer support for DTCA, consumer attitudes and intentions by including consumer background and characteristic variables, and by defining the dimensions within these attitudes.

The main research question, which guided this exploratory study, was '*what are the attitudes of the Australian public towards medical information from prescription drug advertising?*' In order to answer this research question, the present study utilised a purposive sample of eight hundred and sixty-three Australian health consumers from twenty-five healthcare businesses (seven doctor clinics, ten chemists, and eight alternative therapist clinics), for examining the relationships between various attitude dimensions regarding DTCA, levels of consumer support for DTCA, and consumer intentions regarding advertised medicines. The sample was divided into three groups, with each group containing at least two hundred participants. Various statistical techniques, i.e. Factor Analysis, Cronbach Alpha Coefficient (α), Descriptive Statistics, Chi-square test (χ^2), Pearson Product-moment Correlation Coefficient and one-way Analysis of Variance (one-way ANOVA), were utilised to answer the research questions and to test the propositions. As a result, the findings of this study would assist pharmaceutical companies, advertisers, marketing managers, and policy makers in developing specific communication programmes to meet the interests of consumers and to assess the potential problems of DTCA.

The major findings of this study were: a) generally, Australian consumers held positive attitudes towards medical information from alternative sources, such as DTCA. However, whilst the majority of consumers believed that DTCA would

provide various benefits, they still thought that this type of drug advertising would also create a number of negative effects on the general public; b) even though opinions differed between the consumer groups as to whether Australia should allow DTCA, no evidence showed that Australian consumers needed or wanted medical information from DTCA; c) consumer beliefs about the potential effects of DTCA (both positive and negative) and consumer feelings about general advertising, correlated positively with the level of consumer support for DTCA; d) the two significant variables, which had an effect on the level of DTCA consumer support, were previous consumer exposure to prescription drug advertising and consumer's prior knowledge about drug regulation and prescription drug advertising. An understanding of these variables may lead to indicative predictors about future consumer support for DTCA; e) consumer attitudes towards healthcare-provider patient relationship revealed a strong positive correlation with consumer intention to talk to their healthcare providers about an advertised medicine; and f) consumer beliefs about the positive effects of DTCA played a central role in consumers intention to seek more information about a drug as a result of DTCA. This finding also suggested that DTCA would encourage consumers to seek more information about advertised medicines or about their health conditions.

The findings from this exploratory study contributed to theoretical knowledge by providing evidence for the relationship between consumer attitudes and intentions regarding DTCA. The present study also suggested implications for consumers, policy makers, healthcare professionals, marketing managers, and advertisers as well as providing recommendations for further research in the area of DTCA in Australia.

TABLE OF CONTENTS

DECLARATION.....II
DEDICATION.....III
ACKNOWLEDGEMENT.....IV
ABSTRACT.....VI
TABLE OF CONTENTS.....IX
LIST OF ABBREVIATIONS.....XV
LIST OF TABLES.....XVII
LIST OF FIGURES.....XX

CHAPTER 1

INTRODUCTION.....1

1.1. Research Background.....1
1.2. Research Problem.....4
1.3. Research Objectives.....7
1.3.1. General Objective
1.3.2. Specific Objectives
1.4. Research Questions.....8
1.5. Significance of the Study.....9
1.6. Brief Research Methodology.....12
1.7. Key Definitions.....13
1.7.1. Attitudes
1.7.2. Medicines
- *Group 1: Registered Medicines*
  - *Prescription Medicines*
  - *Non- prescription or Over-The-Counter (OTC) Medicines*
- *Group 2: Listed Medicines*
  - *Complementary Medicines*

1.7.3. Drug Promotion and Advertising

1.7.4. Direct-To-Consumer Advertising (DTCA)

1.8. Assumptions of the Study.....18

1.9. Scope of the Study.....18

1.10. Limitations of the Study.....19

1.11. Structure of the Thesis.....19

1.12. Conclusion.....21

CHAPTER 2

A GLOBAL PERSPECTIVE ON DTCA OF PRESCRIPTION MEDICINES.....22

2.1 Introduction.....22

2.2 Direct-To-Consumer Prescription Drug Advertising (DTCA) 23

2.2.1 Development and Current Situation of Marketing Activities for Prescription Products

2.2.2 Trends in DTCA Expenditure and Prescription Drugs Spending

2.3 The Issues Involving Direct-To-Consumer Prescription Drug Advertising (DTCA).....34

2.3.1 Criteria and Regulations of Direct-To-Consumer Prescription Drug Advertising (DTCA)

- *World Health Organization (WHO) Ethical Criteria for Medicinal Drug Promotion*
- *Main Legislation and Guidelines Regulating Prescription Medicines in Australia*
- *Regulation of Advertising of Therapeutic Goods in Australia*
- *Regulation of Advertising of Prescription Only Medicines in Australia*
- *Australian Pharmaceutical Manufacturers Association (APMA) Code of Conduct*

2.3.2 The Effects of Direct-To-Consumer Prescription Drug Advertising (DTCA): Possible Benefits and Potential Risks

2.4 The Positions of Major Stakeholders Regarding Direct-To-Consumer Prescription Drug Advertising (DTCA) 48

2.4.1 World Health Organization (WHO)

2.4.2 International Federation of Pharmaceutical Manufacturers' Associations (IFPMA)

2.4.3 Society of Hospital Pharmacists of Australia (SHPA)

2.4.4 Pharmaceutical Health And Rational use of Medicines (PHARM) Committee

2.4.5 Australian Medical Association, Pharmacy Guide, and Pharmaceutical Society of Australia

2.4.6 Healthy Skepticism

2.5 Consumer Attitudes and Responses towards Direct-To-Consumer Prescription Drug Advertising (DTCA).....58

2.5.1 Consumer Attitudes towards Advertising and DTCA of Prescription Medicines

2.5.2 Consumer Responses towards DTCA of Prescription Medicines

2.6 Conclusion.....61

CHAPTER 3

THEORETICAL FRAMEWORK.....63

3.1 Introduction.....63

3.2 Consumer Information Acquisition and Processing 64

3.3 Consumer Knowledge and Information Need.....70

3.4 Attitude Theories and Relationships Between Attitudes and Intentions.....72

3.4.1 A-B-C Attitude Components Model

3.4.2 Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)

3.4.3 Theory of Consumer Socialisation: Social Cognitive Theory

3.5 Integrating Theories of Media Effects and Theories of Behavioural Change Across Stages-of-Change.....79

3.6 Unit of Analysis and Theoretical Framework.....83

3.6.1 Unit of Analysis

3.6.2 Theoretical Framework

3.7 Propositions.....90

3.8 Conclusion.....94

CHAPTER 4

RESEARCH METHODOLOGY.....96

4.1 Introduction.....96

4.2 Type of Research and Research Design.....96

4.3 Designing and Pre-testing the Questionnaire.....99

4.3.1 Variables and Variables Operationalisation

4.3.2 Questionnaire Design and Developing Questionnaire Items

- *Measurement of Consumer Knowledge about Current Drug Regulation and Prescription Drugs Advertising*
- *Measurement of Consumer Attitudes and Intentions related to DTCA of Prescription Medicines*
- *Measurement of Consumer Backgrounds and Characteristics*

4.3.3 Pilot Study

4.3.4 Measurement of Validity and Reliability

- *Validity test*
- *Reliability test*

4.4 Population and Sample.....127

4.4.1 Gender, Age, Education, and Occupation

4.4.2 Health Condition and Consumer Groups

4.5 Problems with Data Collection.....133

4.6 Administering the Questionnaire.....135

4.7 Data Editing.....136

4.7.1 Incomplete Questionnaires

4.7.2 Problems with Collected Data

- *Missing Data*

- *Multiple Answers*

4.8 Data Analysis.....138

4.9 Conclusion.....142

CHAPTER 5

FINDINGS OF THE STUDY AND DISCUSSION.....143

5.1 Introduction.....143

5.2 Consumer Knowledge about Drug Regulation and Prescription Drug Advertising 144

5.3 Consumer Exposure to Drug Advertising.....147

5.4 Consumer Intentions regarding Advertised Medicines and Sources of Additional Information about Prescription Medicines 151

5.5 Consumer Attitudes towards DTCA of Prescription Medicines.....156

5.5.1 DTCA Consumer Support

5.5.2 Consumer Beliefs about Medical Information from Healthcare Providers (HC-4) and Alternative Sources (AS-4)

5.5.3 Consumer Attitudes related to Healthcare Providers and their Information

- *Consumer Attitudes towards Healthcare Providers (HC-1)*
- *Consumer Attitudes towards Healthcare Provider-Patient Relationship (HC-2)*
- *Consumer Beliefs about Healthcare Providers Subsequent Behaviours (HC-3)*

5.5.4 Consumer Attitudes related to Alternative Medical Information Sources and their Effects

- *Consumer Beliefs about the Positive Effects of DTCA (AS-1)*
- *Consumer Beliefs about the Negative Effects of DTCA (AS-2)*
- *Consumer Feelings about General Advertising (AS-3)*

5.6 Proposition-test Results.....180

5.6.1 Proposition 1

- *Purpose of one-way Analysis of Variance (ANOVA) with Post-hoc Tests*

5.6.2 Proposition 2

- *Purpose of Pearson Product-moment Correlation Coefficient*

5.6.3 Proposition 3

- *Purpose of Chi-square Test for Independence*

5.6.4 Proposition 4

5.7 Conclusion.....203

CHAPTER 6

CONCLUSION, IMPLICATIONS, AND LIMITATIONS.....207

6.1 Introduction.....207

6.2 Research Conclusion.....207

6.3 Implications.....212

6.1.1 Theoretical Implications

6.1.2 Methodological Implications

6.1.3 Practical Implications

6.4 Limitations of the Study.....218

6.5 Suggested Future Research.....219

REFERENCES.....223

APPENDICIES

Appendix 1: Sample of Informed Consent Form

Appendix 2: DTCA Survey Questionnaire

LIST OF ABBREVIATIONS

AAMI:	Alliance for Access to Medical Information
AMOS:	Analysis of MOment Structures
APMA:	Australian Pharmaceutical Manufacturers Association
ABPI:	Association of the British Pharmaceutical Industry
ACCC:	Australian Competition and Consumer Commission
ANOVA:	ANalysis Of VAriance
ANCOVA:	ANalysis of COVAriance
CFA:	Confirmatory Factor Analysis
CMI:	Consumer Medicine Information
DDMAC:	Division of Drug Marketing, Advertising and Communications
DTC:	Direct-To-Consumer
DTCA:	Direct-To-Consumer Advertising
EC:	European Commission
EFA:	Exploratory Factor Analysis
GMP:	Good Manufacturing Practice
HAI:	Health Action International
IFPMA:	International Federation of Pharmaceutical Manufacturers Association
IMS:	Intercontinental Marketing Services
JZM:	Johnston, Zabor, McManus Inc.
KMO:	Kaiser-Meyer- Olkin
LD:	Listwise Deletion
MaLAM:	Medical Lobby for Appropriate Marketing
MANOVA:	Multivariate Analysis Of Variance
MI:	Mean Imputation
MOH:	Ministry Of Health
NMA:	National Medicare Alliance
NIHCM:	National Institute for Health Care Management Research and Educational Foundation.

OTC:	Over-The-Counter Medicines
PAF:	Principle Axis Factoring Analysis
PBS:	Pharmaceutical Benefits Scheme
PCA:	Principle Components Analysis
PD:	Pairwise Deletion
PHAA:	Public Health Association of Australia Inc.
PHARM:	Pharmaceutical Health And Rational use of Medicines Committee
PhRMA:	Pharmaceutical Research and Manufacturers of America
PICTF:	Pharmaceutical Industry Competitiveness Task Force
PPI:	Public Policy Institute
QUM:	Quality Use of Medicines Principles
RACGP:	Royal Australian College of General Practitioners
RACP:	Royal Australasian College of Physicians
RMI:	Researched Medicines Industry Association of New Zealand
SAPMA:	South African Pharmaceutical Manufacturers Association
SEM:	Structural Equation Modeling
SHPA:	Society of Hospital Pharmacists of Australia
SPSS:	Statistical Package for Social Science
SUSDP:	Standard for Uniform Scheduling of Drugs and Poisons
TGA:	Therapeutic Goods Administration
TGAC:	Therapeutic Goods Advertising Code
TPB:	Theory of Planned Behaviour
TRA:	Theory of Reasoned Action
TPD:	Therapeutic Products Directorate
U.S. FDA:	United States Food and Drug Administration
U.S. FTC:	United States Federal Trade Commission
WHA:	World Health Assembly
WHO:	World Health Organization

LIST OF TABLES

CHAPTER 2

Table: 2.1 An Overview of the Expenditure Percentage of Marketing Activities for Prescription only Products.....25

Table: 2.2 Summary of Regulation of Prescription Drug Advertising in Australia.....39

Table: 2.3 Summary of Regulation of Non-prescription Drug Advertising in Australia.....40

Table: 2.4 Summary of the Arguments For and Against DTCA.....47

CHAPTER 4

Table: 4.1 Kaiser-Meyer-Olkin and Bartlett's Test.....113

Table: 4.2 Total Variance Explained.....114

Table: 4.3 Rotated Component Matrix.....115

Table: 4.4 Factor Description.....116

Table: 4.5 Kaiser-Meyer-Olkin and Bartlett's Test.....118

Table: 4.6 Total Variance Explained.....119

Table: 4.7 Rotated Component Matrix.....119

Table: 4.8 Factor Descriptions, Variables within the Factors, and Items Measuring the Variables.....120

Table: 4.9 Cronbach Alpha Coefficient (α) for the Constructs.....126

Table: 4.10 Sample of the Study from 25 Participating Healthcare Businesses.....129

Table: 4.11 Socio-demographic Distribution of the Respondents.....131

Table: 4.12 Health Conditions and Groups of Consumers.....134

Table: 4.13 Summary of the Objectives of Statistical Techniques Utilised in the Present Study.....140

CHAPTER 5

Table: 5.1 Consumer DTCA Knowledge.....145

Table: 5.2 Level of Consumer DTCA Knowledge.....146

Table: 5.3 Consumer Exposure to Drug Advertising.....148

Table: 5.4 Sources of Drug Advertising.....150

Table: 5.5 Consumer Intentions Regarding Advertised Medicines.....153

Table: 5.6 Additional Information Sources about a Prescription Medicine....155

Table: 5.7 Consumer Support for Advertising of Legal Medicines.....158

Table: 5.8 Consumer Support for DTCA of Prescription Medicines in Australia.....159

Table: 5.9 Consumer Beliefs about Medical Information from Healthcare Providers (HC-4) and Alternative Sources (AS-4).....161

Table: 5.10 Consumer Attitudes towards Healthcare Providers (HC-1).....163

Table: 5.11 Consumer Attitudes towards Healthcare Provider-Patient Relationship (HC-2).....165

Table: 5.12 Consumer Beliefs about Healthcare Providers Subsequent Behaviours (HC-3).....167

Table: 5.13 Variable Description, Item Number, Factor Loading Weighted Average Mean, and Standard Deviation of Consumer Attitudes related to Traditional Healthcare Professionals.....169

Table: 5.14 Consumer Beliefs about the Positive Effects of DTCA (AS-1)...173

Table: 5.15 Consumer Beliefs about the Negative Effects of DTCA (AS-2)..176

Table: 5.16 Consumer Feelings about General Advertising (AS-3).....178

Table: 5.17 Variable Description, Item Number, Factor Loading Weighted Average Mean, and Standard Deviation of Consumer Attitudes related to Alternative Medical Information Sources and their Effects.....179

Table: 5.18 Levene's Test for Homogeneity of Variances.....184

Table: 5.19 ANOVA Results for Attitude Dimensions Analysis between the Three Consumer Groups.....186

Table: 5.20 ANOVA Result for DTCA Consumer Support Analysis between the Three Consumer Groups.....187

Table: 5.21 Pearson Product-moment Correlation Coefficients between Dimensions of Attitudes towards DTCA, Levels of DTCA Consumer Support, and Consumer Intentions related to Advertised Medicines.....193

Table: 5.22 Chi-square Test Result for Analysis of the Relationship between Consumer Exposure to Prescription Drug Advertising and the Level of DTCA Consumer Support.....197

Table: 5.23 Chi-square Test Result for Analysis of the Relationship between Consumer Knowledge about Drug Regulation and Prescription Drug Advertising and the Level of DTCA Consumer Support.....201

Table: 5.24 Summary of the Major Findings of the Study.....204

LIST OF FIGURES

CHAPTER 2

Figure: 2.1 Annual Percentage Growth of Pharmaceutical Promotion Activities in the U.S. (1999).....27

Figure: 2.2 Summary of Leading Countries Positions regarding DTCA Regulation.....30

Figure: 2.3 Prescription Drug Expenditure (US$ Billions) in the U.S. from 1997 to 2001.....32

Figure: 2.4 Summary of the Position of Major Stakeholders regarding DTCA of Prescription Medicines.....57

CHAPTER 3

Figure: 3.1 Types of Consumer Decision Processes.....65

Figure: 3.2 Consumer Information Acquisition and Processing Model.....68

Figure: 3.3 Research Frameworks for Investigating the Relationship between Consumer Knowledge and Information Search Behaviour.....71

Figure: 3.4 A Schematic Representation of the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB).....75

Figure: 3.5 Theories of Media Effects, Attitude, and Behaviour Change across Stages of Change.....81

Figure: 3.6 The Theoretical Framework for studying Consumer Attitudes towards Medical Information from Direct-To-Consumer Prescription Drug Advertising (DTCA) 87

CHAPTER 4

Figure: 4.1 Questionnaire Structure for Investigating Consumer Attitudes towards Medical Information from Direct-To-Consumer Prescription Drug Advertising (DTCA).....101

Figure: 4.2 Dimensions and Methods for Assessing Reliability of Questionnaire Items.....124

Chapter 1
Introduction

This chapter provides an introduction to the present study. The aims of this introductory chapter are to present issues associated with the research background, research problem, research objectives, research questions, as well as the significance of the study, brief research methodology, and scope of the study. Additionally, the structure of this thesis is outlined.

1.1 Research Background

Presently, health consumers or patients are becoming more involved with their own health destinies and are seeking more information on health and illness issues (Jenkins et al 2001; Ferriman 2001a; Pharmaceutical Research and Manufacturers of America - PhRMA 2000; Johnson and Ramaprasad 2000; Wallace 1997). This information-seeking behaviour demonstrates a general cultural movement in today's modern societies of consumers becoming more concerned and inquisitive. Consumers want to incorporate and evaluate increasing amounts of information, in particular, about health risks (Bury 1997; Giddens 1991). In doing so, they wish to take some of the responsibility for their health away from healthcare professionals and into their own hands (Macgregor 2001; Ernst 2000; Macionis and Plummer 1998). This is especially true in terms of health risks from pharmaceutically related products and alternative therapeutic approaches, such as traditional medicines (Leach 2000; Giddens 1991).

According to Jenkins et al (2001), Leach (2000) and Hingorani et al (1999), consumers cannot obtain adequate information about medicinal products from long-established sources, such as healthcare professionals. The power of the medical model, articulated historically in the materialisation of the idiosyncratic doctor-patient relationship in the late nineteenth and early twentieth centuries, is

currently dominated by more pluralistic forms (Ferriman 2001a; Morris 2000; Lawrence 1995). As a result, the relationship between patients or health consumers and healthcare providers as equal partners is on the increase.

Furthermore, the growth of consumer interest groups and the information available to them have empowered consumers to become involved in their own healthcare decision processes (American Medical Association 2000; Johnson and Ramaprasad 2000; Kassirer 2000). Rather than remaining uninformed and relying completely on healthcare professionals, i.e. physicians, pharmacists and alternative therapists, consumers are increasingly more involved in decisions affecting their health.

Regarding the movement in cultural emphasis towards consumerism and health promotion rather than treatments (Coffield et al 2001), a more pluralistic medical setting has evolved in which self-help groups, medical information systems and alternative therapies are escalating (Ernst 2000; Johnson and Ramaprasad 2000). Evidence suggests that there are encouraging signs that consumers want and need more information, in particular, pharmaceutically related information (Kassirer 2000; Shepherd and Fell 1997; Bury 1997; Giddens 1991). Moreover, some studies, e.g. Jenkins et al (2001) and Hingorani et al (1999), have shown that health consumers want more information than healthcare professionals actually give.

Consequently, alternative sources of medical information available to consumers apart from healthcare professionals have dramatically increased (Ford 2000; Ra 1997; Seaman 1995). The main sources of this information are the Internet and mass media, which enable consumers to obtain vast amounts of information economically (American Medical Association 2000; Johnson and Ramaprasad 2000; Kassirer 2000; Ra 1997). The Internet and mass media have already allowed consumers access to a great deal of information at an incredibly fast speed. As Former Australian Federal Minister for Health and Aged Care, Dr. Wooldridge (2000; p.1), stated '*I see the Internet and the newsletter as*

helping empower rural communities achieve a healthier way of life, by giving them more access to important information that affects them.'

Searching for and selecting information from the Internet and mass media means that consumers are able to search through relevant literature in order to find specific information, which best suits their needs. Whilst medical information is often created and maintained by pharmaceutical companies and provided by healthcare professionals, consumers are increasingly active in deciding and evaluating their own options. They can make the initial decision as to which pharmaceutical products or which alternative treatments they wish to use, and actively search for that information rather than relying only on information provided by healthcare professionals. On the downside, empowering consumers by providing Direct-To-Consumer (DTC) information creates scepticism, such as a mistrust of the ability of healthcare professionals to do their job and to act responsibly.

Consumers around the world can easily buy prescription medicines without a prescription from online pharmacies, such as http://www.247-pharmacy.com/, http://www.iquestinfo.com/, and http://www.discount-pharmacies-online.com/ (accessed: October 04; 2002). They can also see many kinds of drug advertising through satellite television, overseas magazines, and the Internet. Even though this type of drug promotion direct to consumers and the buying of certain medicines without a prescription are prohibited in many countries including Australia, it may be permitted in the origin country of these sources. Therefore, preventing these types of advertising directly to consumers is not easy (Calfee 2002; Gray and Day 2000; Mintzes 1998). In response to these concerns, various interest groups have conducted studies regarding Direct-To-Consumer Advertising (DTCA) of prescription medicines, and recognise that there is a clear need for greater information on consumers' views of DTCA.

1.2 Research Problem

In the early 1980's, pharmaceutical companies utilised DTCA as a channel to promote consumer awareness of the availability and quality of low-price generic drugs. However, all DTCA of prescription medicines was temporarily suspended in 1983. The ban was put in place until the United States Food and Drug Administration (U.S. FDA) could create an official policy on prescription medicine advertising directly to consumers. Two years later, in 1985, the U.S. FDA lifted this suspension and required that DTCA had to provide accurate and balanced information with reference to contraindications, side effects, and the effectiveness of the advertised medicines. According to these new guidelines, DTCA did not have to be approved before broadcast. However, it would be monitored by the U.S. FDA in order to ensure that these advertisements met the U.S. FDA's criteria (Woloshin et al 2001).

At that time, drug advertising strategies changed. Pharmaceutical companies began to look at DTCA as an effective tool that could increase consumer awareness of a particular brand or new medicine. Presumably, consumers would be persuaded to ask specifically for these advertised drugs. Additionally, DTCA was utilised as a new channel to establish loyalty and to attract new customers. Disease awareness campaigns were used, which prompted consumers to ask their doctors about their health conditions or illnesses that they had not thought about before. Much of the current advertising has been directed away from healthcare professionals, and on to consumers, especially DTCA of prescription medicines. However, this shift towards targeting consumers directly is much more about enhancing the profitability of pharmaceutical companies than it is about empowering the consumer.

New Zealand was the second country to permit DTCA for both prescription and non-prescription medicines. Its regulatory framework relies only on industry self-control (Ministry of Health: New Zealand 2000). The local advertising industry and government representatives decided on a code of advertising ethics. Protection of consumers against misleading advertising was one of

several reasons behind the construction of this framework. However, a report by a group of professors of general practice from all four of New Zealand's Medical Schools pointed out that this current DTCA regulatory framework fails to prevent misleading advertising and negative health effects that DTCA can cause (Toop et al 2003). Therefore, they suggested that DTCA of prescription medicines should be banned completely. On the contrary, the European Commission (EC) recently revealed that pharmaceutical companies could now increase usage of disease awareness campaigns (Pharmaceutical Industry Competitiveness Task Force - PICTF 2001), and the EC will shortly release a five-year pilot project of limited DTCA of prescription medicines for a particular group of diseases, such as asthma, diabetes, and AIDS (Dickinson 2001).

Additionally, in the age of the informed consumer, major pharmaceutical companies are focussing on investment in DTCA, especially, on the Internet and in the mass media in order to maintain their level of competition. As Pesanello and Green (2000) suggested, pharmaceutical companies need to adapt existing DTCA skill sets for use on the Internet and act in accordance with the U.S. FDA regulations. However, they were not aware that legislations in other countries prohibited this form of pharmaceutical promotion. Presently, traditional medical fraternities are concerned about the extensive growth of health related information available online and in other forms of mass media aimed directly at consumers. In particular, there is a serious concern about the quality and truthfulness of information available (American Medical Association 2000; Aguillo 2000; Becker 2000; Cooke 1999). For this reason, they recommend that consumers need to critically evaluate health related information that they obtain from web sites or any form of the mass media.

As awareness of the size and severity of this problem has grown, a number of organisations, for example the World Health Organization (WHO), the American Medical Association, the Australian Medical Association, the Society of Hospital Pharmacists of Australia (SHPA), the Australian Pharmaceutical

Manufacturers Association (APMA), Association of the British Pharmaceutical Industry (ABPI), the International Federation of Pharmaceutical Manufacturers Associations (IFPMA), the Pharmaceutical Industry Competitiveness Task Force (PICTF), the South African Pharmaceutical Manufacturers Association, and the Researched Medicines Industry Association of New Zealand (RMI) have realised that the effects of *Globalisation* and the *Information Revolution* have resulted in ineffective control of Direct-To-Consumer (DTC) pharmaceutical products promotion (PICTF 2001; Gray and Day 2000; WHO 1999; 1997; 1988; IFPMA 1998; Mintzes 1998).

Even though, in Australia, DTCA of prescription medicines is not allowed, this type of drug promotion from other English-speaking countries can flow into the country without difficulty through mediums, such as the Internet, satellite television, magazines, and other forms of print media. Moreover, a conflict occurred in 2000 and 2001 over DTCA of prescription medicines when the APMA lobbied the federal government to remove current restrictions on DTCA of prescription medicines (National Medicare Alliance - NMA 2002). The Australia National Competition Review of Drugs, Poisons and Controlled Substances Legislation has also raised the issue of current Australian regulation of DTCA of prescription medicines. As a result, debate about appropriate management of the promotion of prescription medicinal products directly to consumers is increasing. Nevertheless, many stakeholders believe that in the long run, changing public attitudes regarding pharmaceutical promotion through education is more effective than regulation enforcement. This is why it is so important to understand current consumer attitudes towards DTCA, what factors influence these attitudes, and how these attitudes affect consumer behavioural intentions. Therefore, understanding current consumer attitudes towards DTCA is crucial, and can be utilised as a basis to consider the re-evaluation of ineffective existing DTCA legislation, and to plan educational programmes for general consumers. Further, by knowing the dimensions within consumer attitudes towards DTCA, the factors that influence these attitudes and the linkages between consumer attitudes and intentions regarding DTCA of

prescription medicines may assist researchers and major interest groups in solving the problems that exist in the area of DTCA in Australia.

In summary, globalisation and the information revolution has encouraged consumers to actively search for more information on health related issues. These active information searches are utilising a number of resources and technologies, not just traditional consultancy with healthcare professionals. This means that preventing DTCA of prescription medicines, especially in English-speaking countries such as Australia, is not easy. As a result, major stakeholders in the area of drug promotion in Australia, for instance, the APMA, the SHPA, Healthy Skepticism, and the Australian Competition and Consumer Commission (ACCC), are debating whether Australia should allow DTCA, and if so, how to control it effectively. These debates have focused on the problems of current DTCA regulations and consumer opinions regarding DTCA information. Therefore, one of the key questions raised is '*what are the attitudes of the Australian public towards Direct-To-Consumer Advertising (DTCA) of prescription medicines?*' Studying Australian consumer attitudes towards medical information, especially, from DTCA of prescription medicines will assist healthcare professionals, drug-policy makers, consumer advocates, pharmaceutical companies, and advertising agencies in deciding how they should deal with the issues of DTCA.

1.3 Research Objectives

1.3.1. General Objective

Taking into account the problems noted above, the present exploratory study intends to investigate and explore consumer attitudes towards medical information, particularly, from DTCA of prescription medicines in Australia. It also aims to provide empirical evidence concerning the relationships between DTCA, consumer attitudes, factors that affect these attitudes, and consumer intentions regarding advertised medicines.

1.3.2. Specific Objectives

The specific objectives of this study are:

1) To investigate consumer attitudes towards medical information from DTCA of prescription medicines in Australia;

2) To explore the components and dimensions of consumer attitudes towards DTCA of prescription medicines;

3) To identify the factors that influence consumer attitudes towards DTCA of prescription medicines, in particular, consumer opinions on whether Australia should allow DTCA to the general public; and

4) To research the linkages between consumer attitudes towards DTCA and consumer intentions regarding advertised medicines.

In order to achieve these research objectives, the present study has formulated four research questions and four propositions as detailed in the next section and in Chapter 3: section 3.7 (p.90).

1.4 Research Questions

Trends and problems associated with DTCA of prescription medicines in Australia suggest several research questions. These questions, which are derived from gaps in the literature, suggest four main research agendas for understanding consumer attitudes towards DTCA. Accordingly, the following research questions are set forth in this study:

1) What are the attitudes of the Australian public towards DTCA of prescription medicines? Do they want information directly from drug advertising?

2) Do the three health consumer groups (from doctor clinics, chemists, and alternative therapist clinics) have different attitudes regarding DTCA?

3) What are the factors that have an effect on the level of DTCA consumer support?

4) Does DTCA of prescription medicines encourage consumers to seek more information about advertised medicines or about their health conditions? Will consumers talk to their healthcare providers about an advertised drug? What are the relationships between consumer attitudes towards DTCA and these intentions?

In short, the answers to the above research questions will address the research problem in section 1.2 (p.4) and throw light on consumer attitudes towards DTCA of prescription medicines in Australia. Furthermore, the results of this study will assist researchers in exploring key issues in the area of DTCA in Australia and provide empirical evidence regarding the relationships between consumer attitudes, the factors that affect these attitudes, and behavioural intentions regarding DTCA information.

1.5 Significance of the Study

The scarcity of current research on consumer attitudes towards medical information from DTCA of prescription drugs in Australia has prompted this present study. The significance of this exploratory study relies upon the need for developing an understanding of consumer attitudes regarding DTCA. Although some studies, e.g. Ferriman (2001b) and Kmietovicz (2002), have shown that health consumers or patients view healthcare providers, i.e. nurses, physicians, pharmacists, and other health practitioners, as important sources of medical information and physicians as the most trusted group of healthcare professionals, consumer attitudes towards medical information from alternative sources, particularly, DTCA have not been extensively explored. Researching consumer attitudes addressed in this study can provide a guideline to assist other researchers in the area of prescription drug promotion. It can also be useful to those designing drug promotional strategies by suggesting that consumer attitudes regarding DTCA should be considered and by revealing what factors

can influence these attitudes. Additionally, understanding current consumer attitudes towards DTCA is very important, and can be utilised as a basis for re-evaluating the ineffectiveness of existing DTCA legislations and for planning educational programmes for health consumers.

The results of this study will also help researchers to explore the problems arising from consumers health-related information needs and look more closely at the impact of DTCA on consumer attitudes and intentions. The present study potentially indicates a connection between the attitudes of consumers towards medical information from various sources, e.g. healthcare professionals and drug advertising, factors that might influence these attitudes and the likely effects of DTCA on consumer intentions and behaviours. Additionally, it offers assistance to healthcare providers, marketing managers, and advertisers with the type and amount of information needed by consumers.

The present study is also significant because it investigates consumer attitudes towards the potential risks and possible benefits of DTCA. Furthermore, the results provide valuable insight into what negative attitudes consumers have towards different sources and types of medical information. Consequently, healthcare professionals, marketing managers, advertisers, drug-policy makers, and consumer advocates can apply these outcomes to assess the potential problems of DTCA and prevent possible unwanted effects on the community. Further, in order to more efficiently promote themselves, pharmaceutical companies need to develop a better understanding of which medical information sources are the most effective in attracting potential customers. The results of this study can be valuable for pharmaceutical companies in their efforts to increase transaction opportunities and formulate better strategies when considering DTCA of prescription medicines. It also assists advertisers, marketing managers, and policy makers in deciding how they should deal with DTCA and develop specific marketing communication programmes to respond to these empowered consumers in order to meet consumer interests.

Perhaps, the most notable aspect of marketing is that it attempts to understand, explain, and predict consumer attitudes, which may affect purchase and/or repurchase behaviour, by focusing on a wide range of possible illustrative frameworks. A recent review of the literature related to drug advertising, medical information sources, consumer information acquisition and processing, consumer health attitudes, and attitude-intention relationships, illustrates the issues associated with general consumer attitudes towards healthcare professionals and consumer attitudes towards drug advertising. The review also identifies the advantages and disadvantages of alternative medical information sources, such as DTCA.

Moreover, it highlights the fact that most of the studies, e.g. consumer attitudes towards pharmaceutical advertising in general (Chan 1998), consumer awareness of drug advertising (Alperstein and Peyrot 1993) and consumer surveys about DTCA (Calfee 2001; Foley and Gross 2000; U.S. FDA. 1999), were conducted in the U.S. Further, the review has shown that comparatively little is known regarding Australian consumer attitudes towards medical information from DTCA of prescription medicines and no empirical or exploratory research has been undertaken in Australia on this topic. It was also found that no previous studies utilised the same research method and asked the same questions (to three different consumer groups) as this study did.

Additionally, the present study's findings will enhance the understanding of what the attitudes of consumers are towards medical information from different sources, i.e. healthcare professionals and drugs advertising, and what are the relationships between consumer attitudes, backgrounds, characteristics, and their intentions. Therefore, to address the weaknesses of the literature to date, it is necessary to treat DTCA as an alternative source of medical information and utilise consumer attitudes towards potential risks and possible benefits of DTCA as a predictor of consumer opinions regarding the current Australian DTCA regulation. The theoretical framework in the present study is based upon extensive literature reviews and utilising modified variables to develop new

constructs related to DTCA, which were not previously studied. Moreover, this study also explores problems of pharmaceutical promotions with special concentration on DTCA of prescription medicines.

In summary, the present study makes a significant contribution to knowledge in the pharmaceutical marketing literature. Significantly, it is the first study that:

1) Explores consumer attitudes towards medical information, particularly, from DTCA of prescription medicines in Australia;

2) Investigates the amount and nature of medical information needed as a function of consumer backgrounds and characteristics across the three consumer groups at medical clinics, chemists, and alternative therapist clinics;

3) Employs DTCA as a major variable in modelling the relationships between consumer attitudes and behavioural intentions; and

4) Researches the dimensions of consumer attitudes towards DTCA as a factor that affects consumer behavioural intentions regarding the advertised medicines.

1.6 Brief Research Methodology

To provide results that can be used generally, a selection of medical information sources from a classification scheme covering a wide range of sources is required. Various medical information sources classification schemata have been provided in the literature. The categorisation design selected for this study is based upon the work of the Canada Drug Guide Project (2000) and Leach (2000). The Canada Drug Guide Project illustrated that basic drug information sources for consumers are healthcare providers, such as physicians and pharmacists, and mass media, such as drug advertising. Additionally, alternative

therapists, such as traditional healers and Chinese medicine therapists, are a major health related information source (Leach 2000).

As a result, the present study was conducted in Melbourne and utilised the purposive sampling method. The sample consisted of three groups of consumers, which came from doctor clinics, chemists, and alternative therapist clinics. Completed data from 863 Australian health consumers was collected. Sample groups were divided with each containing at least 200 participants. The data collection method was designed to achieve the research objectives and to answer the research questions by utilising self-administered questionnaires. In addition, the data was collected from respondents waiting for health services. This strategy was done in order to increase the response rate and gain more detailed and reliable information.

On proper identification of the above medical information sources, four propositions (Chapter 3: section 3.7; p.90) were tested by measuring consumer responses to question items regarding DTCA of prescription medicines, which consists of three major components: 1) *consumer knowledge about current drug regulation and prescription drug advertising*; 2) *consumer attitudes and intentions related to DTCA of prescription medicines*; and 3) *consumer backgrounds and characteristics* on appropriate scales as will be discussed in Chapter 4: section 4.3 (p.99).

1.7 Key Definitions

For standardisation purposes, the following definitions are given below.

1.7.1 Attitudes

According to Eagly and Chaiken (1993; p.1), the definition of attitude is:

> *"A psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour."*

Otherwise, by Fishbein and Ajzen (1975; p.6);

> An attitude is *"a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object"*.

Therefore, the meaning of consumer attitudes towards medical information in the present study is based upon these definitions and focuses on the degree of favour or disfavour with respect to medical information from healthcare providers and alternative sources, such as DTCA.

1.7.2 Medicines

According to the WHO (1988), the definition of a drug is as follows:

> *"A drug is any chemical substance which, when taken into the body, affects the natural way a person's body and mind works. Drugs can be natural substances or can be made artificially."* (WHO 1988)

Further, the definition of 'medicines', which are given and classified into two groups by the Therapeutic Goods Administration (TGA 1999a), are as follows;

- Group 1: Registered Medicines
    - Prescription medicines

> *"Medicines assessed as having a higher level of risk must be registered (not listed). The degree of assessment and regulation they undergo is rigorous and detailed, with sponsors being required to provide comprehensive safety, quality and efficacy data. Prescription medicines fit into the sub-category of registered medicines as High-risk Registered products. This group includes all prescription medicines (i.e. medicines with ingredients which are included in Schedule 4 or Schedule 8 of*

the Standard for the Uniform Scheduling of Drugs and Poisons) and some specified products such as sterile injectable." (TGA 1999a)

- Non prescription or Over-The-Counter (OTC) medicines

"Low-risk registered products are Non-Prescription medicines. They usually contain ingredients, which are described in Schedule 2, Schedule 3, and sometimes Schedule 5 or 6 of the Standard for Uniform Scheduling of Drugs and Poisons (SUSDP). Products in this category are considered to be lower risk than prescription medicines. However, they still require a high level of scrutiny, for example to ensure adequate labelling for appropriate use." (TGA 1999a)

In summary, Over-The-Counter (OTC) medicines are available without a prescription and some are available only in pharmacies. Additionally, a prescription medicine can be sold only on prescription given by a practitioner, a registered midwife, a veterinarian or a designated prescriber.

- Group 2: Listed Medicines
  - Complementary medicines

"Complementary medicines (also known as 'traditional' or 'alternative' medicines) include vitamin, mineral, herbal, aromatherapy and homoeopathic products. See Schedule 14 of the Therapeutic Goods Regulations for a list of the type of substances or products covered by the term, 'complementary'. Complementary medicines may be either registered or listed, depending on their ingredients and the claims made. Most

complementary medicines are listed in the ARTG and some are registered." (TGA 1999a)

1.7.3 Drug Promotion and Advertising

According to the WHO Ethical Criteria for Medicinal Drug Promotion (WHO 1988; Section 6: Promotion), 'Drug Promotion' refers to:

> *"All informational and persuasive activities by manufacturers and distributors, the effect of which is to induce the prescription, supply, purchase and/or use of medicinal drugs."* (WHO 1988)

In addition, the Therapeutic Products Directorate - TPD: Health Canada (TPD 2001) gives an explanation about drug advertising as follows:

> *"Drug advertising is considered to be any representation, by any means (e.g. television, radio), for the purpose of promoting directly or indirectly the sale or disposal of any drug."* (TPD 2001)

The TPD also points out that there are multifactors, which should be considered in determining whether or not a message is advertising medicines. As a result, each message has to be assessed individually by examining the purpose, content and context of the message to decide whether the intention is to promote the sale of a drug or to provide medical information to the general public (TPD 2001). Otherwise, according to New Zealand's Medicines Act 1981: Section 56: Interpretation (Ministry of Health – MOH: New Zealand 2000), the definitions of advertisement and medical advertisement are:

> *"Advertisement means any words, whether written, printed or spoken, and any pictorial representation or design, used or appearing to be used to promote the sale of medicines or medical*

devices or the use of any method of treatment; and includes any trade circular, any label, and any advertisement in a trade journal; and 'advertising' and 'advertised' have corresponding meanings.

Medical advertisement means an advertisement relating, or likely to cause any person to believe that it relates, to any medicine or medical device or any ingredient or component thereof, or to any method of treatment." (MOH: New Zealand 2000)

1.7.4 Direct-To-Consumer Advertising (DTCA)

Generally, DTCA describes any pharmaceutical marketing activity that promotes the sale of a medicinal product directly to patients or health consumers and not merely to physicians, pharmacists, or other healthcare professionals. Specifically, DTCA refers to the advertising of prescription only medicines on the Internet, radio, television, or in any form of print media (Researched Medicines Industry Association - RMI 2000).

However, the RMI indicates that this is a misunderstanding and gives a further explanation about DTCA as follows:

"From a legal point of view, DTC advertising refers to any written, printed or spoken words, pictures or designs, used (or appearing to be used) to promote the sale of medicines, medical devices, or methods of treatment...

...DTC advertising therefore includes advertising of substances ranging from seaweed extracts, vitamins and face creams to contraceptives and antibiotics. It includes advertising of devices and methods of treatment from exercise machines to asthma inhalers and blood-glucose meters, and from aromatherapy to

plastic surgery. DTC advertising includes the label on the bottle, the printed instructions in the packet, information leaflets distributed via pharmacists and practitioners or through the post, letterbox circulars, sales presentations, conferences and sponsorship – as well as the methods of mass advertising described above." (RMI 2000; p.7)

It should be noted that DTCA in the present study focuses solely on the advertising of prescription only medicines or refers to any pharmaceutical marketing activity that promotes the sale of a medicinal product directly to consumers.

1.8 Assumptions of the Study

The following assumptions for this study are as follows:

1) Consumers would complete the questionnaires honestly, and to the best of their understanding;

2) The research instrument would provide a valid evaluation of the variables relevant to this study; and

3) The use of anonymity rather than names would enhance the respondent expectations of privacy.

1.9 Scope of the Study

This study presents an investigation of consumer attitudes towards medical information, particularly, from DTCA of prescription medicines in Australia. It focuses on consumer attitudes towards prospective information from DTCA, not on the actual drug advertising. The consumers were asked to assess their attitudes towards medical information from both healthcare professionals and prescription drugs advertising. As mentioned above, a purposive sample of Australian health consumers was utilised in this study. The rationale for

selecting this type of sampling method will be described in Chapter 4: section 4.4 (p.127). The total sample consisted of 863 health consumers in Melbourne. A convenience sample of doctor clinics, chemists and alternative therapist clinics was drawn up based upon their willingness to participate in the study. A survey of health consumers across Australia was not possible due to limited time, resources, and budgetary constraints.

1.10 Limitations of the Study

The following variables need to be taken into account in interpreting the results of this study:

1) The attitudes of consumers towards information from healthcare providers and from drug advertising might not be consistent over time. These attitudes might depend upon how, when, and what information they obtained in a particular circumstance during the survey stage.

2) There exists the possibility of response bias and dishonesty in the participants answers.

3) Because the sample for this study was obtained regionally and the number of respondents was relatively small (N = 863) when compared with the Australian population, it is not known how the results might be generalised outside of the Melbourne metropolitan area.

1.11 Structure of the Thesis

This thesis is arranged into six chapters. ***The preliminary chapter*** is an introductory chapter. ***Chapter 2*** examines the issues surrounding DTCA of prescription medicine in order to provide background information to this kind of drugs promotion, the development and trend of DTCA of prescription medicines around the world, DTCA circumstance in Australia, and the positions of Australian major stakeholders regarding prescription drug advertising

directly to consumers as well as the potential risks and possible benefits of DTCA.

Chapter 3 is a literature review. It takes a comprehensive look at the theoretical framework, which aims to conceptualise and operationalise the relationships between DTCA of prescription medicines, consumer attitudes and consumer intentions. Moreover, the following concepts are explored in this chapter:

a) Consumer information acquisition and processing;
b) Consumer knowledge and information search behaviour;
c) Attitude theory, theories of behavioural change, and the relationships between attitudes and intentions; and
d) Integrating theory of media effects, persuasion and behavioural change.

Finally, the theoretical framework for analysis of consumer attitudes towards DTCA and the propositions are also introduced.

Chapter 4 outlines a discussion of the research variables, the variables operationalisation, the research methodology, the development and measurement of validity and reliability of the questionnaire, sample selection, data collection, data preparation, and data processing. Moreover, this chapter illustrates the purpose of the data analysis methods, which are employed in the present study to explore consumer attitudes towards DTCA and to test the propositions. Further, Chapter 4 identifies relations and dimensions of consumer attitudes and consumer intentions as well as the factors that affect these attitudes.

Chapter 5 is the main data analysis chapter. It presents the results of analyses of collected data separately for each research question based upon descriptive statistics and incorporates the applications of various statistical techniques by using SPSS 11.0 software programme, such as measures of correlation, Chi-

square test (χ^2), Pearson product-moment correlation coefficient, and one-way Analysis of Variance (one-way ANOVA). Furthermore, it also reports empirical results of the proposition tests on the model of consumer attitudes towards DTCA of prescription medicines, and the relationships between consumer attitudes and behavioural intentions. The integration of various theoretical frameworks and an investigation of the robustness of the results are also included in this chapter. Finally, Chapter 5 summarises the key findings of the study and provides an explanation and critical discussion of the results of analyses in sequence with the previous literature and the theoretical framework from Chapters 2 and 3.

Chapter 6 provides conclusion of the study and policy implications for addressing the research questions outlined in Chapter 1. In addition, it also presents the limitations of the study as well as future research opportunities for the DTCA of prescription medicines area.

1.12 Conclusion

The globalisation and information revolution at the end of 20th century have caused an immense transformation forcing many countries' regulations to be changed. Their transformation may be relevant to new medical information sources, such as, DTCA of prescription medicines. The current chapter illustrated the structure of this exploratory study. It introduced the research background, research problem, research questions, and research objectives. Further, this chapter provided justification of the significance of the present study and its contributions to knowledge relating to consumer attitudes and DTCA of prescription medicines. Moreover, the research method was presented briefly, key definitions were described and the organisation of this study was outlined. The next chapter will present a global perspective on DTCA of prescription medicines, for instance, the emergence of DTCA around the world, the issues surrounding DTCA, the positions of major stakeholders regarding DTCA in Australia as well as consumer attitudes and responses towards DTCA of prescription medicines.

Chapter 2

A Global Perspective on DTCA of Prescription Medicines

Chapter 1 provided the introductory part of the present study including the research background, research problem, research objectives, and research questions as well as the significance of the study, a brief research methodology, and outlined the structure of this thesis. The current chapter provides a summary of the global perspective on DTCA of prescription medicines. It also illustrates an overview of the issues surrounding DTCA, such as, the relationship between DTCA expenditure and prescription drugs spending, development and trend of DTCA followed by the existing Australian DTCA regulations, the current positions of Australian major stakeholders, and the arguments for and against DTCA of prescription medicines.

2.1 Introduction

The present chapter reviews existing literature regarding DTCA issues. It aims to critically evaluate the relevant literature on which the study is based, and demonstrates its relevance to the objectives of the study. The criteria used in selecting material for this literature review chapter was for the inclusion of any psychological paper, communication and marketing literature, reference books, or various institutional reports that addressed the issue of drug advertising in relation to consumer attitudes and intentions, development and statistics of DTCA, or the effects of pharmaceutical product promotion. The review was conducted by utilising the following electronic databases: ABI Inform, Medline, ProQuest, Emerald, EBSCOhost, Econlit, and a range of search engines on the Internet.

Because of the lack of research into public attitudes towards DTCA of prescription medicines in Australia, collateral studies were also reviewed.

Therefore, most of the literature in this chapter came from the U.S., Canada, New Zealand, and European countries.

2.2 Direct-To-Consumer Prescription Drug Advertising (DTCA)

The function of DTCA in pharmaceutical marketing plans is a crucial one. DTCA can directly inform, remind, differentiate, or persuade consumers about a particular medicine (Pines 1999). According to Fill (1999), the major roles of advertising are to communicate with specific audiences and build or maintain awareness of a specific product or an organisation. Companies can control an advertising message more easily than other elements in the promotional mix. If a company faces an unexpected situation, advertising can be utilised to respond to the demand of management immediately. This section is divided into two parts, which concentrate on different aspects of DTCA for prescription medicines. The first part explores the elements of marketing activities for prescription products and the development of DTCA around the world. The second part provides information regarding the global trend of DTCA and the relationship between DTCA expenditure and prescription drug spending.

2.2.1 Development and Current Situation of Marketing Activities for Prescription Products

This part aims to present an overview of the development and the current situation of prescription medicines' marketing activities, particularly, DTCA, which is utilised by pharmaceutical companies. According to a national survey of physicians by the Henry J. Kaiser Family Foundation (2002) regarding prescription medicine promotion to physicians, which was based upon a nationally representative random sample of 2,608 physicians across the U.S., 61% of physicians said that they had received benefits, e.g. meals, tickets to events or free travel from pharmaceutical company representatives. Furthermore, 92% of physicians reported that they received free drug samples.

Moreover, the survey revealed that, in the year 2000 alone, pharmaceutical companies spent US $15.7 billion on promotional activities. Of this amount, US$ 13 billion (82.80%) was spent on promotions directly to physicians, for example, providing free drug samples, information campaigns, and journal advertising. The cost of promotion activities to physicians was over five times the US$ 2.5 billion spent on DTC promotion activities.

In July 2001, the Health Care Inspectorate Advertising Monitoring Department of the Netherlands outlined a survey, which examined copies of 28 marketing plans for prescription only products from 10 different companies in the pharmaceutical industry. The objectives of this study were to obtain an insight into pharmaceutical marketing activities and related expenditure for prescription products. However, it was recognised that only a small number of companies participated in the study, and one or more marketing plans from each company were used. The study pointed out that one of the major reasons for these limitations was that the company' marketing plans were business secrets. In addition, the survey showed a summary of expenditure percentages for pharmaceutical promotion activities as Table 2.1 (p. 25).

The survey found that most promotion activities from pharmaceutical companies mainly target physicians (over 50% of marketing costs). This is reasonable because only physicians have authority to prescribe these products. Therefore, pharmaceutical companies have to make an effort to bring such information to the attention of healthcare professionals in order to raise awareness of their products.

Table 2.1: An Overview of the Expenditure Percentage of Marketing Activities for Prescription only Products

Marketing Activities	**Expenditure Percentage**
Phase IV studies	20%
Refresher courses and congresses	19%
Promotional meetings	11%
Systems influencing prescriptions	0.5%
Opinion leaders	3%
Medical representatives budget	12%
Sponsoring and other expenses	5%
Direct mail/advertising/public relations	20%
Direct-to-consumer advertising	3.5%
Other activities	6%
Total	**100%**

Source: The Health Care Inspectorate: Netherlands (2001)

Even though DTCA and the advertising of prescription medicines for particular symptoms are prohibited in the Netherlands, the survey found that sometimes pharmaceutical companies ran indirect DTCA campaigns of prescription products via advertising in journals or magazines. These advertisements, which appeared in journals and magazines, were often written by healthcare professionals. As a result, DTCA expenditure was around 3.5% of total spending for marketing activities. (Health Care Inspectorate: Netherlands 2001). Moreover, it was reported that drug companies kept records of patient names and addresses. However, no additional investigation into this issue has yet taken place. Consequently, the Netherlands Health Care Inspectorate has suggested that the government needs to implement the legislation and monitor pharmaceutical promotion activities until industry self-regulation has resulted in broadly accepted codes of conduct that can control those activities effectively.

In addition, Pesanello and Green (2000), consultants from PricewaterhouseCoopers Pharmaceutical Consulting Practice, studied the expenditure of pharmaceutical promotion activities in the U.S. They revealed that, in the first half of 1999, pharmaceutical companies' spending on DTCA increased 43 % compared with the same period in 1998. These figures also showed that the most rapidly increasing form of drug promotion was DTCA, and the majority of that was for online promotion (Figure 2.1; p. 27).

Through web sites, pharmaceutical companies provide interactive communication with consumers on health self-assessment and disease awareness campaigns. Further, they answer questions about symptoms, treatments, medications, and diseases. In addition, consumers can apply to be a member in order to receive updated information about their particular interests. As a result, pharmaceutical companies are able to establish relationships and supply medical information directly to their consumers.

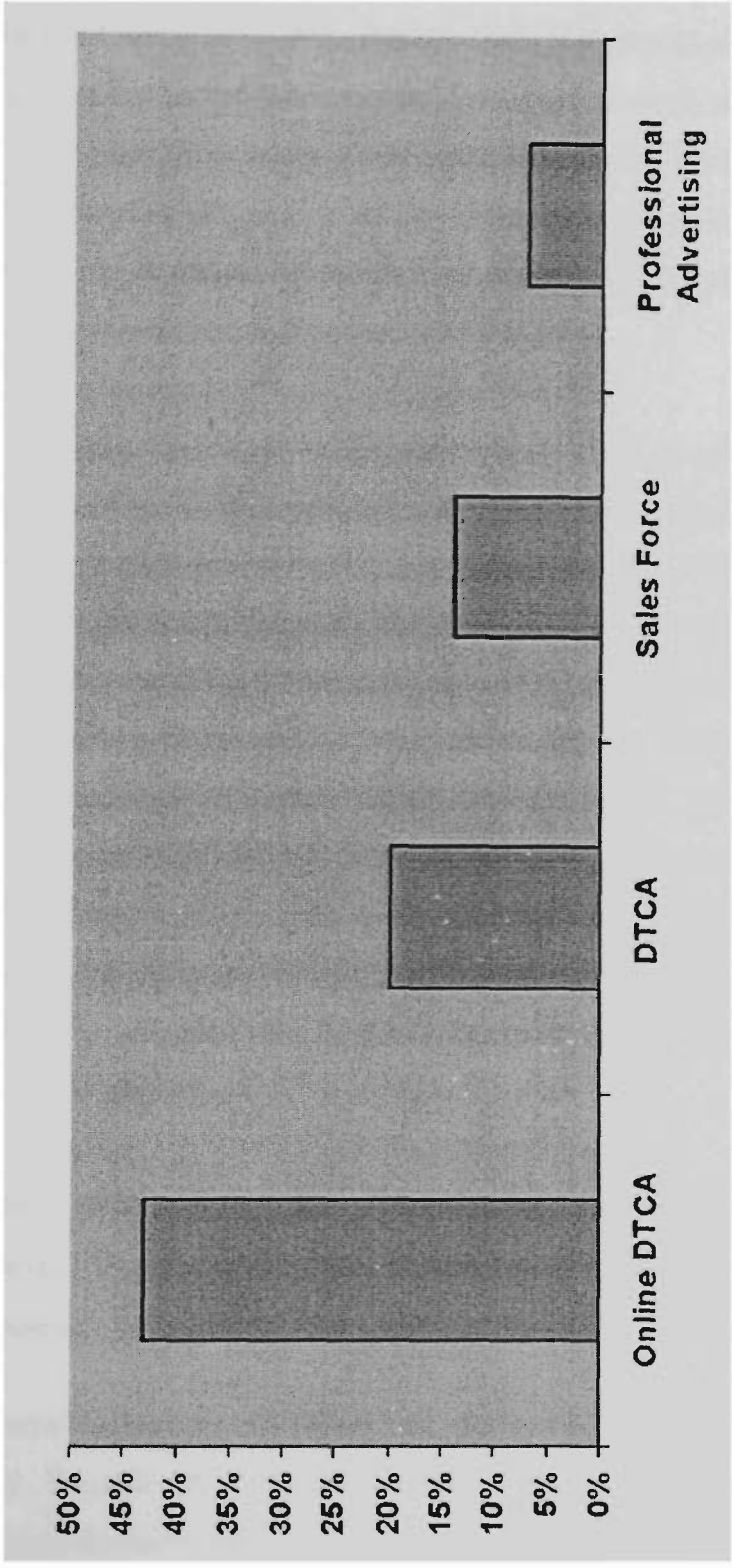

Figure 2.1: Annual Percentage Growth of Pharmaceutical Promotion Activities in the U.S. (1999)

Source: Pesunello and Green (2000)

Evidently, this demonstrates that pharmaceutical companies from numerous countries have begun to advertise prescription only medicines directly to consumers via the Internet, for example, http://www.lipitor.com, and through various forms of the mass media, even though regulations in most countries does not allow for these products to be promoted publicly. Empirically, no previous study has been undertaken on the levels and amounts, which drug companies spend on online promotion of prescription medicines, and what effects these promotions have.

Nowadays, many countries around the world, for instance, Australia, Canada, England, Japan, and South Africa, do not permit the advertising of prescription medicines directly to consumers (Gray and Day 2000; Mintzes 1998). However, in September 1985, the U.S. FDA gave their approval for the implementation of DTCA of prescription medicines because of concerns about freedom of speech and a general consensus that regulations already in place were sufficient to protect consumers (U.S. FDA 1985). Moreover, according to the U.S. Federal Trade Commission (U.S. FTC)'s comments on First Amendment issues (U.S. FTC 2002), over the past twenty-five years, commercial speech jurisprudence in the U.S. including the case of DTCA involving FDA regulation has established certain fundamental principles. These principles relate to the First Amendment as follows (U.S. FTC 2002):

1) The free flow of truthful and non-misleading commercial speech empowers consumers to make better-informed purchasing decisions and maximises consumer welfare;

2) If commercial speech is false or misleading, the government may ban it entirely because it does not assist consumers in making better purchasing decisions; and

3) If commercial speech is truthful and non-misleading, the government must prove that any restriction on that speech directly advances a substantial government interest, and that restriction is no more extensive than necessary.

However, medical contraindications, which inform consumers of conditions and precautions regarding a particular medication, can be quite complex and lengthy and it can be extremely difficult to identify all relevant facts and warnings within a thirty-second advertisement (Miller and Barrett 1989). Therefore, DTCA of prescription medicines was not popular at that time. Two years later, in August 1997, the U.S. FDA removed the major obstacle to broadcast advertising, specifically, in regards to radio and television. Currently, pharmaceutical companies are allowed to include both brand name and health claims in their advertisements. They can also leave out information regarding prescription, potential side effects, and proper use, especially, if they have information on the major risks and provide consumers with additional sources of information, i.e. '1800' phone numbers or an Internet web address. As a result, the level of DTCA and spending on mass media advertising for prescription drugs in the U.S. has grown dramatically (Woloshin et al 2001).

Consequently, Canada has difficulty controlling DTCA effectively because of its geographical proximity to the U.S. (Gray and Day 2000; Mintzes 1998). American print media and cable television networks that contain drug advertising are easily accessible in Canada. According to the As-Was Said Report on DTCA of prescription medicines, the major stakeholders in Canada felt that the cross-border flow of DTCA from the U.S. could not be stopped, and the best way to counteract this cross-border flow was to provide alternative information directly from Canada (Health Canada 1999). Therefore, the Canadian Federal Health Agency initiated a regulatory review. In addition, they are currently preparing proposals related to legislation changes to allow some degree of DTCA of prescription medicines (Hayes 2001).

Following the U.S., New Zealand is the second country to allow DTCA of prescription only medicines via television, radio, magazines, and the Internet, as well as a range of consumer education programmes. All of the advertisements have to comply with the Medicines Act (1981) and Medicines Regulations (1984) and are monitored by Medsafe (a unit of the Ministry of Health: New Zealand). The two main reasons for developing DTCA in New Zealand were: 1) the recognition in New Zealand's Medicines Act (1981) of a permissive atmosphere for DTCA; and 2) the global increase of DTCA (Ministry of Heath - MOH: New Zealand 2000). However, in November 2000, the Ministry of Health decided to review the current policy for DTCA of prescription only medicines by opening public discussion and providing a range of options to ensure that New Zealand has a DTCA policy that is in the best interests of New Zealand consumers. From the Ministry of Health's public consultation, which was held from November 2000 to February 2001, around 34% of paper submissions wished to stop DTCA and around 40% supported the status quo (Ministry of Heath - MOH: New Zealand 2001).

Briefly, after reviewing the development and current situation concerning DTCA of prescription medicines, the current regulations in leading countries can be summarised as follows:

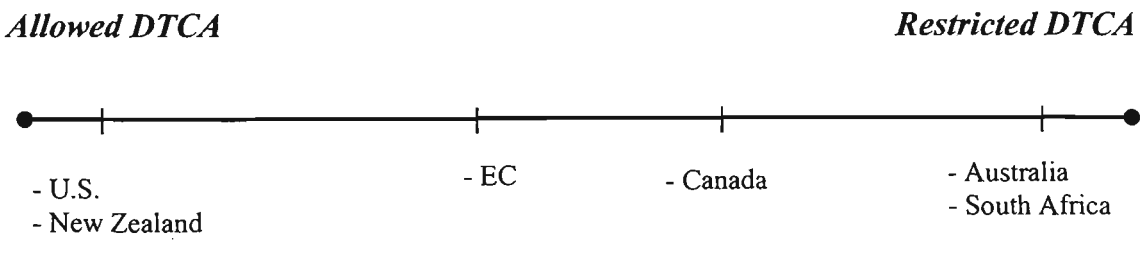

Figure 2.2: Summary of Leading Countries Positions regarding DTCA Regulation

2.2.2 Trends in DTCA Expenditure and Prescription Drugs Spending

Pharmaceutical advertising has grown more sophisticated over the past decade. In 2000 alone, drug companies spent US$ 15.7 billion on promoting prescription medicines, up from US$ 13.9 billion in 1999 or a 13% increase. The major target of expenditure in drug promotion is to healthcare providers, e.g. physicians, pharmacists, and staff in hospitals (Intercontinental Marketing Services - IMS Health 2000). In addition, the advertising of prescription medicines directly to consumers has dramatically increased and has more than tripled from US$ 791 in 1996 to US$ 2.5 billion in 2000, as a result of the relaxing of U.S. FDA regulations in 1997 (Henry J. Kaiser Family Foundation 2001).

After the U.S. FDA removed the last barrier to broadcast advertising in 1997, spending on pharmaceutical advertising, especially, DTCA of prescription medicines, escalated sharply and increased by more than eight times in the past five years from US$ 0.3 billion in 1995 to over US$ 2.5 billion in 2000 (National Institute for Health Care Management Research and Educational Foundation - NIHCM 2001a; 2001b; Aitken and Holt 2000).

Furthermore, a study from NIHCM in 1999 revealed that the average price for each new prescription drug, which was introduced since 1992 to 1998, was US$ 71.49 compared to US$ 30.47 for the average price prior to 1992. NIHCM also pointed out that consumers spent around US$ 9.3 billion or 10% of total prescription drug expenditure in 1998 on the ten drugs most heavily advertised directly to consumers (NIHCM 1999). Additionally, the total expenditure on prescription medicines in the U.S. (Figure 2.3; p.32) has risen dramatically by US$ 22.5 billion or 17% within one year from 2000 to 2001 (US$ 131.9 billion to US$ 154.5 billion), and by approximately 96% from 1997 to 2001 (NIHCM 2002).

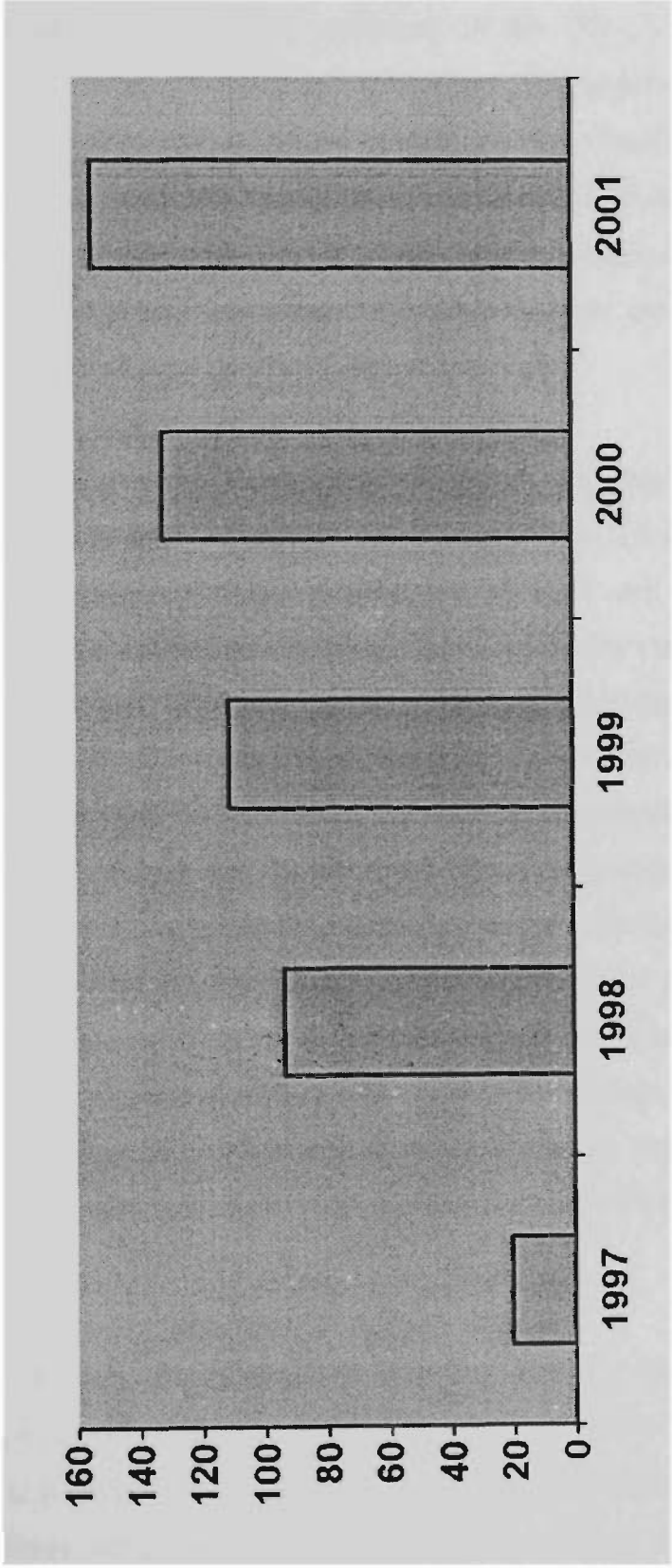

Figure 2.3: Prescription Drug Expenditure (US $ Billions) in the U.S. from 1997 to 2001

Source: NHCM (2002)

Moreover, NIHCM found that one of the most important causes for the rise in overall expenditure on prescription medicines in the U.S. is the increased promotion to both doctors and consumers of recently approved medicines (NIHCM 2002). These medicines are usually more expensive than old generation medicines or generic drugs. As a result, they indicated the positive relationship between prescription drug advertising and total expenditure on prescription only medicines. Increased advertising leads to greater consumer spending on those advertised medicines.

As has been presented above, some critics of DTCA have expressed concern that recent growth in drug expenditure is a consequence of increased drug advertising. Conversely, an advertising critic pointed out that product advertising certainly could not be held responsible for total consumer consumption (Ehrenberg 2000). Its effect could only increase by a small percentage of the overall market. Product advertising focused merely on the selling of individual products. Therefore, an increase in advertising would not increase the overall market demand or total drug expenditure. In addition, Manning and Keith (2001) provided an economic analysis of the advantages of drug advertising and a viewpoint on how DTCA affected the drug price and consumption of medicinal products. They also concluded that no evidence had shown a direct relationship between DTCA and prescription drug price or pharmaceutical spending. On the contrary, they pointed out that product advertising led to lower consumer prices by intensifying competition amongst sellers.

In summary, this section of the chapter has illustrated the development and current situation of DTCA. Additionally, it presented the reasons for developing DTCA in the U.S. and New Zealand and gave an overall idea about trends in DTCA expenditure and prescription drug spending as well as the relationships between these two phenomena.

2.3 The Issues Involving Direct-To-Consumer Prescription Drug Advertising (DTCA)

In this section, the issues involving DTCA, for instance, criteria and regulation of DTCA, the possible effects of DTCA, and the arguments for and against DTCA, are illustrated.

2.3.1 Criteria and Regulations of Direct-To-Consumer Prescription Drug Advertising (DTCA)

The main objective of this section is to provide details of the criteria, regulations, and code of conduct regarding DTCA of prescription medicines from the WHO, the Therapeutic Goods Administration (TGA), and the APMA in order to gain a better understanding about limitations of DTCA, particularly, in Australia.

- ***World Health Organization (WHO) Ethical Criteria for Medicinal Drug Promotion***

In 1967, the World Health Assembly (WHA) expressed concern about inappropriate drug advertising. One year later, the 21st World Health Assembly came to a general agreement on the Ethical and Scientific Criteria for Pharmaceutical Product Advertising - WHA: 21.41. It emphasised that drug advertising should provide sufficient scientifically based and balanced accurate information without ambiguities. Additionally, the criteria set a minimum standard for the amount of information required of advertisers. This standard included the generic name, dose, and contraindication of the advertised medicine. This was for both prescription medicines and non-prescription medicinal products (WHO 1994).

Subsequently, at the 41st World Health Assembly in 1988, the WHO Ethical Criteria for Medicinal Drug Promotion - WHA: 41.17 was established, based upon the revision and expansion of the Ethical and Scientific Criteria for Pharmaceutical Product Advertising - WHA: 21.41. According to these criteria,

the general principles for ethical standards could be modified by governments to national circumstances as appropriate to their political, economic, cultural, social, educational, scientific and technical situation, laws and regulations, disease profile, therapeutic traditions and the level of development of their health system. The WHO also suggested that these criteria could be applied to prescription medicines, non-prescription medicines, traditional medicines, and to any other products promoted as a medicine (WHO 1988: Applicability and Implementation of Criteria: Section 4). In addition, the WHO noted that these ethical criteria were not legal obligations; the governments could implement their own regulations, which were derived from WHO's ethical criteria as they thought appropriated (WHO 1988: Applicability and Implementation of Criteria: Section 5).

In 1994, the 47th World Health Assembly reaffirmed that (WHO 1994);

- *The regulation of drugs must ensure not only the safety, efficacy and quality of drugs but also the accuracy of the information provided pursuant to their regulation.*

- *Patients, pharmacists and prescribers should have access to appropriate and understandable information about drugs and their side effects.*

- *The promotion of drugs must be accurate, fair and objective and presented in such a way as to conform to legal requirements and also to high ethical standards.*

- *Promotional claims should not be stronger than valid, up-to-date scientific evidence warrants, every effort being made to avoid ambiguity.*

- *Information for patients and prescribers, which appears in leaflets of drugs in the manufacturing country, should be supplied by the manufacturer to the countries to which the same drugs are exported.*

As a result, governments around the world generally utilise these WHO's ethical criteria as a guideline to develop their own legislations about drug promotion including DTCA of prescription medicines.

- ***Main Legislation and Guidelines Regulating Prescription Medicines in Australia***

According to Wong (2001) and TGA (1999b), there are four main pieces of legislation, which control prescription medicines in Australia:

  - ***Therapeutic Goods Act***: Provides for the establishment and maintenance of a national system of controls relating to the quality, safety, efficacy and timely availability of therapeutic goods including prescription medicines.

  - ***Therapeutic Goods Regulations***: Prescribes matters in respect of manufacturing, advertising, registering or listing of medicines so as to make it necessary or convenient to carry out or give effect to the therapeutic goods act.

  - ***Therapeutic Goods Advertising Code***: Governs all advertising of prescription medicines which carry therapeutic claims.

  - ***Code of Good Manufacturing Practice (GMP)***: Sets out the principles and practices, which are necessary to follow in order to provide assurance that each prescription medicine is safe and reliable.

- ***Regulation of Advertising of Therapeutic Goods in Australia***

The advertising of therapeutic goods in Australia is currently controlled by the TGA. According to the TGA's website (TGA 1999c), the regulations regarding advertising of therapeutic goods is as follows:

> "*...advertisements for therapeutic goods are subject to the requirements of the Therapeutic Goods Act and Regulations,*

the Trade Practices Act and other relevant laws. Additionally, advertisements for therapeutic goods directed to consumers must comply with the Therapeutic Goods Advertising Code (TGAC).

Advertisement, in relation to therapeutic goods, includes any statement, pictorial representation or design, however made, that is intended, whether directly or indirectly, to promote the use or supply of the goods (Therapeutic Goods Act 1989).

Section 22(5) of the Therapeutic Goods Act specifies that advertising of a therapeutic good can only refer to the indications which are included in the Australian Register of Therapeutic Goods for that specific good..."

- ***Regulation of Advertising of Prescription Only Medicines in Australia***

Prescription medicines in Australia can only be advertised in trade journals, which are published for healthcare professionals (doctors, dentists, veterinary surgeons, pharmacists, and nurses). The Therapeutic Goods Regulations (TGA 1999c) relating to prescription drug advertising are shown as follows:

- *Advertising direct to consumers is not permitted (prohibited by the regulations).*
- *Advertising to healthcare professionals is permitted and is regulated by a self-regulatory scheme operated by the Australian Pharmaceutical Manufacturers' Association (APMA).*
- *Prior approval of advertisements is not applicable.*
- *Complaints about advertisements for prescription medicines directed to healthcare professionals are handled by the APMA.*

- *TGA's letter of marketing approval requires the promotion of all prescription products (whether member or non-member) to comply with the requirements of the APMA Code of Conduct.*

- *If a complaint is made about the advertising activities of a non-member, the complaint is forwarded to the non-member with an invitation to have the complaint adjudicated by the APMA Code of Conduct Committee. If the non-member declines the invitation for adjudication, the APMA may forward the complaint to the Therapeutic Goods Administration (TGA) or the Australian Competition and Consumer Commission (ACCC).*

- *Where it has been determined that a breach of the Code has occurred, the Committee may impose a range of fines, depending on the nature of the breach. The Committee may also recommend to the APMA Board that a member be suspended or expelled.*

Finally, Australian regulations regarding advertising of both prescription and non-prescription products are summarised and presented in Table 2.2 (p. 39) and Table 2.3 (p. 40).

- ***Australian Pharmaceutical Manufacturers Association (APMA) Code of Conduct***

According to the Australian Pharmaceutical Manufacturers Association – APMA (2000), the code of conduct, which was established in 1960, has been regularly revised to provide guidelines for the ethical marketing and promotion of prescription medicines in Australia. The code complements the legal requirements of the Therapeutic Goods Regulations of the TGA (TGA 1999c). In addition, the code of conduct provides guidelines for promotional tools, i.e. advertising, product samples, mailings, gifts, trade displays, travel, sponsorship, entertainment, the behaviour and training of medical representatives, and most recently, information about companies on the internet. It also covers issues regarding relationships between pharmaceutical company representatives and healthcare professionals.

Table 2.2: Summary of Regulation of Prescription Drug Advertising in Australia

	Prescription Medicine	
	Advertising direct to Consumers	***Advertising to Healthcare Professionals***
Permitted	No	Yes
Regulated by	TG Regulations, APMA Code of Conduct	TG Act, TG Regulations, APMA Code of Conduct
Prior approval required	N/A	No
Complaint handling process	TGA	APMA Code of Conduct Committee, Complaints about non-members may be referred to TGA

Source: The Therapeutic Goods Regulations (TGA 1999c)

Table 2.3: Summary of Regulation of Non-prescription Drug Advertising in Australia

	Non-prescription Medicine	
	Advertising direct to Consumers	***Advertising to Healthcare Professionals***
Permitted	Yes – except for certain pharmacist only goods	Yes
Regulated by	TG Act, TG Regulations, TGAC, ASMI Code of Practice, CHC Code of Practice, Broadcast Services Act, Trade Practices Act	TG Act, TG Regulations, ASMI Code of Practice, CHC Code of Practice
Prior approval required	*Yes* – Broadcast media (TV, radio, cinema); Mainstream print media (newspapers & magazine, displayed outdoors e.g. Billboards) *No* – Other advertising e.g. indoor posters, leaflets, letterbox drops, brochures, catalogues, Internet, etc.	No
Complaint handling process	Complaints Resolution Panel (for advertisements where prior approval is required), Industrial Associations (for other advertisements), TGA if advertiser is a non-member, a retail outlet, a distributor or a practitioner	Industrial Associations, TGA if advertiser is a non-member, a retail outlet, a distributor or a practitioner

Source: The Therapeutic Goods Regulations (TGA 1999c)

The Association's members represent more than 90% of pharmaceutical companies in Australia and a condition of APMA membership is compliance with this code. When a complaint about the ethical marketing and promotion of prescription medicines is made, an independent code of conduct committee, which comprises representatives from various institutes, e.g. the TGA, Consumers' Health Forum, a patient support organisation - currently the Arthritis Foundation of Australia, the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists, the Royal Australian College of General Practitioners (RACGP) and the Australian Medical Association, will consider the complaint to determine whether a breach of the code has occurred. To be fair, pharmaceutical companies can appeal against the decision of the committee (Roughead 1999).

2.3.2 The Effects of Direct-To-Consumer Prescription Drug Advertising (DTCA): Possible Benefits and Potential Risks

Previous researchers investigating the effects of DTCA did not arrive at the conclusion that DTCA had an overall positive or negative effect on the public. In other words, the actual effect of DTCA of prescription medicines remains a mystery. However, understanding the effects of information from DTCA on consumer attitudes and behaviours and their potential impact on physician subsequent prescribing behaviours has become more critical. A number of studies, i.e. Henry J. Kaiser Family Foundation (2001) and U.S. FDA (2003), pointed out that DTCA was pushing consumers to ask their healthcare providers for a prescription medicine even when there was a better choice. Moreover, those studies also found that DTCA was encouraging healthcare professionals to prescribe particular brands, which were expensive and unnecessary. Therefore, the negative effect of DTCA on physician prescribing behaviour is one of the arguments against DTCA.

On examining the literature related to DTCA, surrounding issues are identified and divided into two main areas of possible benefits or potential risks of DTCA.

One of the possible benefits of DTCA is that drug advertising or DTC information enhances the quality of medical services or products (PhRMA 2000; Schere and Ross 1990). It also reduces the price of pharmaceutical products due to increased competition amongst sellers (Manning and Keith 2001; Ng et al 1998; Masson and Rubin 1986; 1985). Increased competition then leads to more discounts for consumers by increasing consumer awareness, increasing transaction numbers, and reducing fixed costs for each consumer (Matthews 2001; Lewis and Lewis 1997).

Some studies, such as, U.S. FDA (2003), Matthews (2001), and Nowak and Washburn (1998) have shown that DTCA places knowledge in the hands of patients, allowing them to become more informed and to become active participants in their own healthcare. It also provides information to prospective consumers about product availability, quality, and costs in order to make comparisons. This effect of DTCA encourages consumer independence and educates consumers on a variety of options available to them. It also allows consumers to play a more active role in their own healthcare and takes some of the responsibility away from healthcare professionals.

In addition, many consumers no longer seem to blindly trust their healthcare providers as being experts. The percentage of consumers who have chosen to look for a second-opinion by spending time doing the research that they used to entrust to others is increasing. This consumer behaviour can reduce consumer costs, i.e. number of doctor visits, and may keep consumers from blindly accepting advice. The reason why DTCA improves consumer education and empowers consumers is that DTCA provides a chance for consumers to access medical information and comprehensive information in an easily understandable language with respect to costs, possible risks, potential benefits, contraindications, likely side-effects, and the appropriate usages of prescription medicines or other treatment options.

Recently, in the U.S. Center for Drug Evaluation and Research's report regarding DTCA of prescription medicines (U.S. FDA 2003), which was released on 13th January 2003 and utilised a random sample of 500 physicians, the U.S. FDA concluded that '*DTCA is having some positive effects on health*' and '*drugs advertising can and help increase patient awareness about the availability of effective treatments for their health problems*'. These results confirm that DTCA, when done correctly, can serve positive public health functions, such as, increasing patient awareness of diseases, and prompting thoughtful discussions with doctors that result in necessary treatments being prescribed. Quite often, these necessary treatments do not utilise advertised medicines. These findings are also paralleled by the National Consumers League's study in 1998, which found that over 75% of respondents agreed that prescription drug advertising increased consumer knowledge about medicines and diseases.

The U.S. FDA's findings also demonstrated that when a patient asked about a drug, 88% of the time they had the condition which the drug could treat, and 80% of doctors believed that patients understood what conditions the drug could treat (U.S. FDA 2003). In addition, the U.S. FDA survey found that doctors believed that DTCA led to a more informed doctor-patient discussion because the patient asked questions that were more thoughtful. Many physicians credited DTCA with involving patients more actively in their healthcare. Further, there is an evidence indicated that most consumers and physicians as well as U.S. FDA support DTCA as long as it complies with FDA's regulations and guidelines and refers consumers to their physicians (National Health Council 2002). In addition, the pharmaceutical industry claims that one of the key objectives of DTCA is to promote public health and the well-being of consumers by motivating consumers to become more informed about illnesses, diseases and treatment options. On the downside, empowering consumers is creating scepticism, a mistrust of the ability of healthcare providers to do their job and to act responsibly. DTCA empowered consumers tend to be distrustful, sceptical, and even pessimistic (Kravitz 2000). This effect of DTCA may

destroy the good relationship between physicians and patients, and put more pressure on healthcare providers. It may also lead to an increase in consumers shopping around for a physician that is likely to prescribe the drugs suggested to them by the consumer.

Additionally, a study by the U.S. FDA (U.S. FDA 2003) illustrated some negative effects of DTCA. Around 75% of sample doctors believed that DTCA caused patients to think that the drug worked better than it did. Further, some doctors felt under pressure to prescribe specific brand medicines, which were requested by patients, even if the less expensive generic drugs would work equally well, or even if another drug or no drug therapy at all would be more appropriate. Moreover, studies by Bell and Wilkes (2000) and Lexchin (2000) showed that whilst mass media advertising had provided wide-ranging comprehensive medical information to the general public, medical information from DTCA also presented a dilemma about how to evaluate medical information from pharmaceutical sellers for accuracy, comprehensiveness, and reliability.

Furthermore, one of the major arguments against DTCA is that prescription drug advertising will present poor quality information because pharmaceutical companies will provide biased information via DTCA. They seek to increase market share rather than objectively inform or educate consumers. Evidence used in drug advertising is selectively gathered and only studies favourable to the product are cited. In the U.S. FDA study (U.S. FDA 1999), over 50% of consumers surveyed believed that prescription drug advertising does not give enough information about the possible risks and negative effects of the advertised medicines. The concern about whether DTCA is actually an educational programme depends upon the quality and quantity of the information offered. Therefore, according to this reasoning, DTCA does not have an educational content and cannot educate consumers.

Another concern regarding the negative effects of information from DTCA is that DTCA leads to over-medication and inappropriate prescription. The intention of pharmaceutical companies is to expand market size by increasing the usage of prescription medicines amongst consumers who are not currently utilising them. Consumers are directed towards pharmaceutical solutions for problems that are of social or lifestyle origin and could be addressed by non-pharmaceutical products, e.g. exercise or diet, as opposed to enhancing consumer self-responsibilities as DTCA proponents claim. Therefore, a further argument against DTCA is that prescription drug advertising will create dependency on the medical system and pharmaceutical products.

In addition, Krieger (1983) believed that drug advertising would increase pharmaceutical prices because pharmaceutical companies would transfer the cost of advertising to the end users or consumers. Furthermore, DTCA encourages consumers to see their doctor and ask questions, even if there is no clinical indication of illness. This behaviour involves a wasted visit to the doctor for consumers with direct costs for consultation as well as opportunity costs, i.e. time off work. Moreover, in the case of consumers who use the public health service, there is a direct cost to the health budget for their visits. Whilst there is no empirical study on the actual effects of DTCA on consumers and pharmaceutical prices, a report from the U.S. Federal Trade Commission (U.S. FTC 2002) revealed evidence, which suggests that any price effects from the costs of the advertising itself are likely to be small. Therefore, DTCA will not increase the price of pharmaceutical products. If consumers receive more and better information on these products, they will be able to make better-informed choices about the medicines they purchase. In addition, the U.S. FTC's paper found that the U.S. FDA's current approach to DTCA has permitted an increase in the flow of ingenuous information about pharmaceutical related products to consumers, and it might benefit consumer welfare.

The finding of a national survey of 2,608 physicians in the U.S. by the Henry J. Kaiser Family Foundation (2002) also illustrated physician opinions about the

factors that influenced patient awareness of medicines. More than 63% of doctors thought that prescription drug advertising influences patients to discuss treatment and medicine options with their healthcare providers. Furthermore, around 80% of sample doctors said that family members, friends, and news media are other common influences. This physician survey clearly illustrated that DTCA and information from the general media, family members, or friends are the most common influences that encourage consumers to have a discussion with their healthcare providers about medicines or about their health conditions.

Additionally, the pharmaceutical research organisation, Johnston, Zabor, McManus - JZM Inc., surveyed 6,709 patients, caregivers, and doctors online (JZM 2002). Their paper revealed that 44% of consumers, who found DTCA on pharmaceutical company web sites, intended to ask their physicians to prescribe that advertised brand. Moreover, the survey demonstrated that 21% of healthcare providers, who visited these pharmaceutical web sites, intended to talk to their colleagues about the advertised medicines, 34% indicated that they would search for more information on the drug, and 15% of sample healthcare providers planned to discuss the advertised medicines with their patients. Furthermore, according to the survey, one in ten doctors (10%) who did not currently prescribe an advertised drug would begin doing so after visiting the pharmaceutical web sites. The survey also stated that consumers, who were driven to a pharmaceutical web site based upon their healthcare providers' referral, were less likely to request a prescription medicine than those who found the links from a search engine or other sources.

In summary, the section of the chapter has demonstrated the common arguments regarding DTCA of prescription medicines, which were raised by major stakeholders and interest groups. Even though this type of prescription drug promotion has engendered a well-articulated debate, it demonstrates the comparative lack of empirical evidence. Finally, the common arguments, which are raised to support and denounce DTCA, are summarised in Table 2.4 (p.47).

Table 2.4: Summary of the Arguments For and Against DTCA

The Arguments For DTCA	The Arguments Against DTCA
• *DTCA educates and empowers consumers*	• *DTCA provides poor quality information*
• *DTCA encourages consumer independence*	• *DTCA leads to over-medication and inappropriate prescribing*
• *DTCA encourages healthcare providers to include consumers in healthcare decision making*	• *DTCA raises prescription drug costs for consumers and the health budget*
• *DTCA assists physicians and other healthcare professionals in providing best practices*	• *DTCA undermines the doctor-patient relationship*
• *DTCA increases consumer awareness of under-diagnosed diseases*	• *DTCA increases consumers physician-shopping behaviour*
• *DTCA increases consumer awareness regarding new treatments*	• *DTCA puts pressure on physicians and leads to inappropriate prescribing*
• *DTCA gives consumers more options when discussing health improvement with their healthcare providers*	• *DTCA does not provide other existing treatment options*
• *DTCA promotes health and well-being of consumers*	• *Industry self-regulation framework cannot control DTCA effectively*
• *DTCA leads to lower prescription drug prices*	• *No evidence that DTCA improves public health outcomes*

2.4 The Positions of Major Stakeholders Regarding Direct-To-Consumer Prescription Drug Advertising (DTCA)

The purpose of this section is to explore the views, concerns, and comments of stakeholders with respect to the current Australian and world regulation frameworks for DTCA of prescription medicines. It is important to review each stakeholder's position because it provides researchers with an understanding of the entire DTCA debate. Moreover, these stakeholder perspectives will assist researchers to frame discussion about DTCA and suggests the focus that further research in the area of DTCA should take. Whilst the viewpoints of major stakeholders were illustrated in the literature review, the Australian consumer position has not yet been studied. For this reason, the present study looks at consumer attitudes towards DTCA, which is important in gaining a better understanding of consumer perspectives.

2.4.1 World Health Organization (WHO)

The WHO Ethical Criteria for Medicinal Drug Promotion (WHO 1988) has demonstrated the concerns of an international group of experts on the Rational Use of Drugs Conference in November 1985 regarding advertisements in all forms of medicinal products to the public (WHO 1988: Section 14-16: Advertising Part B) as follows:

> *"**Section: 14** Advertisements to the general public should help people to make rational decisions on the use of drugs determined to be legally available without a prescription. While they should take account of people's legitimate desire for information regarding their health, they should not take undue advantage of people's concern for their health. They should not generally be permitted for prescription drugs or to promote drugs for serious conditions that can be treated only by qualified health practitioners, for which certain countries have established lists.*

To fight drug addiction and dependency, scheduled narcotic and psychotropic drugs should not be advertised to the general public. While health education aimed at children is highly desirable, drug advertisements should not be directed at children. Advertisements may claim that a drug can cure, prevent, or relieve an ailment only if this can be substantiated. They should also indicate, where applicable, appropriate limitations to the use of the drug." (WHO 1988)

*"**Section: 15** When lay language is used, the information should be consistent with the approved scientific data sheet or other legally determined scientific basis for approval. Language which brings about fear or distress should not be".* (WHO 1988)

*"**Section: 16** The following list serves as an illustration of the type of information advertisements to the general public should contain, taking into account the media employed:*

- *The name(s) of the active ingredients(s) using either international non-proprietary names (INN) or the approved generic name of the drug;*
- *The brand name;*
- *Major indication(s) for use;*
- *Major precautions, contra-indications and warnings; and*
- *Name and address of manufacturer or distributor*

Information on price to the consumer should be accurately and honestly portrayed." (WHO 1988)

In short, the WHO Ethical Criteria for Medicinal Drug Promotion (WHO 1988) illustrates that DTCA can be done in some circumstances, if it meets the criteria and is consistent with the approved scientific data sheet. Moreover, WHO has expresses concerns that drug advertising should not be directed at children and it should indicate appropriate limitations on the use of the drug.

2.4.2 International Federation of Pharmaceutical Manufacturers' Associations (IFPMA)

IFPMA has published the Code of Pharmaceutical Marketing Practices on their website (IFPMA 1998). The Code states that '*where it is permitted by law to communicate directly with patients regarding their prescription medicines, all such information should be accurate, fair and not misleading*' (IFPMA 1998). Even though the IFPMA Code does not clearly support DTCA, it appears to strongly support the right of pharmaceutical companies to utilise the Internet as a means of providing accurate and reliable information on medicines in a responsible manner for the benefit of patients, healthcare providers and other related parties.

Further, IFPMA points out that there should be open access to all information put on the Internet by pharmaceutical companies, even though they accept that there are differences in the regulations relating to prescription drugs promotion. The IFPMA believes that the potential effects of information given directly to consumers via the Internet could provide information about alternative treatment options, and information from pharmaceutical companies could be an alternative source of enhancing consumer welfare. Consequently, it appears to actively encourage drug promotion, particularly, DTCA via the Internet.

2.4.3 Society of Hospital Pharmacists of Australia (SHPA)

According to the position statement of the SHPA (2000), the SHPA's view regarding DTCA of prescription medicines is as follows:

> *"The Society of Hospital Pharmacists of Australia (SHPA) opposes direct to consumer advertising of prescription medicines in Australia.*
>
> *It believes that the effect of such advertising would be to invite consumers to ask their doctors to prescribe particular medicines or particular brands. This may lead to pressure on the doctor/patient relationship and encourage doctor shopping by some patients in order to obtain a particular product."* (SHPA 2000; p.1)

Clearly, the SHPA opposes DTCA in Australia because they believe that the effects of DTCA will destroy healthcare provider-patient relationships and lead to over medication.

2.4.4 Pharmaceutical Health And Rational use of Medicines (PHARM) Committee

The PHARM Committee, Department of Health and Aging published the PHARM 'principles' statement on DTCA of prescription medicines (PHARM 2002) on the Pharmaceutical Benefits Scheme (PBS)'s web site as follows:

> *"PHARM has always promoted the benefits for consumers of accurate and balanced information about medicines. Consumers benefit from a range of different sources of information. PHARM believes that benefit is greatest if information conforms to Quality Use of Medicines principles. One good example of appropriate information is Consumer Medicine Information (CMI)."*
>
> *"PHARM believes that Direct to Consumer Advertising of prescription medicines (DTCA) would not provide*

information with the appropriate balance to achieve QUM. PHARM believes that the main purpose of DTCA would be to increase sales of the advertised products."

"PHARM understands that a considerable amount of promotion of prescription medicines to consumers already occurs, eg via the Internet, through advertising concerning disease states, various promotional articles placed with the print and television media by 'public relations' companies engaged by the pharmaceutical industry and media releases by companies etc. The fact that promotion already occurs does not mean that DTCA of prescription pharmaceuticals itself is inevitable, necessary or desirable. We believe that to allow DTCA as occurs in the USA would be on balance to the detriment of Australian consumers and not assist in the goal of achieving quality use of medicines.

If there was to be serious consideration of allowing DTCA in this country, there should first be thorough and independent analyses both of the effects of DTCA overseas, and also the effects in Australia of the quite recent change to allow advertising of S3 medicines. Has this promotion led to increased sales of these products? Has better use of and outcomes from these medicines been achieved?"

"PHARM has carefully considered the role of advertising in the provision of information about medicines. PHARM is of the view that mass media advertising of medicines is a poor way of providing information that is consistent with QUM principles. PHARM strongly opposes any move to alter the current regulations to allow DTCA of prescription pharmaceuticals." (PHARM 2002)

In summary, The PHARM Committee views mass media advertising of medicines, i.e. DTCA, as an inadequate way of providing information to the general public. As a result, they strongly oppose DTCA of prescription medicines in every form.

2.4.5 Australian Medical Association, Pharmacy Guide, and Pharmaceutical Society of Australia

In Australia, physicians are the ones who have the authority to prescribe a medicine. Obviously, the pharmaceutical companies focus primarily on physicians for their traditional marketing efforts. Although this strategy has slightly changed today, physician opinions regarding DTCA of prescription medicines are very important because they still have the authority to prescribe medicines to consumers.

According to the position paper of the Australian Medical Association, the Pharmacy Guide, and the Pharmaceutical Society of Australia as members of the Joint Medicines Working Party (which represents the opinions of numerous physicians in Australia) on the topic of DTC prescription drug advertising, which was approved by Executive Council on 28 June 2001 and available on the Australian Medical Association's website (Australian Medical Association 2001), their position concerning DTCA is as follows:

> *"The Joint Medicines Working Party is opposed to Direct to Consumer advertising of prescription medicines being introduced into Australia. The Joint Medicines Working Party recognises that most people need and want more information about medicines and health, but they do not believe the information vacuum can or should be filled by advertising messages and linked with promotional activities."*

"The Joint Medicines Working Party opposes DTCA being introduced at present, because although there is very limited evidence relating to the Australian scene, overseas experience indicates that public benefits are unlikely. In general, DTCA is likely to increase drug use with increased costs to health care systems, but there is no evidence that this would be rational and effective drug use, in accordance with Quality Use of Medicines principles. DTCA is likely to promote use of drug therapies over alternatives such as lifestyle changes and non-drug therapies. Most of the advertising in the USA is for a very small number of products, so as an information source to consumers, it is very selective and very limited. It is unlikely that cheaper drugs with lower profit margins will be promoted by DTCA even if these are first line treatments. It would be likely to push up other health care costs."

"DTCA could impact on patient-doctor relationship in a negative manner. A patient may inappropriately request medicines the doctor is not happy to prescribe. If the patient is convinced, they need / want the medicine they may go to another practitioner."

More Information Needed

"There is an overwhelming lack of information to inform the debate about DTCA in the Australian health setting. However, in this information vacuum, it is very important not to introduce a new system that has the potential to undermine rational and effective drug use, the doctor-patient relationship and the Australian pharmaceutical manufacturing industry. It

> *is also important to observe the impact of the recently introduced Therapeutic Goods Advertising Code on S3 products, before the consideration of the introduction of DTCA in Australia."* (Australian Medical Association 2001)

(Reproduced with the permission from the Australian Medical Association)

Further, some professional organisations, i.e. the Royal Australasian College of Physicians (RACP) and the Royal Australian College of General Practitioners (RACGP), do not currently have a position or a policy on DTCA of restricted medications since there is currently a moratorium on such advertising in Australia and the advertising of restricted medicines is currently limited to medical practitioners. However, it is expected that these professional organisations will start to look more actively at this issue as pressure grows in Australia for DTCA to be allowed.

Even though the Joint Medicines Working Party seems to be recognising the fact that the global DTCA of prescription medicines will continue to increase, most of its members are not pleased about this development. The Joint Medicines Working Party calls for research on the actual effects of DTCA before it introduces a new regulation that has the potential to undermine rational and effective drug use, the doctor-patient relationship, and the Australian pharmaceutical manufacturing industry (Australian Medical Association 2001). Specifically, the Joint Medicines Working Party wants to know how this kind of drug promotion will affect the relationship with their patients and how it will affect their prescribing behaviour in the future. This reflects the fact that physician organisations are very concerned that DTCA may destroy the doctor-patient relationship and distort the doctor's prescribing behaviours.

2.4.6 Healthy Skepticism

In 1983, the Medical Lobby for Appropriate Marketing (MaLAM), which is an international non-profit organisation for healthcare professionals and consumers who are interested in improving their health, was established in Australia. MaLAM's primary strategy was to write letters to pharmaceutical companies. Their letters led to the withdrawal or reformulation of some medicines and withdrawal or modification of some advertising. In 2001, MaLAM changed its name to Healthy Skepticism. According to Healthy Skepticism's websites (Healthy Skepticism 2003a), their major objectives are as follows:

- Improving health by reducing harm from inappropriate misleading or unethical marketing of health products or services, especially misleading pharmaceutical promotion;
- Investigating and communicating about marketing practices;
- Promoting healthy scepticism about marketing practices via advocacy, research and education;
- Developing, supporting and evaluating initiatives to reduce harmful marketing practices, including reform of regulations and incentives;
- Developing, implementing and evaluating educational strategies to improve health care decision making, including evaluation of drug promotion;
- Supporting compassionate, appropriate, sustainable, evidence-based health care, provided according to need, for optimal health outcomes; and
- Providing practical opportunities to advance the aims of Healthy Skepticism Inc.

Healthy Skepticism's position strongly opposes all types of prescription drug promotion, especially, DTCA to the Australian public. They pointed out that DTCA is supposed to be prohibited in Australia. However, pharmaceutical companies are evading the laws. They have found that all the types of drug promotion that have been studied increase the risk of suboptimal prescribing promotion and DTCA is only supported by groups that stand to gain financially from these promotions (Healthy Skepticism 2003b). Moreover, they believe that DTCA makes it more difficult for medical practitioners to provide the best possible care for patients by distorting priorities according to what is profitable at the time. Healthcare professionals want to take their patients preferences into account. However, such promotions can distort their treatment decisions.

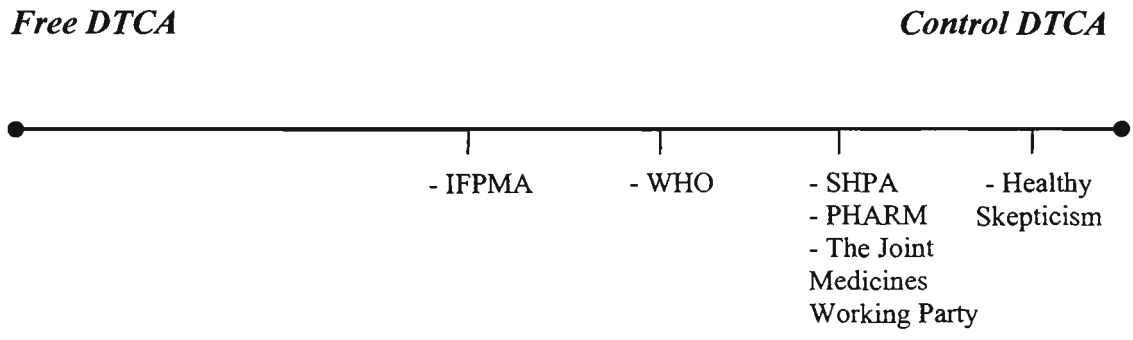

Figure 2.4: Summary of the Position of Major Stakeholders regarding DTCA of Prescription Medicines

In summary, major stakeholders in Australia do not support the legalisation of DTCA to the Australian public and healthcare professionals' organisations do not have a positive view towards this kind of drug promotion. They believe that DTCA will do more harm than good. However, they realise that global DTCA

will continue and the pressure of legislation changes concerning DTCA of prescription medicines from international organisations and global environments is increasing. After reviewing the position of major stakeholders regarding DTCA, their positions can be summarised in Figure 2.4 (p.57).

2.5 Consumer Attitudes and Responses towards Direct-To-Consumer Prescription Drug Advertising (DTCA)

2.5.1 Consumer Attitudes towards Advertising and DTCA of Prescription Medicines

Consumer attitudes towards advertising differ significantly from product to product and from country to country. In general, consumers hold positive attitudes towards advertising in terms of economic effects (Reid and Soley 1982) and towards general advertising effects on a particular product or service (Lutz 1985). Moreover, according to a consumer study conducted by Gallup International (1993), over 75% of consumers agreed with the statement: '*If a product is legal to sell, it should also be legal to advertise*'. Additionally, Perri and Nelson (1987) found that consumers held a positive attitude towards non-prescription drug advertising, and DTCA could supply information, which consumers want and have a right to know. Moreover, the U.S. FDA (U.S. FDA 2000) carried out a survey on DTCA by selecting a random sample of 960 consumers. They found a significant difference in response to drug advertising between consumers who had met their healthcare providers recently and those who had last seen their doctors more than three months prior. The finding of this study also indicated that, in general, consumers reported a positive attitude towards DTCA, particularly in comparison to physicians.

In contrast, a paper on Australian consumer attitudes towards advertising by Grey Worldwide (2001), published by Information Australia, showed contradictory results. Seventy-seven percent of Australian consumers thought that they were becoming more suspicious of advertising, and a further 87% said that they preferred to listen to the advices of people who they know. This

highlights the fact that consumer attitudes towards drug advertising differ from country to country and consumers may need different formats for medical information. Therefore, the U.S. regulation regarding drug advertising may not be appropriate in Australian circumstances.

In august 2001, Ipsos-Reid conducted a national survey in Canada, which was administered by telephone and utilised a random sample of 1,503 Canadians (The Alliance for Access to Medical Information - AAMI 2002). Survey respondents were randomly selected through the use of a random-digit dialling method and checked to ensure that they were not members of the media or employees of advertising and market research companies. It found that 68% of respondents supported DTCA of prescription medicines and felt that DTCA should be permitted. Also, over half (53%) of Canadian respondents thought that prescription drug advertising was already officially permitted in Canada even though this is not true.

From this survey, the arguments for supporting DTCA of prescription medicines were that '*consumers need to know all the information available*' and '*give the consumer choices*'. On the other hand, '*the potential for misleading or bias advertising*' and '*consumer misinterpretation, confusion and unknown side effects*' were the major opposing arguments (AAMI 2002; Rosenthal et al 2002). Furthermore, the Ipsos-Reid survey revealed that common information sources about prescription medicines, which Canadians mentioned first and generally utilised, were physicians (40%), pharmacists (36%), the Internet or reference books (10%), family and friends (7%), magazines (4%), newspapers (3%), and television (4%). In addition, Doucette and Schommer (1998), who studied the effects of age and knowledge about medicines on consumer desire for additional information on risks and benefits of medicines following DTCA exposure, found a similar result. They also reported that doctors were the most strongly preferred source of information about medicines, and information from pharmaceutical companies or drug advertising received the lowest score.

2.5.2 Consumer Responses towards DTCA of Prescription Medicines

In 2001, the Henry J. Kaiser Family Foundation conducted a survey as to how consumers respond to prescription drugs advertising directed towards them and what consumer attitudes are regarding this type of promotion (Henry J. Kaiser Family Foundation 2001). The foundation conducted a study in the U.S. using a Web-based survey method. Answers from the 2,511 respondents showed that:

- Almost 30% of respondents have discussed with their doctors advertised drugs that they had seen, and 44% of those who discussed the advertised drug with their doctors received a prescription for the drug that they asked for;

- After seeing prescription drugs advertised, nearly 37% revealed that they were likely to have a discussion about the advertised drug that they saw with their doctors; and

- 84% of respondents felt that drug advertising performed a 'good' or 'excellent' effort of telling them about the condition that the drug is designed to treat.

The U.S. FDA's Division of Drug Marketing, Advertising and Communications - DDMAC (U.S. FDA. 1999) surveyed consumer responses to prescription drugs advertising. Their results indicated that television is the most common source of commercial information about medical products, and the second is radio. Over 80% of respondents thought that besides learning about pharmaceutical product benefits, they get further information about risks and side effects including indications and contraindications of those advertised medicines. Moreover, the study found that drug advertising encouraged over half of the 1,000 respondents to seek additional information from physicians and pharmacists.

Another consumer survey in the U.S. with a contribution from the U.S. FDA found that over one in four patients (29%) talked to their healthcare providers about advertised medicines. Almost a quater of those patients (23%), who visited a physician as a result of their exposures to drug advertising, received a prescription for the requested drug (The Business World Inc. 1999) even when it was not their first option (Spurgeon 1999). When comparing these results with a study conducted by Perri and Nelson in 1987, there is shown to be a doubling (12% to 23%) in the number of consumers, who discussed an advertised drug with their healthcare providers. This patient behaviour has affected the doctor-patient relationship (Johnson and Ramaprasad 2000, and Bell et al 1999) and most doctors (91%), who were asked about advertised drugs, felt under pressure to prescribe them (Spurgeon 1999). Conversely, a spokesperson for the PhRMA said, '*Direct-to-Consumer empowers patients. It helps solve the problems of undertreatment and underdiagnosis, but still leaves the decision up to the doctors*' (Art 2000; p: 1).

In summary, a number of studies, i.e. Reid and Soley (1982), Perri and Nelson (1987), AAMI (2002), and Henry J. Kaiser Family Foundation (2001), have shown that, generally, consumers hold positive attitudes towards drug advertising, and the long-term effects of DTCA on consumer benefits require further extensive exploration. Moreover, from the literature review, the research gap regarding consumer attitudes towards DTCA in Australia has been revealed. No study related to this topic has ever been performed before.

2.6 Conclusion

DTCA of prescription medicines is an emerging alternative source of medical information that has appeared to the public in the late 20th century. The U.S. and New Zealand were the first countries that allowed this kind of pharmaceutical promotion direct to the public. Consequently, many countries, which do not permit DTCA of prescription medicines, realise that due to the effects of globalisation and the information revolution in the age of informed consumers, it is not easy to block the flow of DTCA across countries. The review of

literature indicates that even though the final effects of DTCA on the public are not clear, however, the adoption rates of DTCA and the interest in DTCA around the world is increasing.

Several studies claim that DTCA offers many significant benefits to consumers over traditional sources of medical information, such as, providing lower information costs, improving awareness of new drugs, encouraging consumers to have a discussion with their healthcare providers about medical conditions or illnesses that they had never discussed before, and increasing opportunities for consumers to seek early diagnosis and treatment. However, it is still unclear how well consumers understand or interpret the information from DTCA and what the Australian consumer attitudes are towards the prospective information from prescription drug advertising. Therefore, the present study explores these issues by concentrating on the concepts of attitudes, information search behaviours, and behavioural intentions. The literature suggests that information search behaviours and behavioural intentions are dependent upon consumer attitudes towards sources and types of information and the potential risks and possible benefits of that information.

In Chapter 3, the following issues will be outlined: the relationships between consumer prior knowledge and information search behaviours, consumer information acquisition and processing, the attitude theories, the relationships between attitudes and intentions, the theories of media effects, and theories of behavioural change. Moreover, the next chapter will show how these issues relate to advertising of high-perceived risk products, such as, prescription medicines.

Chapter 3

Theoretical Framework

Chapter 2 provided an overview of the global DTCA of prescription medicines and the current DTCA situation in Australia. The aims of Chapter 3 are to present the theoretical foundation upon which this research was drawn by reviewing the related literature to identify research issues and indicate research gaps, which have not been studied previously.

3.1 Introduction

The theoretical framework of studying the relationships between consumer attitudes and behavioural intentions, consumer information acquisition and processing, and the effects of advertising messages has an extensive history in marketing and communication literature. The following sections illustrate the links between research problems and propositions by reviewing these frameworks. Further, it presents the theoretical aspects from previous literature on the topics of consumer information acquisition and processing, i.e. the information acquisition and processing model (Assael 1995), the relationships between consumer knowledge and information search behaviour (Brucks 1985; Johnson and Russo 1984; Kiel and Layton 1981; Bettman and Park 1980; Norman 1979), the attitude theories, i.e. the attitudes components model (Rosenberg and Hovland 1960), the effects of attitudes on behavioural intentions, i.e. the theory of consumer socialisation (Bandura 1977), the Theory of Reasoned Action – TRA (Fishbein and Ajzen 1975), the Theory of Planned Behaviour – TPB (Ajzen 1988; 1985), the stage-of-change model (Prochaska 1979) and consumer information sources used in the context of perceived high risk products, such as, prescription only medicines. In this context, factors that affect consumer attitudes and behavioural intentions are identified.

The present chapter also points out the complexities in determination of an attitude-intention relationship model as well as other issues pertaining to consumer psychology and marketing theory. Moreover, it encompasses an investigation of what factors affect consumer attitudes relating to DTCA, and which attitude dimensions have an effect on consumer intentions regarding advertised medicines. It also introduces a number of concepts and frameworks that contributed to knowledge in the area of DTCA. Finally, the current chapter presents the theoretical framework, which was utilised as an analytical model for the study, and illustrates the relationships between research problem, research variables, research questions and propositions.

3.2 Consumer Information Acquisition and Processing

Research on the acquisition and use of information often assumes that consumers collect information to assist them in making decisions regarding what products or which services are appropriate to them (Popoola 2000; Mitra et al 1999; Assael 1995). Furthermore, studies related to consumer information search have been performed under the proposition that attitudes towards types and sources of information are a crucial factor in data acquisition and processing in the consumer decision-making model. The marketing of prescription only medicines embraces this approach as marketing oriented information is created with the intention of attracting new customers or reminding old consumers about new medicines and increasing awareness of a particular brand of medicines. This strategy aims to promote a greater frequency of doctor visits, presumably to specifically ask for these advertised medicines, and relies upon the assumption that a consumer needs to acquire information before processing it and making a decision. However, some studies have shown that not all consumers who obtain information actually buy or even intend to buy the product (Vogt and Fesenmaier 1998; Pinto et al 1998; Everett 1991). This is especially true when consumers are in an ongoing search process or passive information acquisition process (Assael et al 1995). They might be fulfilling other needs, sharing with others or satisfying their own interests.

C2n piexdF 2mthe Decision Process		Involvement in the Purchase Decision: *High*	Involvement in the Purchase Decision: *Low*
	Decision Making	Complex Decision Making	Limited Decision Making
	Habit	Brand Loyalty	Inertia

Figure 3.1: Types of Consumer Decision Processes

(Assael et al 1995; p. 253)

As a result, Assael et al (1995) pointed out that the consumer decision-making process might vary across different types of consumer involvement. By involvement, they mean the importance of the product decision to the consumer, and they categorise types of consumer decision processes into four dimensions as described in Figure 3.1 (p.65).

Additionally, Assael et al (1995) revealed that products related to medicines involve a great risk and are related to a high-involvement purchase, which might require complex decision-making or brand loyalty. The degree of consumer involvement in the purchase decision becomes an important factor. High involvement suggests active information search behaviour, and therefore, a greater chance of appropriate prescription drug use. In the complex decision making process, the consumer conducts a vast deal of thought and consideration. When consumers are involved with products, they actively search for specific product information. In making a decision about these prescription medicines, consumers will search for information and cautiously evaluate a number of alternatives to determine which can best fit their needs. However, in reality, health consumers who have active search behaviours rely largely on information from a single primary source, which is their healthcare provider. They might look for an alternative low-cost information source, such as, mass media, to compare information that they obtained.

Moreover, Assael (1995) proposed the multi-stages model which consumers proceed through before deciding to purchase a product (Figure 3.2; p.68). According to Assael's model, the first stage considers consumer environmental factors, which are as follows:

1) *Socio-demographic factors*, i.e. personality, demographics, lifestyle, knowledge, and motivations that consumers hold before making a decision;

2) *Environmental factors*, i.e. social groups and cultural values that affect consumers; and

3) *Marketing activities*, i.e. product, price, place and promotion that consumers are exposed to.

The second stage shows three different types of information search leading to information acquisition as follows:

1) *Ongoing search,* that might characterise consumers with continuing involvement in the product and create awareness of a wide variety of options;

2) *Purchase-specific search,* which describes consumers who collect specific information on a particular product before making a purchase decision; and

3) *Passive information acquisition,* which does not require an active search for information. In this way, consumers will obtain information in passing. This type of information search behaviour is normal for uninvolved consumers and for low involvement product categories.

The third stage underlines information processing efforts, as well as categorising what has been retained for future use or determining what information will be retrieved in the next process: brand evaluation where consumers may prioritise essential features or recognise brand loyalty. In the fourth stage, consumers will assess the degree of perceived risk involved with the purchase, which is associated with several factors, i.e. product complexity, price of product, and the importance of product etc. These risk perceptions encourage consumers to seek more information about products before making a purchase decision.

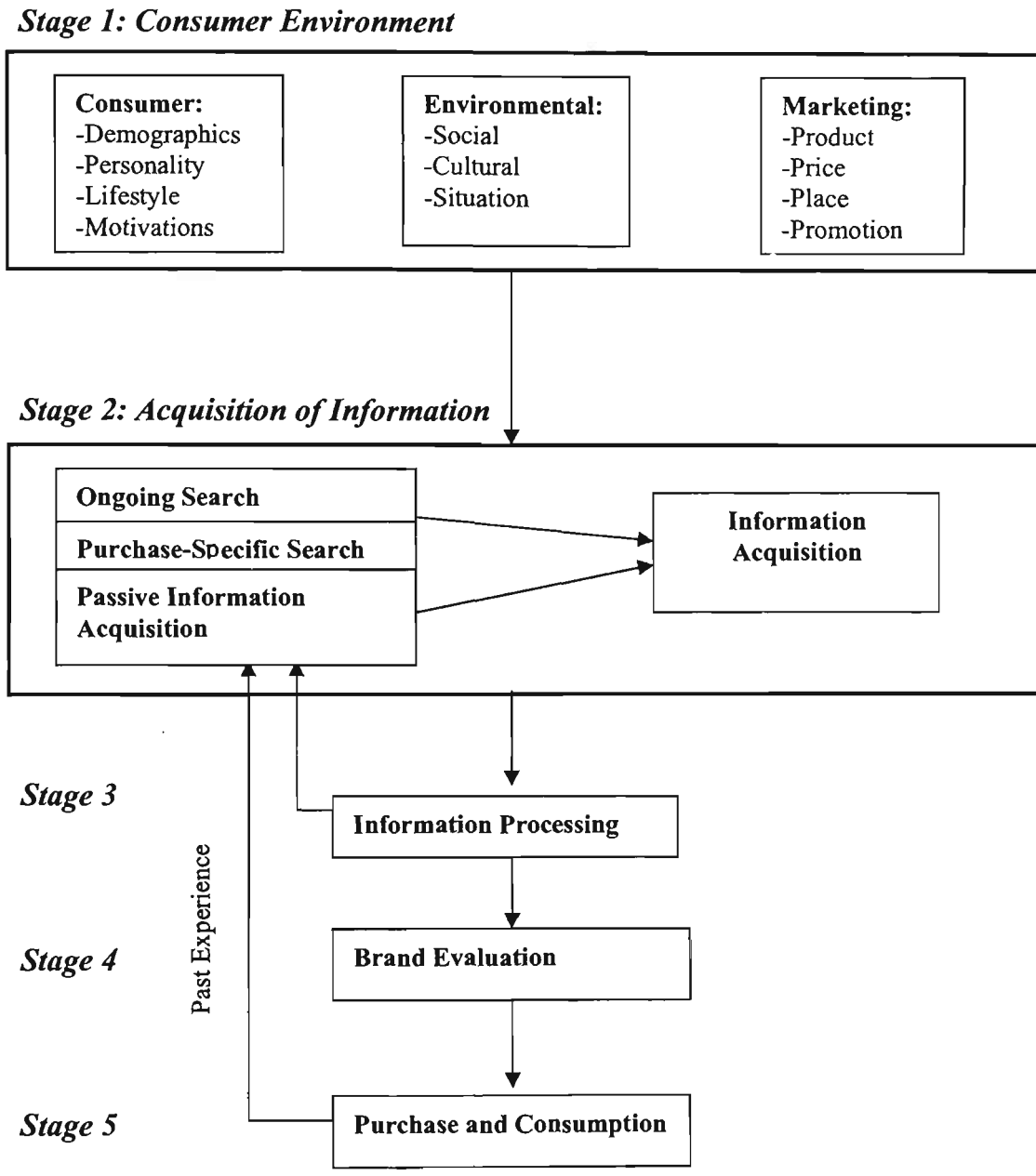

Figure 3.2: Consumer Information Acquisition and Processing Model (Assael 1995; p. 227)

In addition, Bettman (1973; 1970) agreed that if perceived risk is a critical feature in consumer choices, then understanding consumer perceived risk is of some benefit to marketers as they can reduce risk by influencing either the importance of their products or consumer decision rules. Also information about the brand from advertising is useful in reducing risk in the brand evaluation stage. Assael's final stage emphasises the actual purchase and use of the product. Once the consumers purchase and use products, they will store their experience in long-term memory and may use it again if they decide to buy a related product. Additionally, Ehrenberg (2000) pointed out that one of advertising's main roles at this stage is to reinforce the feeling of satisfaction with brands already bought. Therefore, a repeat buying habit may be developed and reinforced, if there is satisfaction with previous usage.

In summary, Assael's multi-stages model demonstrated the consumer environment factors, e.g. demographics, and social factors that influence the initial stage of consumer information acquisition and the evaluation process. Moreover, the model outlined three different types of consumer information search behaviour, particularly the purchase-specific search, which may include health consumers in this category. This type of information search behaviour has shown that consumers try to collect as much specific information about a particular drug as possible before making a decision, in order to reduce their risks and increase their total benefits. Understanding the type of consumer information search is also very useful for evaluating the factors that affect consumer attitudes towards alternative medical information sources, such as DTCA, consumer information search behaviours, and consumer behaviour intentions regarding advertised medicines. In addition, some studies have shown that advertising plays an important role in the different stages of Assael's model (Ehrenberg 2000; Bettman 1973; 1970). The multi-stages model is also important both for the understanding of DTCA's functions and for the implementation and evaluation of drug advertising as a tool of pharmaceutical marketing management.

3.3 Consumer Knowledge and Information Need

The research frameworks for studying relationships between consumer knowledge or product experience and information search behaviour or information need, have been commonly divided into three main streams (Figure 3.3; p.71). The first stream supports the hypothesis that there is a positive relationship between consumer prior knowledge and information search behaviour: the more knowledge the greater search effort and the need for more information (Johnson and Russo 1984). However, the second stream identifies studies which have shown the opposite relationship between these two variables. In other words, consumers with little existing information are expected to have a high level of external information search (Kiel and Layton 1981; Moore and Lehmann 1980; Anderson et al 1979). The third stream believes that the relationship between consumer prior knowledge and the total amount of external information need is curvilinear or inverted-U shaped so that consumers with either low or high knowledge levels are less likely to need or to seek external information than consumers who have moderate knowledge (Brucks 1985; Bettman and Park 1980; Miyake and Norman 1979).

Furthermore, regarding the relationship between consumer prior knowledge and consumer attitudes towards DTCA, Peyrot et al (1998) carried out a random survey of 440 health consumers in the U.S. looking at the significance of demographic factors and media exposure in consumer attitudes towards drug advertising. They concluded that consumers who reported better knowledge regarding the medicines were more negative towards drug advertising and less likely to request an advertised drug or information related to that medicine.

Besides this inconclusive understanding of the relationship between consumer prior knowledge and information search behaviour which can be reflected in:

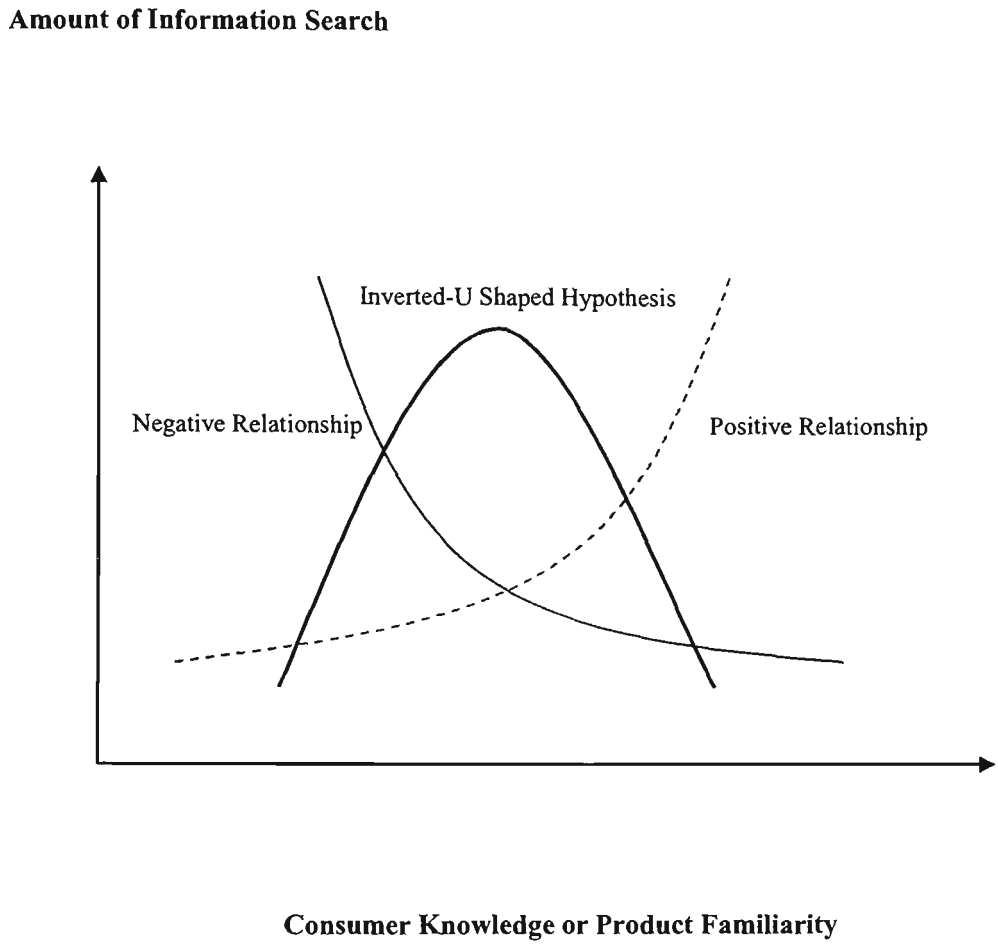

Figure 3.3: Research Frameworks for Investigating the Relationship between Consumer Knowledge and Information Search Behaviour

a) consumer intentions to seek more information and to ask experts about the products; or b) consumer needs additional information sources, there is also a general deficiency in consumer decision-making models about high-involvement products, particularly, prescription medicines, in that they have shown little regard to socio-demographic factors, consumer attitudes towards information sources, normative beliefs, and motivation to comply with the salient referents (family and friends) of consumers.

To address this deficiency, the present study has developed and introduced a conceptual model (section 3.6.2; p.84). Some parts has been adopted from these frameworks for analysis of the relationships between different variables, such as, socio-demographic factors, consumer prior knowledge about drug regulation and prescription drug advertising, and consumer attitudes and behavioural intentions regarding advertised medicines.

3.4 Attitude Theories and Relationships Between Attitudes and Intentions

The first part of this section introduces the definition of attitudes and their components. It is a crucial element in studying and understanding consumer attitudes, and also in assisting researchers to develop a theory of the conditions under which attitudes have varying numbers of components. Further, in the second part, the predicting theories, such as the Theory of Reasoned Action - TRA (Ajzen and Fishbein 1980) and the Theory of Planned Behaviour – TPB (Ajzen 1988; 1985), are examined and introduced. These predicting theories are valuable theories, which can be utilised as a framework for investigating relationships between consumer attitudes and behavioural intentions. Finally, the last part demonstrates the theory of consumer socialisation, such as the Social Cognitive Theory (Bandura 1986), which explains how consumer behaviour can be driven and controlled by a range of internal and external stimuli.

3.4.1 A-B-C Attitude Components Model

According to Eagly and Chaiken (1993; p.1), the definition of attitude is '*a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour*'. It is '*a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object*' (Fishbein and Ajzen 1975; p.6). Once an attitude is formed, it will be stored in long-term memory and will be recalled on appropriate occasions to help consumers deal with a problem.

Rosenberg and Hovland (1960) introduced the A-B-C attitude model and illustrated that attitude has three components, which are Affect, Behaviour and Cognition. Firstly, the *affective component* (sympathetic nervous responses and verbal statements of affect) contains feelings or emotions that consumers have in relation to the specified object. These feelings are stimulated by an object without cognitive information or beliefs about the product. Secondly, the *behavioural component* (overt actions and verbal statements concerning behaviour) encompasses consumer actions with respect to the particular object. This component consists of pre-dispositions to act in certain ways towards an attitude. It provides response tendencies or behavioural intentions, such as, a purchasing plan towards a particular product or service. Finally, the *cognitive component* (perceptual responses and verbal statements of belief) consists of thoughts or beliefs that a consumer holds about the specified object.

Although some degree of positive correlations amongst these three components have been shown (Ajzen 1988; Breckler 1984), Bagozzi and Burnkrant (1985) and Dillon and Kumar (1985) argued that a one or two-dimensional model could be used to explain the attitude. However, the tripartite (A-B-C) model presents an invaluable conceptual framework. It allows researchers to state the fact that attitude evaluation can be demonstrated through responses in all three categories regardless of whether the categories can be distinguished by appropriate statistical analyses. Also, use of the terms which are identified in the tripartite model: affect, behaviour, and cognition, should assist researchers to

develop an understanding that attitudes have a varying number of components (Eagly and Chaiken 1993).

3.4.2 Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)

Predicting behaviour may be one of the most critical issues in psychological studies. The predicting theories may also be valuable in investigating consumer behaviour, such as purchasing and searching behaviours. The development of predicting-behaviour theories originated in the area of social psychology, where those theories proposed that '*attitudes could explain human actions*' or '*attitudes could be a predictor for behaviours*' (Fishbein and Ajzen 1975).

Ajzen and Fishbein first developed the Theory of Reasoned Action (TRA) in 1967, and revised it during the 1970s. The TRA has been applied comprehensively to consumer behaviour studies, and has been shown to have good predictive power. According to the theory, behaviour can be predicted by utilising attitudes and subjective norms. In general, the TRA relies upon the assumption that people are usually quite rational, and they always make systematic use of the information available (Ajzen and Fishbein 1980). Further, Ajzen and Fishbein suggested that behaviours are not difficult to predict and people usually do what they intend to do. Positive attitudes towards a product might be transformed into the action of purchase. As a result, the TRA was developed to explore the relationships between attitudes, subjective norms and intentions, and became one of the most useful of the attitude-behaviour theories. It combines attitudinal beliefs about a given behaviour with perceptions of the expectations of others in society to predict the likelihood of a behaviour being performed.

Furthermore, according to the TRA, there are two essential elements: *personal in nature* and *social influence*, which reflect personal intentions. Firstly, the personal in nature or attitude can be defined as the extent to which individuals have a favourable or unfavourable evaluation of the behaviour.

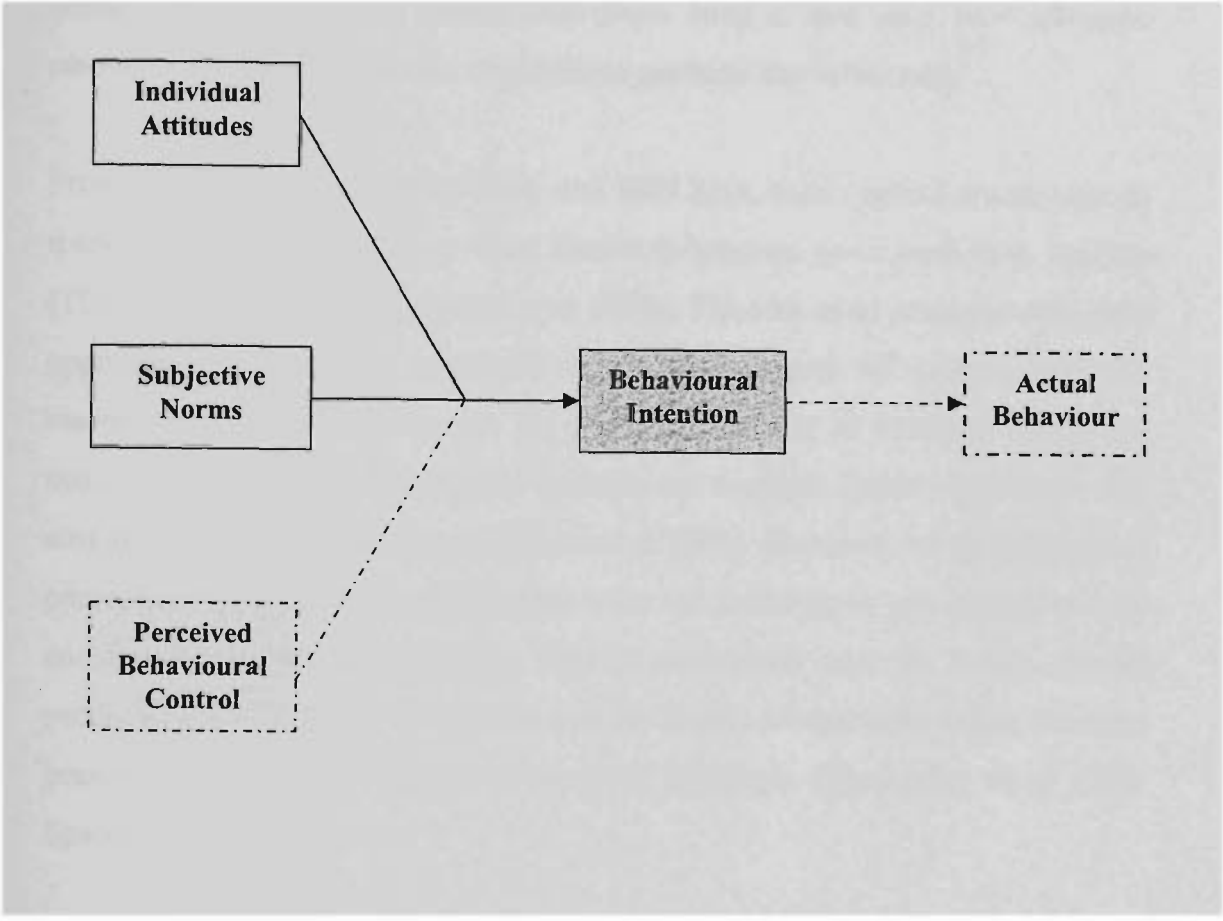

Figure 3.4: A Schematic Representation of the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB)

Secondly, social influence or subjective norms refer to the social pressure, which individuals perceive themselves to be under to perform that behaviour. Consumers will perform behaviour only when they have a positive attitude towards that behaviour, and when they think that other valued people in society feel that they should do it. In addition, the TRA was later expanded by the addition of the construct of perceived behavioural control to form the Theory of Planned Behaviour – TPB (Ajzen 1988; 1985). This third element can be defined as the extent to which individuals believe that they have adequate resources whether physical or cognitive to perform that behaviour.

From the literature reviewed, TRA and TPB have been applied extensively to marketing research and have been shown to possess good predictive validity (Thompson et al 1994; Sheppard et al 1988). The two most common statistical approaches, which are employed within the context of attitude-intention research and utilised to measure the predictive validity of attitudes, subjective norms, and perceived behavioural control, are multiple linear regressions and structural equation modelling (Hankins et al 2000). However, social factors and perceptions about behavioural control were not found to be good predictors of consumer behavioural intentions. This is particularly true for health related products, such as, foods and drinks and for health related behaviours, whereas personal attitudes were found to be good indicators (Thompson et al 1994; Sparks et al 1992).

3.4.3 Theory of Consumer Socialisation: Social Cognitive Theory

Although previous literature regarding consumer responses to advertising, for example Johnson and Meischke (1991) and Perri and Nelson (1987), focused on identifying relationships between specific controllable variables (i.e. advertising messages) and response variables (i.e. attitudes and preferences), this approach has been criticised because it cannot explain what is causing these responses. In response to these concerns, the Social Cognitive Theory (Bandura 1986) was selected as a framework for investigating consumer cognitive responses or beliefs on the object, and examining how consumer behavioural

intentions related to that object are driven and modified by this cognitive component. The social cognitive theory describes human behaviour that can be driven, shaped and controlled by internal forces (i.e. personal factors) and external stimuli (i.e. environment in which an individual lives). The model was developed based upon the earlier study, the Social Learning Theory (Bandura 1977), which focused on how human behaviours are acquired or modified by watching others in person or through mediated channels.

Bandura (1986; 1977) expanded on the idea that people learn what to do through direct reinforcement of their responses to stimuli, and that people also learn by observing the consequences of other people's actions. This type of learning is sometimes referred to as observational learning or imitative learning because people learn by observing what happens to others and imitate what others do if they conclude from that observation that their behaviours will be rewarded. Consumers will imitate the behaviours that bring rewards and avoid those that are punished. Therefore, according to the Social Cognitive Theory, consumer behaviours (i.e. visiting the doctor and searching information behaviours) can be encouraged either by modifying people personal factors (i.e. beliefs about those behaviours) or by altering environmental factors (i.e. providing examples through the mass media encouraging healthy behaviour).

Additionally, Bandura (1986; 1977) proposed that imitative behaviour could not be acquired solely through the effects of an individual's own actions. The constraints of time, resources and mobility impose severe limits on the situations and activities that an individual is exposed to. Learning is an information-processing activity that transforms particular information into symbolic representations that serve as guides for a behaviour. Further, Bandura (1986) demonstrated that the social cognitive theory postulates three important processes in the underlying relation between mass communication and actual behaviour which are:

1) *Attention process,* which states that people cannot learn efficiently through observation unless they intend to. The observer has to first pay attention to the model, which can be either a 'live model' (the actual people demonstrating the behaviour) or a 'symbolic model' (the people or action portrayed in some medium, i.e. television or computer program). In this process, people will determine what is selectively observed and what information is extracted.

2) *Retention process,* which is required for people to perform a behaviour which they have observed. If people can not remember the behaviour observed and its outcomes, they will not be influenced by the model's activities.

3) *Motivation process*, people can learn without changing their behaviour. Their learning may not necessarily be expressed through actions because people do not perform everything that they learn. When a motivation occurs, e.g. positive incentive, the observational learning, which was previously unexpressed, will be transformed into an action.

The social cognitive theory is an important framework for studying health communication campaigns for a number of reasons. Firstly, the theory is a general theory about human behaviours. It can be utilised to explain the effects of mass media communication towards individual's behaviours. Secondly, the theory provides an explanation about how consumers move across three processes (attention, retention and motivation) to perform observational behaviours, which they observe either from media advertising or from real life.

In summary, this section reviewed attitude theory, e.g. the A-B-C Attitude Components Model (Rosenberg and Hovland 1960), theories of behavioural change (Ajzen and Fishbein 1980; Ajzen 1988; 1985), and the Social Cognitive Theory (Bandura 1986), which originated in the area of behavioural science and

social psychology. These theories have largely focused on how individuals generally formulate intentions and perform actual behaviours under varying circumstances with concern for the individual characteristics and group membership. However, these theories did not identify the relationships amongst external stimuli that affect an individual, such as, advertising, consumer attitudes, and consumer intentions regarding health massages. Moreover, they fail to provide useful frameworks for the marketing of medical information and other health related matters to the general public.

3.5 Integrating Theories of Media Effects and Theories of Behavioural Change Across Stages-of-Change

Prochaska (1979) developed the stages-of-change model, also known as the transtheoretical model, which provides a valuable framework for integrating various consumer psychological theories. The stages-of-change model (Prochaska and Velicer 1997; Prochaska 1994; Prochaska et al 1992; Prochaska et al 1991) is an integrative model of intentional change that focuses on the decision-making process of an individual. The model began with a comparative analysis of the major theories of psychotherapy with the intention of identifying the best (Prochaska 1979). However, no theory could consistently show a higher capability for predicting or changing consumer behaviour than the others. Therefore, the main constructs from other theories were integrated. Whilst other approaches to health promotion have focused primarily on social influences or biological influences on behaviour, the stages-of-change model views these factors as external influences which affect the individual.

The stages-of-change model describes how people can change a problematic behaviour or acquire a positive one. The stages of change is the fundamental organising construct of the model, which come from ideas that: a) behavioural change is a process, not an event; b) the criteria for selecting amongst alternative theoretical perspectives are imprecise; and c) the main theories of

persuasion and behavioural change are complementary and not perfect (Slater 1999).

This model reveals five major stages during the consumer changing process. The first stage '*precontemplation*' describes consumers, who have no intention of changing their behaviours or of taking actions within the next six months, and who often have no awareness or are under-aware of reasons to consider behaviour change. Because consumers in this stage are not considering altering their behaviours in the near future, they engage only in a slight changing process activity. '*Contemplation*' is the second stage, which concerns consumers who have recognised that a problem exists, and are thinking of taking action in the foreseeable future but have not yet made a commitment to take that action. Consumers in the second stage are evaluating options and making decisions, which lead them into the next stage. The following stage which is the '*preparation stage*' represents consumers who have begun to perform the related action and are intending to complete the action again but have not yet completely changed their behaviours. Consumers at this stage have both intention, and some modified behaviours. They are already engaged in a behavioural changing process. However, they need to set their objectives and priorities before moving to the next stage, which is the '*action stage*'. This refers to a successful behaviour change within a specific length of time, which is normally between one day and six months, in order to overcome their problems. Finally, the '*maintenance stage*' refers to the consumers ability to maintain the changed behaviour. This stage can be considered as a static stage and usually extends from six months to an indefinite period after the action stage.

As a result, the stage-of-change model can be utilised as a conceptual framework for investigating effects and designing strategies for communication campaigns targeted towards audiences (Maibach and Cotton 1995). It has a number of important implications for health message design because it acts as an outline, which assesses both consumers current stage of change and other

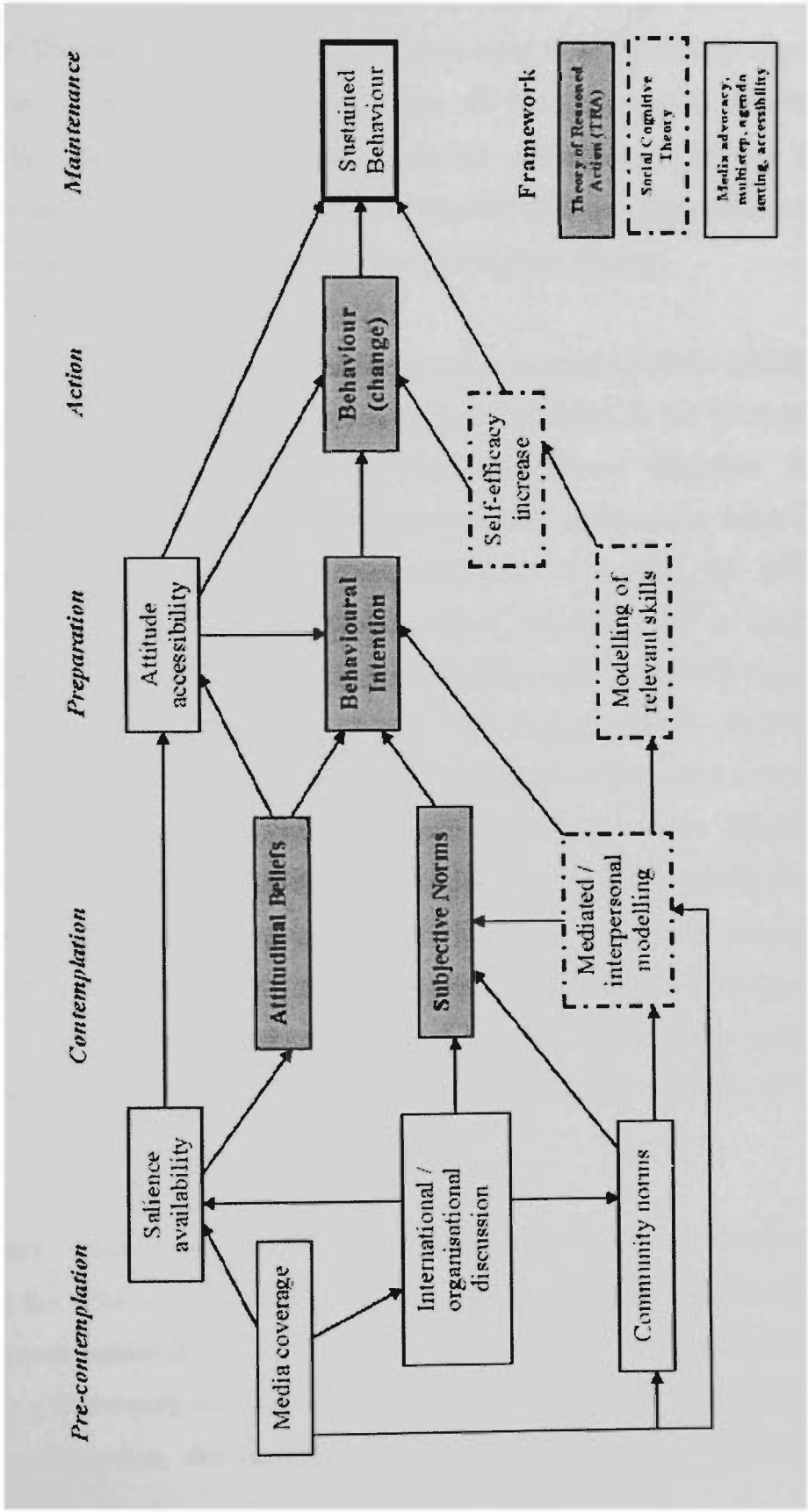

Figure 3.5: Theories of Media Effects, Attitude, and Behaviour Change across Stages of Change (Slater, M.D.; 1999; p. 339)

relevant psychosocial and behavioural variables. From this, an effective audience segmentation analysis can be conducted. Additionally, the stage-of-change model focuses primarily on how consumers change and acquire a behaviour. Therefore, the model has presented some helpful findings about the information needs of some specific stages of the consumer's behavioural change. The marketer can enhance message design strategies to move consumers through the various stages of change by analysing information about which audience segment should be targeted and in what manner.

However, the stage-of-change model did not take account of media effects, the effects of social groups, and external stimuli as identified in the TRA (Ajzen and Fishbein 1980) and the Social Cognitive Theory (Bandura 1986). Consequently, Slater (1999) presented the idea that variations in behavioural intentions and an individual's actual behaviour is caused by differing characteristics of the social group with which the individual is affiliated. Furthermore, Slater (1999) discussed and provided valuable insight regarding the development and implication of the stage-of-change model for communication campaign purposes. He also proposed a theoretical framework (Figure 3.5; p.81), which coalesces various theories of media effects and theories of behaviour change, i.e. the TRA (Ajzen and Fishbein 1980) and the Social Cognitive Theory (Bandura 1986), across stages of change. In addition, Slater (1999) concluded that by implementing a stage-of-change framework to organise these theories clearly, the wide range of theoretical models and methods can assist in the exploration of some of the difficult communication issues.

In summary, Slater's integrated model (Slater 1999) provides valuable insight regarding the effects of communication campaigns, social groups and external stimuli across consumers' stages of change. This is very practical and can be utilised as a framework for investigating the potential effects of DTCA towards consumers. Moreover, the model presented some helpful guidelines about the

information needs and factors that affect consumers at each step on stage of the consumers change.

3.6 Unit of Analysis and Theoretical Framework

3.6.1 Unit of Analysis

According to Sekaran (2000), the unit of analysis refers to the level of aggregation that collected data will be subjected to. It is necessary to decide on the unit of analysis when a researcher formulates research questions, because the data collection methods, sample size, and even the variables included in the theoretical framework sometimes are determined or guided by the level at which data is aggregated for analysis.

In the present study, the problem statement focused on what attitudes consumers hold towards medical information, in particular, from DTCA of prescription medicines (Chapter 1: section 1.3; p.7). It also considered the data from each individual and treated each consumers response as an individual data source. Moreover, the study was concerned with examining the relationships between consumer attitudes and behavioural intentions regarding DTCA. Therefore, each consumer was considered so naturally, the unit of analysis was the individual. On the other hand, some research questions in the present study (Chapter 1: section 1.4; p.8) addressed issues that moved away from the individual to the group level, i.e. what are the attitudes of three health consumer groups (at doctor clinics, chemists, and alternative therapist clinics) towards medical information from their healthcare providers and from DTCA of prescription medicines? Do the groups hold different attitudes? In this case, the unit of analysis also shifted from individual level to group level.

Additionally, the present study investigated the primary sources of medical information for consumers to see what consumer attitudes were towards DTCA. Three groups of consumers were involved, and information on consumer attitudes, as provided by each consumer in each of the three groups, was

collected and analysed. At this point, the unit of analysis in the present study was the group.

3.6.2 Theoretical Framework

A number of theoretical frameworks relating to consumer attitudes towards advertising in general (i.e. Alwitt and Prabhaker 1992; James and Kover 1992; Dubinsky and Hensel 1984; Reid and Soley 1982), and the relationships between consumer attitudes and behavioural intentions (i.e. Thompson et al 1994; Sparks et al 1992; Sheppard et al 1988; Ajzen and Fishbein 1980) have been explored. However, no published framework exists which reflects on the relationships between medical information, consumer attitudes, and behavioural intentions regarding DTCA. This is particularly true for medical information which originates from healthcare providers and prescription drug advertising. For that reason and in an attempt to fill this gap, a theoretical framework for the present study was developed (Figure 3.6; p.87).

After reviewing the literature and defining the research problem, the theoretical framework for analysis of consumer attitudes towards DTCA was developed. The present theoretical framework is a conceptual model of how the numerous variables relate to the research problem. It was drawn from the theories briefly outlined in sections 3.2, 3.3, 3.4, and 3.5 (p.64-82). At the first step, according to the multi-stages model (Assael 1995), consumers will be influenced by the stimuli, which here are medical information, individuals background and characteristic including age, gender, education, health condition, occupation, prior knowledge about drug regulation and prescription drug advertising, and their level of exposure to prescription drug advertising. As a result, consumers will establish a set of attitudes related to each type of information source, which consists of three components: Affect, Behaviour and Cognition (Rosenberg and Hovland 1960).

These attitudes, which mainly come from prior knowledge and past-experience, can be explained by either one or two components of the A-B-C attitude theory

(Bagozzi and Burnkrant 1985; Dillion and Kumar 1985). Further, these attitudes may be the most important factor that affects consumers needs and expectations about a particular product or service (Kurtz and Clow 1998). It is also very important in considering consumer behavioural intentions related to that product or service (Bandura 1986; Ajzen and Fishbein 1980).

According to a study by the Canada Drug Guide Project (2000), which was supported by Health Canada, basic drug information sources for consumers are healthcare providers, e.g. *physicians* and *pharmacists*, and mass media, e.g. *drug advertising*. Additionally, *alternative therapists,* e.g. traditional healers and Chinese medicine therapists are the major alternative health related information sources (Leach 2000). Consequently, the present theoretical framework will be utilised to examine and to compare consumer attitudes towards DTCA from these three following sources: 1) doctor clinics; 2) chemists; and 3) alternative therapist clinics.

Evidently, from previous literatures examined, the studies concerning attitudes towards DTCA of prescription medicines can be observed and divided into two central groups: 1) attitudes related to traditional healthcare providers, i.e. physicians and pharmacists, and their information; and 2) attitudes related to alternative medical information sources, i.e. drug advertising and alternative therapists, and their effects. These attitudes can be viewed and separated into three major components: affective, cognitive and behavioural (Rosenberg and Hovland 1960). Firstly, the affective component consists of the feelings stimulated by an object, such as drug advertising, without cognitive information or consumer thoughts about that advertisement. Therefore, the affective component of attitudes towards DTCA in the present study is consumer feelings about general advertising.

The second is the cognitive component, which is made up of the beliefs that a consumer holds about an attitude. In the present theoretical framework, the cognitive components are consumer beliefs about the potential effects of DTCA

both in a positive and negative way, beliefs about likely consequences that consumers will face in requesting an advertised medicine or information regarding that medicine, and consumer beliefs about medical information from healthcare providers and alternative sources.

The last element is the behavioural component, which consists of pre-dispositions to act in a certain way when holding a particular attitude. It explains response tendencies, such as, consumer thoughts about their future behaviours which might be driven by DTCA. Therefore, the behavioural component of consumer attitudes towards DTCA in the present theoretical framework is consumer pre-disposition to support DTCA of prescription medicines. Obviously, the major objective of this study is to explore consumers thoughts about information from drug advertising, especially, from DTCA of prescription medicines. Moreover, a number of studies, i.e. Bagozzi and Burnkrant (1985), and Dillion and Kumar (1985), have shown that attitudes can be measured by a single component especially the cognitive part, which may be the most important element of an attitude. As a result, the present theoretical framework largely concentrates on the cognitive part of consumer attitudes towards DTCA.

Specifically, consumer attitudes towards DTCA of prescription medicines in the present study consist of two major groups of attitudes. The first group, *attitudes related to healthcare providers and their information,* can be divided into four different dimensions:

a) Consumer attitudes towards healthcare providers (HC-1);
b) Consumer beliefs about their relationships with healthcare providers if they ask for an advertised medicine (HC-2);
c) Consumer beliefs about healthcare provider's subsequent behaviour when they request a particular medicine (HC-3); and
d) Consumer beliefs about information from their healthcare providers, especially physicians and pharmacists (HC-4).

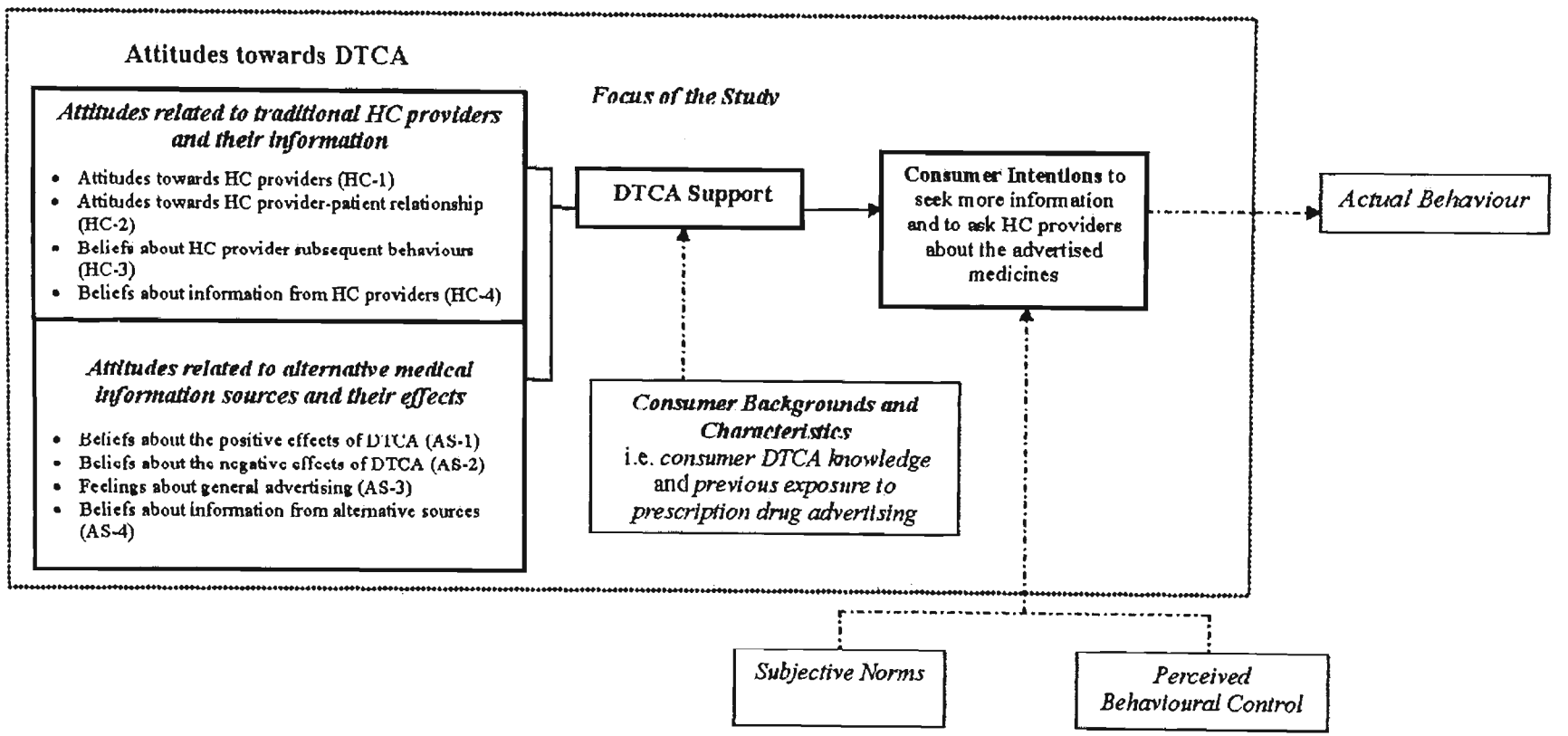

Figure 3.6: The Theoretical Framework for Studying Consumer Attitudes towards Medical Information from Direct-To-Consumer Prescription Drug Advertising (DTCA)

Additionally, the second group, attitudes related to alternative medical information sources and their effects, can be divided into four dimensions:

a) Consumer beliefs about the possible positive effects of DTCA (AS-1);
b) Consumer beliefs about the potential negative effects of DTCA (AS-2);
c) Consumer feelings on general advertising (AS-3); and
d) Consumer beliefs about medical information from alternative sources, which are drug advertising and alternative therapists (AS-4).

In addition, the outcome of the present theoretical framework will highlight consumer beliefs about the positive and negative effects of DTCA on the general public and on individuals. It has been found that beliefs about the potential risks and possible benefits of an object are powerful in explaining overall consumer attitude towards that object because consumers want to avoid making mistakes and want the best value (Mitchell 1998). The overall attitude will then have an effect on the consumer's involvement and their intentions to choose sources of information or to look for additional information about particular products, such as, prescription medicines. This overall attitude towards DTCA can be reflected in the level of consumer support for DTCA and their opinions on whether or not Australia should allow DTCA to the general public. Furthermore, it has been shown that the individual attitudes have a significant relationship with behavioural intentions and these intentions can be predicted solely by individual attitudes (Jenner et al 2002; Thompson et al 1994; Sparks et al 1992). Therefore, the current framework proposes that each attitude dimension related to DTCA would have a significant relationship with behavioural intentions regarding advertised medicines.

However, it is clear that the present theoretical framework has some limitations. This framework mainly concentrates on the exploration of consumer attitudes towards DTCA, the factors that affected these attitudes, investigation of the relationships between these attitudes and behavioural intentions related to drug advertising. It does not take all the potential variables, such as, the attributes of

actual drug advertising, subjective norms, and perceived behavioural control in to account. This is due to time constraints, Australia's current situation, limitations on resources and the exploratory scheme of the present study.

Moreover, whilst the cross-sectional design in this study does not allow for causation of actual behaviours to be determined, an exploratory research, such as, the present study, is a necessary stage in identifying factors appropriate for follow up longitudinal studies. Despite these limitations, the results from this theoretical framework have achieved the study's objectives and have answered the research questions. In addition, utilising an approach, which integrates the theory of consumer information acquisition and processing, attitude theories and existing research findings, this study provides a valuable framework, which might be utilised as a structure for both theoretical developments and practical interventions.

In short, the theoretical framework flows logically from the previous literature in the problem area. It takes into consideration the boundaries and constraints governing the situation and integrates the variables from various sound theoretical frameworks, such as the consumer information acquisition and processing model (Assael 1995), the TRA (Ajzen and Fishbein 1980), the Social Cognitive Theory (Bandura 1986) and the stages-of-change model (Prochaska and Velicer 1997; Prochaska 1994; Prochaska et al 1992; Prochaska et al 1991), because this study relies upon the assumption that no theories are perfect and complete. They are complementary and they are useful in answering different types of research questions. Subsequently, the present theoretical framework can be utilised to investigate and to explore dimensions and components of consumer attitudes towards DTCA, consumer attitudes towards possible effects of drug advertising as well as to be a framework for examining relationships between consumer attitudes towards DTCA and consumer backgrounds / characteristics, such as consumer prior knowledge about drug regulation and previous exposure to prescription drug advertising.

As a result, the outputs of this theoretical framework will improve understanding about consumer attitudes towards DTCA in Australia, and will explore the factors that affect these attitudes and the relationships between each attitude dimension and behavioural intention. Furthermore, the real value of the theoretical framework in this study lies in its capability to inform the design of more rigorous research and to suggest issues, areas and measures that researchers might wish to concentrate upon in future longitudinal studies. It is particularly useful to have such exploratory figures available as a basis for grant applications to fund such a resource intensive research.

3.7 Propositions

As stated in Chapter 1: section 1.3 (p.7), the general objective of this study is to investigate key issues in regards to consumer attitudes towards medical information particularly from DTCA of prescription medicines in Australia. The specific objectives are to identify any factors which influence consumer attitudes towards DTCA, and to examine the relationships between consumer attitudes and consumer behavioural intentions regarding advertised medicines. Chapters 2 and 3 reviewed several studies that have been conducted on the topic of DTCA, consumer attitudes towards drug advertising, and the relationships between attitudes and behavioural intentions. Four propositions have been formulated based upon those theoretical frameworks and the literature review. The results from these four propositions will assist this researcher to answer the research questions in Chapter 1: section 1.4 (p.8).

P.1: *Consumer attitudes towards DTCA will differ amongst three different groups of consumers. Consumers who receive health services from alternative therapists will have a higher level of DTCA support than those who utilise services from physicians and pharmacists.*

Consumers receive medical information from a variety of sources before a decision is made about treatment. Therefore, it will be useful to assume that consumers hold a positive attitude towards medical information, which is an important factor in healthcare decision-making. In addition, examining the first proposition will assist researchers and other stakeholders to get a better understanding of what each consumer group needs, and in deciding how they should deal with the issues of DTCA.

The first proposition is based upon actual consumer behaviours that we could observe. It can be assumed that consumers who visit alternative healthcare practitioners have more positive attitudes towards DTCA, and are more likely to support the legalisation of alternative medical information sources, such as DTCA of prescription medicines, than those who visit non-alternative healthcare providers. This is because consumers from alternative therapist clinics have already chosen to utilise alternative sources, and this indicates that positive beliefs towards alternative sources of information might already be established. Consequently, Proposition 1 is tested in order to investigate such differences in DTCA context.

> **P.2:** *There are significant positive relationships between dimensions of consumer attitudes towards DTCA, the level of DTCA consumer support, and consumer intentions regarding advertised medicines.*

One of the imperative issues, which is of interest to researchers in the area of attitude-intention relationships, is the predictive validity of the attitudes. According to the TRA (Ajzen and Fishbein 1980) and the TPB (Ajzen 1988; 1985), it can be logically assumed that there are significant relationships between consumer attitudes and behavioural intentions. That is, consumers who hold positive attitudes will likely have intention to perform and support

behaviour related to these attitudes. As a result, it can be proposed that there are significant positive relationships between attitude dimensions towards DTCA of prescription medicines, the levels of consumer support for DTCA, and consumer intentions regarding advertised medicines.

Moreover, Mitra et al (1999) and Murray (1991) demonstrated that information search behaviours and consumer attitudes towards risks and benefits of an object, which are dimensions of consumer attitudes towards DTCA in the present study, have a positive correlation. Consumers can reduce their perceived risks either by increasing brand loyalty or by seeking additional information about a product (Crocker 1986).

Therefore, it can be implied that high-perceived risk products, such as, prescription medicines, are more likely to result in a heightened information search. DTCA may also stimulate consumer inquiries of healthcare providers regarding advertised medicines or to search for additional information about those medicines and, more broadly, their health. This is an example of why it is very valuable to know which attitude dimensions have a strong correlation or a significant effect on behavioural intentions. Because the potential targets for changing consumer intentions and behaviours can be identified, interventions can be designed to meet a specific objective of each interest group. This is also essential if the level of public welfare is to be increased. For that reason, Proposition 2 has been proposed.

> **P.3:** *There is a significant positive relationship between consumer exposure to prescription drug advertising and the level of DTCA consumer support.*

The Social Cognitive Theory (Bandura 1986) was selected as a framework for investigating consumers cognitive responses to an object, and examining how

consumer attitudes to that object are driven and modified. The social cognitive theory also described human intentions and behaviours that can be driven, shaped, and controlled by both internal forces and external stimuli. External stimuli, such as DTCA, can encourage consumers either by modifying their personal factors, i.e. beliefs about related products, or by altering environmental factors, i.e. providing an example through mass media to promote healthy behaviour.

Moreover, the stages-of-change model (Prochaska and Velicer 1997; Prochaska 1994, Prochaska et al 1992; Prochaska et al 1991), which is an integrative model of intentional change that focuses on the decision-making process of an individual, demonstrated that consumers who are in the contemplation stage have already recognised that a problem exists. This may have come about either by seeing or hearing of the problem from advertising and consequently are considering taking action in the near future. Thus, consumers who have a high level of awareness and have been recently exposed to advertising (which can be measured by asking consumers whether they saw or heard about an advertisement of a particular product within the last three months), are more likely to adopt or support that advertisements message or that product. Consumers at this point are moving to the preparation stage where their intentions and actions are engaged in a behavioural changing process. This evidence demonstrates the relationship between the level of consumer exposure to advertising and consumer attitudes regarding that advertisement.

Therefore, it can be assumed that consumers who have greater previous exposure to prescription drug advertising will hold a more positive attitude towards DTCA than those who have not yet seen or heard about prescription drug advertising. Consequently, consumers who have recently been exposed to those advertisements would think that Australia should allow DTCA of prescription medicines to the general public. Thus, Proposition 3 has been generated.

P.4: *There is a significant relationship between the level of consumer prior knowledge about current drug regulation and prescription drug advertising and the level of DTCA consumer support.*

The research frameworks for investigating the relationship between consumer knowledge and consumer information needs, e.g. Brucks (1985), Johnson and Russo (1984), Kiel and Layton (1981), Moore and Lehmann (1980), Bettman and Park (1980), Anderson et al (1979), and Miyake and Norman (1979), have proposed that there is a significant correlation between consumer knowledge and the level of external information needs. In addition, consumer internal factors, i.e. consumer prior knowledge about external stimuli, can influence the initial stage of consumer information acquisition and evaluation processing. The prior knowledge can also drive or modify consumers cognitive responses. Therefore, it can be proposed that there is a significant relationship between consumer knowledge about drug regulation and prescription drug advertising, and the level of DTCA consumer support which reflect consumer external information needs about prescription medicines. Thus, Proposition 4 has been framed.

Finally, due to the lack of adequate comparative descriptive evidence in the literature, this study does not propose a formal socio-demographic factors proposition. Nor does it make assumptions regarding the relationships between these factors and attitudes or intentions. Instead, the influence of consumer backgrounds and characteristics is examined at an exploratory level.

3.8 Conclusion

The present chapter engaged with the relevant literature in the area of consumer attitudes and the factors that affected these attitudes. The relationships between attitudes and behavioural intentions were also reviewed. The literature review

also suggested that consumer attitudes have positive relationships to behavioural intentions in performing related behaviours. This may lead to the assumption that consumers who hold positive attitudes towards drug advertising will have a higher level of intention to seek more information and to ask their healthcare providers about advertised medicines than those who do not hold a positive attitude. In addition, a range of theories, which assisted the researcher to develop the present theoretical framework, had been demonstrated and discussed.

Finally, the development of the theoretical framework for studying consumer attitudes towards medical information, particularly, DTCA of prescription medicines, has been based upon an understanding of how attitude dimensions are derived, and how they influence behavioural intentions generally. The four propositions were also proposed and presented in the current chapter.

In the next chapter, methodology used in the present study and development of the research instrument will be described and discussed.

Chapter 4

Research Methodology

An introduction to the research methodology was provided in Chapter 1: section 1.6 (p.12). Furthermore, the literature related to consumer information acquisition and processing, information search behaviours, information sources used, the attitude components, and the relationships of attitudes to behavioural intentions, was reviewed in Chapter 3. It demonstrated the theoretical framework for analysis of consumer attitudes towards medical information, particularly, from DTCA of prescription medicines. In this chapter, the research methodology, which was utilised to collect data for investigating consumer attitudes towards DTCA, is described and discussed.

4.1 Introduction

The current methodological chapter aims to build on the introduction and to provide assurance that appropriate procedures were followed. The main objective of this chapter is to present the issues associated with research design, constructing and evaluating the questionnaire, population and sample, administering the questionnaire, data preparation, data processing, and data analysis. Various techniques available for data collection and the characteristics of the sample group are also explored. Further, the research methodology, which was designed and employed to address the research problem and to answer research questions, is illustrated. The present chapter also explains the details of dependent and independent variables as well as illustrating the questionnaire design and development of questionnaire items. Finally, the purposes of different quantitative methods utilised to analyse data are provided briefly.

4.2 Type of Research and Research Design

This study is *an exploratory research* with extensive causal elements. All of the data was gathered within a six-month time frame. As a result, the present study can be called *a cross-sectional study* (Sekaran 2000), which explores problems in the area of DTCA of prescription medicines in Australia. The present study also aims to provide knowledge about management difficulties that future researchers may face when dealing with DTCA. Moreover, the present study is defined as an explanation of social or human problems based upon questioning large groups of respondents, testing a number of propositions that consist of dependent and independent variables, measured with numbers and analysed by utilising statistical techniques. Therefore, it can also be classified as *a quantitative research* (Zikmund 2000; Kinnear and Taylor 1996).

Data collection can be conducted by performing several different methods and from a range of sources. Although personal interviews or telephone interviews have many unique advantages, such as the opportunity for feedback and probing of complex answers, they have time and cost limitations (Zikmund 2000). Moreover, a respondent is not anonymous and may be reluctant to provide sensitive information to researchers. In contrast, a self-administered questionnaire survey at a point of purchase is best suited for the collection of a substantial amount of information at a reasonable cost. It also ensures participation from large numbers of people in a wide geographical area. Further, this method is unobtrusive and removes most reasons why people may not have wished to participate. Also, Zikmund (2000) and Cone and Foster (1993) demonstrated that the self-administered survey has several advantages as follows;

- It permits fast data gathering;
- The survey is easily circulated to a large number of people;
- It preserves anonymity; and
- It is comparatively inexpensive as a data collection method.

Several studies in the area of consumer attitudes towards advertising and attitude-intention relationships have utilised the self-administered questionnaire for the above reasons. For instance, Stavchansky (2001), who studied consumer attitudes and comprehension of DTCA in the U.S., conducted a self-administered questionnaire survey in gathering data because it is a cost-effective method and suitable for analysing a large sample of general consumer attitudes. Petroshius et al (1995) also surveyed physician attitudes towards drug advertising by utilising the self-administered questionnaire for the same reasons.

Similarly, Khairullah and Khairullah (1999) examined the relationships between consumer attitudes towards the advertisement and purchase intentions of Asian-Indian immigrants, and chose a self-administered questionnaire survey to collect data because it enabled them to assess a large sample of the population at low cost. Also, Jenner et al (2002) distributed 304 self-administered questionnaires to healthcare workers in London to study the relationships between attitudes and intentions in order to enhance the response rate and to overcome possible apprehensions, which might affect the honesty of responses. Additionally, this type of questionnaire can be filled out whenever respondents have time. Therefore, there is more chance that respondents will take time to think about their answers.

A survey method was utilised in the present study because one of the study's objectives was to generalise the findings from a sample population concerning attitudes towards DTCA. The survey method using questionnaires for data collection provides quantitative information and allows the researcher to draw a general conclusion from a sample of responses to a population (Chisnall 1992). Therefore, the self-administered questionnaire survey seems to be the most appropriate method to gather data in this study because the population comprises a large number of health consumers. Also, some questions in the questionnaire deal with sensitive issues regarding healthcare provider-patient relationships and consumer attitudes towards medical information from their healthcare professionals. By utilising the self-administered questionnaire

survey, respondents will be able to respond freely to questions with the assurance that their identities will remain anonymous. Allowing consumers to be anonymous is a critical factor in obtaining more valid answers, especially, compared to personal or telephone interviews (Kinnear and Taylor 1996; Chisnall 1992).

4.3 Designing and Pre-testing the Questionnaire

One of the crucial tasks for the present study was to develop a set of questions appropriate for surveying consumer attitudes regarding DTCA of prescription medicines. No existing questionnaire was found to be adequate to handle the content specific to this study. In some previous research, for instance, Foley and Gross (2000), a questionnaire had been created to investigate DTCA issues in the U.S. but prospective respondents for that study had already been exposed to prescription drug advertising to some degrees because in the U.S. prescription drug advertising direct to the general public was already allowed. Moreover, their questionnaire did not focus on the issue of the relationships between consumer attitudes and behavioural intentions and did not ask consumers whether DTCA should be allowed or not. This is because circumstances in the U.S. and Australia are different as explained in Chapter 2.

Therefore, such existing questionnaires about DTCA are not directly applicable to the present study, which is an attempt to explore problems in the area of prescription drug advertising directly to consumers in Australia, and to investigate Australian public attitudes towards medical information from DTCA of prescription medicines. As a result, the questionnaire in this study was designed and modified based upon the theoretical framework, various previous studies, and the literature review.

4.3.1 Variables and Variables Operationalisation

Based upon the Theory of Reasoned Action - TRA (Ajzen and Fishbein 1980), the stages-of-change model (Prochaska and Velicer 1997; Prochaska 1994; Prochaska et al 1992; Prochaska et al 1991), the Social Cognitive Theory

(Bandura 1986), and application to the area of consumer attitudes, which were discussed in the previous chapter, the researcher has identified various research variables as shown in Figure 4.1 (p.101). In addition, the variables operationalisation was performed for the purpose of measurement and, in keeping with the exploratory nature of the study, the research variables and their relationships were identified within the boundaries of the four research questions (Chapter 1: section 1.4; p.8). According to Zikmund (2000), the purpose of variables operationalisation is to specify what must be done to measure the concept under investigation and to identify observable, important, and specific characteristics of the variables so that respondents will be able to focus on a similar meaning for each variable.

As explained in Chapter 1, the main purposes of this study are: a) to explore key issues in regards to consumer attitudes towards DTCA in Australia from three different sources: doctor clinics, chemists, and alternative therapist clinics; b) to identify the factors that have a significant relationship to the level of consumer support for DTCA; and c) to examine the relationships between consumer attitudes' dimensions and behavioural intentions. Therefore, the first independent variable is the source of information.

From the literature review, it has been found that significant studies in the area of consumer attitudes towards prescription drug advertising can be categorised into two main streams, which relate to: 1) healthcare providers and their information; and 2) alternative information sources and their effects. Consequently, consumer attitudes towards DTCA of prescription medicines in the present study consist of two groups of attitudes: 1) *attitudes related to traditional healthcare providers and their information*; and 2) *attitudes related to alternative medical information sources and their effects*.

The first attitude group can be identified as having four dimensions: a) consumer attitudes towards healthcare providers (HC-1); b) consumer beliefs about the effects of drug advertising on the relationship between patients and

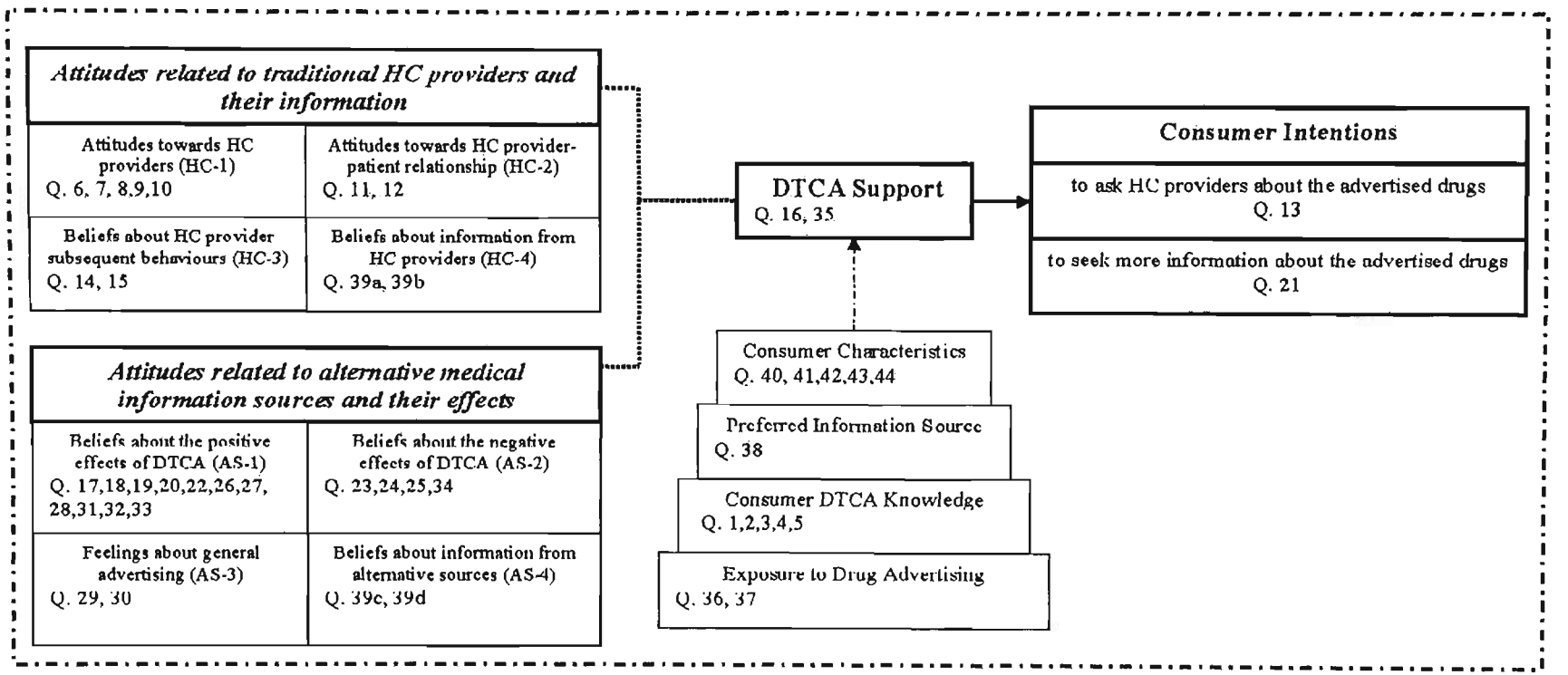

Figure: 4.1 Questionnaire Structure for Investigating Consumer Attitudes towards Medical Information from Direct-To-Consumer Prescription Drug Advertising (DTCA)

their healthcare providers, if patients ask for an advertised medicine (HC-2); c) consumer beliefs about healthcare provider subsequent behaviours when consumers request for a particular medicine (HC-3); and d) consumer beliefs about medical information from traditional healthcare providers, i.e. physicians and pharmacists (HC-4).

The second attitude group can also be divided into four dimensions: a) consumer beliefs about the positive effects of DTCA (AS-1); b) consumer beliefs about the negative effects of DTCA (AS-2); c) consumer feelings about general advertising (AS-3); and d) consumer beliefs about medical information from alternative sources, i.e. alternative therapists and drug advertising (AS-4). These eight attitude dimensions concerning DTCA include the dimensions identified by previous literature, for instance, Foley and Gross (2000) and the U.S. FDA (1999), as comprising the consumer attitudes towards prescription drug advertising.

Furthermore, each dimension was examined by asking consumers to answer question items, which reflect their opinions. It was measured on a 5-point Likert type scale from 1 = strongly disagree to 5 = strongly agree. Since components of consumer attitudes are often interrelated, the questions which measure each attitude component were checked for validity and reliability (Chapter 4: section 4.3.4; p.109) to confirm the quality of the research instrument. Firstly, for testing Propositions 1 (Chapter: 3: section 3.7; p.90), the dependent variable is 'consumer attitudes towards DTCA', which consists of eight attitude dimensions and the independent variable is 'the group of consumers'. Secondly, the dependent variables for Proposition 2 are 'the level of consumer support for DTCA' and 'behavioural intentions regarding advertised medicines' and the independent variables are 'eight attitude dimensions within two groups of consumer attitudes related to healthcare professionals and alternative medical information sources'. Thirdly, for Proposition 3, the dependent variable is 'the level of DTCA consumer support', and the independent variable is 'previous consumer exposure to prescription drug advertising'.

Finally, in relation to Proposition 4, the dependent variable is 'the level of DTCA consumer support' and the independent variable identified for inclusion in the theoretical framework is 'consumer prior knowledge about drug regulation and prescription drug advertising'. Consumers were asked whether they agreed or disagreed with statements relating to the current situation and regulation of drug advertising in Australia. Thus, the total knowledge scores were calculated based upon correct answers to Questions 1 to 5 (Appendix 2). Consumers who obtained a total knowledge score equal to three or above from five questions (60% or above) were categorised as having high knowledge regarding drug regulation and prescription drug advertising.

4.3.2 Questionnaire Design and Developing Questionnaire Items

The questionnaire was designed to meet the specific objectives of the study outlined in Chapter 1: section 1.3.2 (p.8). To address the research questions stated in Chapter 1: section 1.4 (p.8), a set of questions was developed and modified based upon previous studies of Bruner et al (2000), Foley and Gross (2000), the U.S. FDA (1999), Bruner and Hensel (1992), and Shaw and Wright (1967). The questionnaire (Appendix 2) consisted of 47 measurement items and was printed on pale colour paper. It also included a brief introduction at the beginning that explained the objectives and significance of the study, and asked consumers to participate in this important effort and to be honest in their opinions. The language in the questionnaire was kept as simple as possible. In short, the present questionnaire was designed in order to:

1) Gain insights into consumer attitudes towards medical information from prescription drug advertising directly to consumer;

2) Demonstrate the correlations amongst variables within the theoretical framework;

3) Explore the factors that correlate to consumer attitudes towards DTCA; and

4) Examine the relationships between attitude dimensions and behavioural intentions.

This questionnaire utilised quantitative questions that measured consumer attitudes towards medical information from DTCA of prescription medicines. Most questions in the questionnaire were shown in closed form. There are a number of benefits of utilising closed-end questions. For instance, it is easy and enables respondents to complete the questionnaire quickly within a given length of time. As a result, this format of questions might attract the interest of respondents in answering the questionnaire. Furthermore, the questionnaire incorporated a group of variables, which are likely to reflect the general attitudes of consumers towards each type of medical information and its source. Once the questionnaire was finalised, a pilot study was conducted to assess the adequacy of the questionnaire. After completing the pilot study, the questionnaire was modified before the actual survey.

The theoretical framework and a description of the set of variables, which is pivotal for this study, were presented in Chapter 3: section 3.6.2 (p.84) and Chapter 4: section 4.3.1 (p.99). Consequently, the attitudes towards DTCA of prescription medicines were conceptualised and divided into two groups, which relate to healthcare providers and alternative medical information sources. Each group of attitudes had four separate dimensions and each dimension was measured by a varying number of items (Figure 4.1; p.101). Furthermore, the questionnaire utilised scales including 3-point and 5-point Likert type scales. These are commonly used attitudes scales and offer the researcher various benefits because respondents find them simple to understand, and results are usually easier to interpret (Zikmund 2000; Kinnear and Taylor 1996; Rajecki 1990). The items, which measured each variable in the framework, were mixed together and their headings were removed to avoid unnecessary prompting that

may lead to response bias. In addition, the questionnaire was divided into three main sections as follows:

1) Section 1: *measurement of consumer knowledge about current drug regulation and prescription drug advertising*;

2) Section: 2: *measurement of consumer attitudes and intentions related to DTCA of prescription medicines*; and

3) Section: 3: *measurement of consumer backgrounds and characteristics.*

- ***Section 1: Measurement of Consumer Knowledge about Current Drug Regulation and Prescription Drug Advertising***

The first section evaluated the general knowledge and understanding of Australian health consumers in regard to drug regulation and prescription drug advertising in Australia. The consumers were asked whether they agreed or disagreed with five statements relating to the current situation and regulation of drug advertising in Australia on a three-point scale on which '3' was 'Agree', '2' was 'Disagree' and '1' was 'Don't know' (Questions 1 to 5; Appendix 2). These five questions were developed by the researcher from the definitions and regulations provided by the Therapeutic Good Administration (TGA 1999c) as detailed regulations described in Chapter 2: section 2.3.1 (p.34).

Furthermore, the criteria for evaluating whether the answers were correct or incorrect were based upon those definitions and regulations (TGA 1999c). The total knowledge scores were calculated based upon the number of correct answers. Consumers who obtained a total knowledge score equal to three or above from five questions (60% or above) were categorised as having high knowledge, and consumers who obtained a total knowledge score equal to zero, one, or two were classified as having low knowledge regarding drug advertising regulation. This method also provided the nominal values of the consumer knowledge variable, which were utilised for testing Proposition 4 (Chapter 5: section 5.6.4; p.199).

- ***Section 2: Measurement of Consumer Attitudes and Intentions related to DTCA of Prescription Medicines***

In section 2 of the questionnaire, consumer attitudes towards medical information from healthcare providers and alternative sources were measured (Figure 4.1; p.101). Moreover, consumers were asked a set of questions, which assessed their attitudes towards the potential risks and possible benefits of DTCA and appraised consumer behavioural intentions, such as the intention to ask healthcare providers and to seek more information related to advertised medicines. This set of questions included both positive and negative words regarding DTCA information and progressed from general questions to specific questions about consumer opinions on whether or not Australia should allow DTCA.

In addition, Foley and Gross (2000), the U.S. FDA (1999), and Shaw and Wright (1967) have provided guidelines for investigating consumer attitudes towards medical information sources and doctor-patient relationships. Further, Bruner et al (2000) and Bruner and Hensel (1992) had presented several questions in marketing research pertaining to consumer attitudes towards product advertising and marketing in general. Based upon this literature, a part of this second section of the questionnaire, which aimed to measure consumer attitudes related to alternative medical information sources and their effects, utilised nineteen items including the questions that measured consumer feelings about general advertising and consumer beliefs about the potential effects of DTCA both positively and negatively (Questions 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 39c, and 39d).

Another part of the second section incorporated a measurement of consumer attitudes related to healthcare professionals and their information by utilising eleven items (Questions 6, 7, 8, 9, 10, 11, 12, 14, 15, 39a, and 39b). Further, overall consumer attitude towards DTCA, which reflects the level of DTCA consumer support, was measured by two questions (Questions 16 and 35).

These two questions asked consumers to rate their opinions on the statements '*if a drug is legal to sell, it should also be legal to advertise*' and '*Australia should allow advertising of prescription medicines directly to the public*'.

According to the Theory of Reasoned Action - TRA (Ajzen and Fishbein 1980) and the Theory of Planned Behaviour – TPB (Ajzen 1988; 1985), attitudes have a high predictive validity to behavioural intentions. Two questions were utilised to measure consumer intentions to ask healthcare professional about advertised drugs and to seek more information related to advertised medicines and their health conditions as a result of drug advertising (Questions 13 and 21). From the literature review, it has been shown that healthcare professionals would feel under pressure if their patients asked about advertised drugs, and drug advertising would cause consumers to seek more information about their health and the details of a drug in which they are interested. This is a crucial element in understanding the effects of drug advertising on consumer intentions, and in exploring what consumers think about subsequent healthcare provider behaviours that might be affected by consumer asking behaviours regarding the advertised medicines (Questions 14 and 15).

- ***Section 3: Measurement of Consumer Backgrounds and Characteristics***

Section 3 of the questionnaire asked consumers about what sources they prefer to obtain additional information about prescription medicines (Question 38). Furthermore, this section assessed the level of consumer exposure to drug advertising for either prescription or non-prescription medicines within the last three-months (Questions 36 and 37). Moreover, it took account of personal information and demographics, such as, age, gender, health condition, education level, and occupation, to examine the individual characteristics of respondents (Questions 40, 41, 42, 43 and 44). Subsequently, the third section included eight questions, which incorporated consumer background and characteristic variables.

In short, the questionnaire has been developed and written based upon the theoretical framework and previous studies by Bruner et al (2000), Foley and Gross (2000), the U.S. FDA (1999), Bruner and Hensel (1992), and Shaw and Wright (1967). Significantly, Bruner et al (2000) and Bruner and Hensel (1992) had performed extensive studies in documenting and detailing numerous scores of scales in marketing research published from 1980 to 1997. Moreover, Foley and Gross (2000) and the U.S. FDA (1999) have provided guidelines for investigating issues related to DTCA of prescription medicines. The questionnaire was also consistent with the guidelines from the attitudes survey constructed by Shaw and Wright (1967). As a result, the final questionnaire contained 47 measurement items. These items were reviewed and analysed by utilising the factor analysis method and Cronbach Alpha Correlation Coefficient (α) in order to assess the construct validity and reliability of the questionnaire. Finally, the organisation of the DTCA survey questionnaire for investigating consumer attitudes towards medical information from DTCA of prescription medicines was illustrated in Figure 4.1 (101).

4.3.3 Pilot Study

The research methodology in the present study was designed to achieve the research objectives and to answer the research questions. Before the actual data collection stage, a draft of the questionnaire was pre-tested by utilising a purposive sample of thirty Australian health consumers. Then, the questionnaire was modified and administered at three different locations, at doctor clinics, chemists, and alternative therapist clinics in Melbourne. Respondents were those who were waiting for services. This was to increase the response rate and gain more detailed and reliable information because their behaviours had already shown that they were concerned about their health. The objectives of the pilot study were to gain information about whether: 1) the data collection should be approached through mail-back methodology or should be self-administered; 2) the respondents understand the questionnaire; and 3) a purposive sampling method is appropriate for this study.

According to Chisnall (1992), a pilot study should be carried out under the same conditions as the actual survey. Consequently, a pilot test was conducted at selected doctor clinics and chemists in Melbourne in June 2002 to pre-test the questionnaire. The results illustrated some minor points of confusion, such as the sequence of questions and outline of the questionnaire. As a result, the format was reorganised, the sequence of the questions was changed, and the style of the composition was modified. Furthermore, the pilot study confirmed that approaching potential respondents personally was the best way to encourage consumers to participate in the study. In addition, the importance of a purposive sampling method was highlighted, and the result had shown that the nature of this study would benefit from more responses from groups of health-interested consumers. Therefore, thirty health consumers including some healthcare professionals were asked to complete a draft version of the questionnaire and make comments on it. Their responses were used to improve the questionnaire.

4.3.4 Measurement of Validity and Reliability

The measurement of the validity and reliability of the questionnaire items utilised in the present study is illustrated in this section. The measurement of the validity of the questionnaire items relates to what the questionnaire items measure and how well they achieve this. In addition, the reliability test indicates the stability and internal consistency with which the questionnaire items measure the concepts within the theoretical framework.

- ***Validity Test***

Once the questionnaire was developed and the data was collected, the final version of the questionnaire was analysed by the Statistical Package for the Social Sciences (SPSS) 11.0 software programme to assess its validity. This was to ensure that the questionnaire included an adequate and representative set of questions that fitted the concept, and to validate that the questionnaire measured the things that it was expected to measure. There are several types of validity tests for testing a questionnaire.

According to Sekaran (2000), the three major types of the validity tests are: 1) content validity; 2) criterion-related validity; and 3) construct validity. Firstly, the *content validity* can be judged by a group of experts to ensure that the questionnaire includes an adequate and representative set of questions that tap the concept (Sekaran 2000), and it logically appears to accurately reflect what it implies to measure (Zikmund 2000). The content validity of the variables utilised in the present study was established through the origin of the questions and by a pre-test. Moreover, most of the questions were derived from the literature on marketing and advertising research in the pharmaceutical area, which could assist in the scale purification. However, in scientific studies, one normally prefers strong evidence because of the elusive nature of measuring attitudes and other cognitive phenomena. Secondly, *criterion-related validity* is established when the questionnaire differentiates individuals on a criterion it is expected to predict. This can be classified as either concurrent validity or predictive validity (Zikmund 2000). The two validity tests differ only on the basis of time dimension. Finally, *construct validity* is demonstrated by the degree to which the questionnaire confirms an association of related propositions generated from a theory based upon the concepts. This can occur during the statistical analysis of the data through *Factor Analysis*, which is a multivariate technique that confirms the dimensions of the construct as well as indicating which of the items are most appropriate for each dimension (Zikmund 2000). To measure the construct validity, the questionnaire items were statistically analysed by employing the factor analysis technique and combined into factors that were checked for consistency with proposed constructs (items that ought to measure the same aspect of a research question). This provided evidence of the construct validity of the questionnaire's content.

Furthermore, factor analysis, which is a data reduction technique used to reduce a large number of variables to a smaller set of underlying factors, can be utilised as an exploratory technique when one needs to summarise the structure of a set of variables. Factor analysis is part of the multiple general linear models. It shares the same assumptions with multiple regressions, such as linear

relationships, interval data, lack of high multicollinearity, and multivariate normality for purposes of significance testing. The Exploratory Factor Analysis (EFA) is generally utilised to explore the underlying factor structure without prior specification of number of factors and their loadings. Therefore, the present study performed the EFA method to measure the extent to which the questionnaire fits the concepts as theorised. In addition, the observable variables were selected upon the basis of previous literature, and then the EFA was utilised to see if they loaded as predicted on the expected number of factors or constructs.

There are two approaches to exploratory factor analysis: 1) the traditional approach, *Principle Components Analysis (PCA)* and the *Principle Axis Factoring Analysis (PAF)* which are the most frequently used in this category (Coakes and Steed 2003); and 2) the Structural Equation Modelling (SEM) approach, which is typically utilised to model causal relationships amongst latent variables. The PCA was chosen and conducted in the present exploratory study because it is less complicated than other methods, i.e. PAF and SEM, and it provides a good result for selecting the correct number of factors (Hair et al 1998). The result of PCA indicated the existence of eight factors with all 30 items loading greater than 0.40 (Table 4.3; p.115). This suggests good construct validity and the loading of the items within each factor indicated that the assumption of a simple linear combination of the questions was not violated. The present study considered the factor loading of 0.35 as the minimum level because Hair et al (1998) suggested that factor loadings greater than 0.30 are considered to meet the minimum level; loadings of 0.40 are considered more important; and loadings of 0.50 or above are considered practically significant. Based upon this suggestion, a factor loading of 0.35 was considered as the minimum requirement and would be an appropriate value for the present exploratory study.

According to Coakes and Steed (2003), there are a number of assumptions and practical considerations underlying the application of PCA. For example, there

should be at least 200 cases and variables should be normally distributed. However, PCA has no distributional assumptions as maximum likelihood factor analysis does. As a result, the data was tested and the result showed that the data had not violated any assumptions. Furthermore, an examination of the skewness and kurtosis statistics indicated that all items were reasonably normally distributed. The factorability of variables is also considered appropriate if the Bartlett test of sphericity is significant or rejects the hypothesis or proposition that the correlation matrix is an identity one. In other words, the data is appropriate when the value of Bartlett test is less than 0.05, and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is greater than 0.6 (Hair et al 1998). Therefore, the data in the present study, which its Bartlett's test of Sphericity was significant and the KMO's value was 0.842, was appropriate for proceeding with factor analysis (Table 4.1; p.113).

Table 4.2 (p.114) displays the total variance explained at eight stages of 30 measurement items. It shows the factors and their associated eigenvalues (the percentage of variance explained and the cumulative percentages). The eigenvalues of each factor illustrate how much variance is accounted for in the correlation matrix, and is a measure of the relative importance of each principle factor. Factors retained that exceed an eigenvalues of 1 or more are considered to be more readily interpretable than factors with eigenvalues less than 1 (Hair et al 1998). In reference to the eigenvalues, for the present study, one would expect eight factors to be extracted because these eight factors had eigenvalues greater than 1. If eight factors were extracted, then 59.137 percent of the variance would be explained. Moreover, the data was analysed by the SPSS 11.0 software programme to determine the dimensions of consumer attitudes towards DTCA. The result is illustrated in the factor matrix (Table 4.3; p.115), which is a matrix of loading or correlations between the items and variables. It illustrates that all items have a loading of 0.4 or greater on the eight variables, which are supported by the theoretical framework in Chapter 3: section 3.6.2 (p.84).

Table 4.1: Kaiser-Mever-Olkin and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.842
Bartlett's Test of Sphericity	Approx. Chi-Square	8100.293
	df	435
	Sig.	.000

Table 4.2: Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.157	20.523	20.523	4.283	14.276	14.276
2	2.985	9.950	30.473	2.973	9.911	24.187
3	2.069	6.897	37.371	2.764	9.214	33.401
4	1.734	5.781	43.152	1.874	6.245	39.646
5	1.390	4.632	47.784	1.714	5.715	45.361
6	1.282	4.272	52.056	1.568	5.226	50.586
7	1.081	3.604	55.661	1.363	4.544	55.130
8	1.043	3.476	59.137	1.202	4.007	59.137
9	.989	3.298	62.435			
10	.905	3.017	65.452			
11	.851	2.838	68.290			
12	.838	2.793	71.083			
13	.796	2.652	73.735			
14	.745	2.485	76.220			
15	.710	2.367	78.587			
16	.654	2.181	80.768			
17	.576	1.920	82.688			
18	.521	1.735	84.423			
19	.504	1.680	86.103			
20	.461	1.537	87.640			
21	.444	1.479	89.119			
22	.427	1.422	90.541			
23	.403	1.344	91.885			
24	.385	1.285	93.170			
25	.377	1.256	94.426			
26	.370	1.232	95.658			
27	.359	1.198	96.855			
28	.352	1.172	98.028			
29	.298	.994	99.022			
30	.293	.978	100.000			

Extraction Method: Principal Component Analysis.

Table 4.3: Rotated Component Matrix

	Component							
	1	2	3	4	5	6	7	8
Q6			.778					
Q7			.799					
Q8			.811					
Q9			.710					
Q10			.409					
Q11					.794			
Q12					.789			
Q14								.821
Q15								.484
Q17	.474	.457						
Q18	.529	.475						
Q19	.613							
Q20	.626							
Q22	.624							
Q23		.698						
Q24		.753						
Q25		.685						
Q26	.692							
Q27	.733							
Q28	.632							
Q29				.779				
Q30				.748				
Q31	.522							
Q32	.455							
Q33	.580							
Q34		.545						
Q39a						.829		
Q39b						.820		
Q39c							.760	
Q39d							.500	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 4.4: Factor Description

Factor	Number of Items	Measures	Variable Descriptions
1	11	Q. 17,18,19,20,22, 26,27,28,31,32,33	Beliefs about the positive effects of DTCA (AS-1)
2	4	Q. 23,24,25,34	Beliefs about the negative effects of DTCA (AS-2)
3	5	Q. 6, 7, 8,9,10	Attitudes towards HC providers (HC-1)
4	2	Q. 29, 30	Feelings about general advertising (AS-3)
5	2	Q. 11, 12	Attitudes towards HC providers-patient relationship (HC-2)
6	2	Q. 39a, 39b	Beliefs about medical information from HC providers (HC-4)
7	2	Q. 39c, 39d	Beliefs about medical information from alternative sources (AS-4)
8	2	Q. 14, 15	Beliefs about HC provider subsequent behaviours (HC-3)

Moreover, varimax rotation, which is the most frequently chosen method for rotation analyses, was utilised in order to reduce the number of complex variables and enhance interpretation (Coakes and Steed 2003). The rotation solution revealed only two complex variables, which were items number Q17 (*prescription drug advertising contains the important information that a patient needs to know about the drug*) and Q18 (*prescription drug advertising can educate people or provide valuable information to consumers about the risks and benefits of prescription medicines*). These two question items had a greater factor loading on factor 1 (beliefs about the positive effects of DTCA – AS-1) than factor 2 (beliefs about the negative effects of DTCA – AS-2), which were confirmed by the theoretical aspect and the logic of the questions. As a result, they were considered to be incorporated into factor 1 (AS-1) rather than factor 2 (AS-2).

Table 4.4 (p.116) summarises the details of each factor from the PCA (varimax rotation) result including the number of items within each factor, items that measure the variable, and the factors or variable descriptions.

After conducting the factor analysis and reducing a large number of questions to a small set of underlying variables (HC-1; HC-2; HC-3; HC-4; AS-1; AS-2; AS-3, and AS-4), the factor loading weighted average value of each variable was calculated (Chapter 5: section 5.5; p.156). The weighted average values of eight attitude variables were utilised to perform the factor analysis in the next step in order to see if they loaded as predicted on the expected number of attitude groups. Table 4.5 (p.118) illustrates that Bartlett's test of Sphericity for the weighted average values of eight attitude variables was significant and the KMO's value was greater than 0.6. Therefore, the data was appropriate to proceed with factor analysis.

In addition, Table 4.6 (p.119) demonstrates the total variance explained at two stages, which had eigenvalues over 1 and are considered to be readily interpretable (Hair et al 1998).

Table 4.5: Kaiser-Meyer-Olkin and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.607
Bartlett's Test of Sphericity	Approx. Chi-Square	661.943
	df	28
	Sig.	.000

Table 4.6: Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.982	24.779	24.779	1.958	24.475	24.475
2	1.341	16.761	41.541	1.365	17.066	41.541
3	1.061	13.264	54.804			
4	.962	12.029	66.833			
5	.899	11.238	78.071			
6	.690	8.627	86.698			
7	.624	7.801	94.499			
8	.440	5.501	100.000			

Extraction Method: Principal Component Analysis.

Table 4.7: Rotated Component Matrix

	Component	
	1	2
HC_1		.656
HC_2		.452
HC_3		.368
HC_4		.730
AS_1	.831	
AS_2	.686	
AS_3	.699	
AS_4	.395	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 4.8: Factor Descriptions, Variables within the Factors, and Items Measuring the Variables

Factor	Construct	Variables	Items
1	Attitudes related to alternative medical information sources and their effects	Beliefs about the positive effects of DTCA (AS-1)	Q.17,18,19,20,22, 26,27,28,31,32,33
		Beliefs about the negative effects of DTCA (AS-2)	Q. 23,24,25,34
		Feelings about general advertising (AS-3)	Q. 29, 30
		Beliefs about medical information from alternative sources (AS-4)	Q. 39c, 39d
2	Attitudes related to HC providers and their information	Attitudes towards HC providers (HC-1)	Q. 6, 7, 8,9,10
		Attitudes towards HC providers-patient relationship (HC-2)	Q. 11, 12
		Beliefs about HC provider subsequent behaviours (HC-3)	Q. 14, 15
		Beliefs about medical information from HC providers (HC-4)	Q. 39a, 39b

The PCA result (Table 4.7; p.119) also shows that all variables had a factor loading greater than 0.35 on the two attitude groups (*attitudes related to healthcare providers and their information* and *attitudes related to alternative medical information sources and their effects*), which were defined in the theoretical framework (Chapter 3: section 3.6.2; p.84). Table 4.8 (p.120) summarises the factor descriptions, the variables underlying each factor or within each construct, and the items that measured the variables.

In summary, construct validity test was utilised in the present study to validate that the questionnaire measured the things that it was expected to measure. According to the validity test results, the questionnaire included an adequate and representative set of questions that fitted the concepts and the question items measured things that they were expected to measure. The 30 question items measuring consumer attitudes towards DTCA were subjected to PCA utilising SPSS version 11. Prior to performing PCA, the suitability of data for factor analysis was assessed. At the first step, PCA revealed the presence of eight attitude dimensions with eigenvalues exceeding 1, explaining 20.5%, 10%, 6.9%, 5.8%, 4.6%, 4.3%, 3.6%, and 3.5% of the variance respectively. Utilising Kaiser's criterion, it was decided to retain eight attitude dimensions for further investigation. To assist in the interpretation of these eight attitude dimensions, varimax rotation was performed. The rotated solution (Table 4.3; p.115) revealed the items within eight attitude dimensions with a number of strong loadings. Additionally, in the second step, the data from these eight dimensions were reduced and summarised into two sets of consumer attitudes by performing the factor analysis technique. The PCA results also confirm the dimensions of the constructs within the theoretical framework as well as indicating that the groups of question items are appropriate for each attitude dimension and each group of consumer attitudes.

- ***Reliability Test***

The questionnaire reliability refers to the consistency of answers obtained by the same respondents when they are re-assessed with the same instrument on

different occasions (Sekaran 2000). Basically, one can measure the reliability of the questionnaire by applying the concept of correlation or assessing the level of association between scores obtained on different occasions because all reliability tests are concerned with the level of relationship between two groups of numbers. When the correlation is high, the particular measure within the questionnaire yields consistent results, and therefore, the questionnaire is reliable. Consequently, the correlation coefficient, which expresses the degree of this association, is utilised to determine the level of instrument's reliability. There are two dimensions, which underlie the concept of reliability: *stability* and *internal consistency* (Sekaran 2000), and four main methods for assessing the reliability which are: 1) test-retest method; 2) equivalent-form method; 3) split-half method; and 4) inter-item consistency method.

The test-retested method involves administering the same research instrument to the same respondents at two separate times to test for stability. If the instrument is stable over time, the results of both tests should be the same. A correlation coefficient is calculated to determine the degree of similarity between the two tests. A high correlation between the two tests indicates a high degree of reliability. However, there are several problems associated with measures of test-retest reliability (Zikmund 2000; Sekaran 2000). Firstly, the first test may have a memory effect on the respondents in relation to their participations in a research project, and this may then influence the results of the second test. Secondly, if the time between tests is lengthy, there may be an attitude change, and then a reliability measure may indicate a low or moderate correlation between the first and second test. Finally, the environmental factors may change, resulting in a change in the result of the second test. Accordingly, the problems indicated above make the test-retest method a less reliable assessment of reliability.

In *the equivalent-form method*, two alternative tests are designed to be as equivalent as possible. It involves measuring the same respondents at two different times with two equivalent tests. If there is high correlation between

these two alternative forms, one can conclude that the research instrument is reliable. Alternatively, there is a problem if there is low association between the two instruments. One will be uncertain whether the instrument has low reliability or whether a single equivalent instrument has failed to be similar to another one. In addition, it is difficult in many cases to construct two equivalent forms of the research instrument. Even if it is possible, the research instrument would be expensive and time consuming. The third method, *split-half technique*, involving the measurement of the internal consistency of a multiple-item research instrument assumes that each item measures some aspects of the construct measured by the entire instrument. Therefore, scores on subsets of the items within the instrument are correlated and the items should be consistent in what they indicate about the construct being measured. One can take the result obtained from one-half of the items and check them against the results from the other half of the items. However, a problem exists because the results depend on how the items are divided.

Therefore, the fourth method: *inter-item consistency method*, specifically, the Cronbach Alpha Coefficient (α) (Cronbach 1990) has become the most popular technique for checking internal consistency and to overcome problems with an instrument that contains a large number of items (Kaplan and Saccuzzo 2001; Sekaran 2000). The Cronbach Alpha Coefficient is used for multipoint-scale items and utilises the concept that items are independent measures of the same construct; therefore, they will be correlated with one another. Additionally, the value of the Cronbach Alpha Coefficient will increase when the number of questionnaire items increases, and the higher the Cronbach Alpha Coefficient, the greater the questionnaire reliability (Kaplan and Saccuzzo 2001; Zikmund 2000; Sekaran 2000). Since the questionnaire developed for the two major constructs in this study was modified from previous literature and was a multi-item instrument, the reliability of all question items was checked statistically by utilising the Cronbach Alpha Coefficients (α) to ensure that

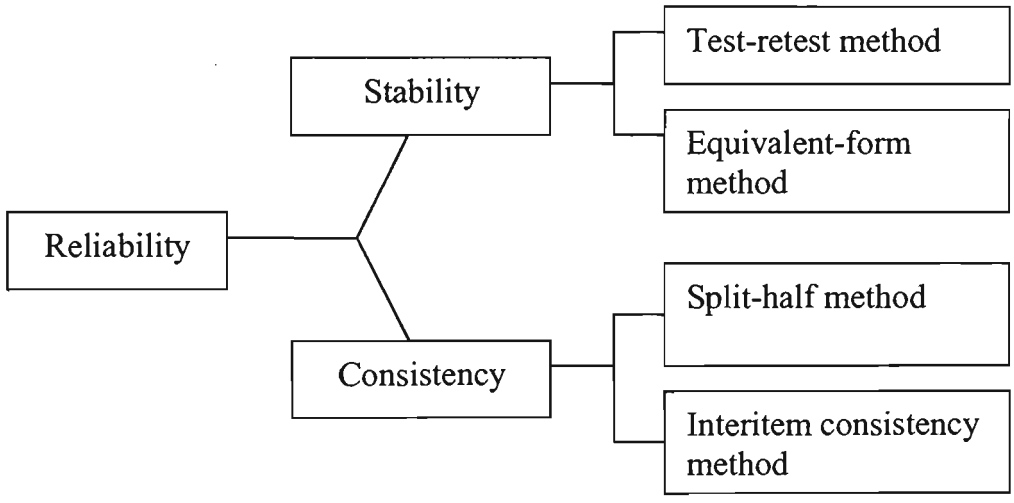

Figure 4.2: Dimensions and Methods for Assessing Reliability of Questionnaire Items

Source: Sekaran (2000)

respondents answered the questions by checking the internal consistency of responses on 5-point Likert type scale items. In addition, as the mean response would vary between constructs within the questionnaire, each construct was measured separately. The coefficient alpha was selected because it can estimate the internal consistency of a research instrument in which the responses are not scored as '0' or '1' or there are no right or wrong answers (not dichotomous answer) as required by other techniques (Kaplan and Saccuzzo 2001).

Moreover, in the study, which utilised several questions to measure the constructs, the value of internal consistency reliability, such as Cronbach Alpha Coefficients (α), could be calculated for each construct. Although the level of acceptable reliability varies across the literature, Kaplan and Saccuzzo (2001) recommend that, generally, in order for the research instrument to be reliable, the questionnaire should have a reliability coefficient of at least 0.6. Therefore, in compliance with this rule, the constructs within the questionnaire were re-worked to achieve an alpha coefficient (α) over 0.6 before distribution of the questionnaire. Following the data collection stage, the Cronbach Alpha Coefficient (α) was calculated by using the SPSS version 11 software programme. During the coding process, seven questions (Questions 11, 12, 13, 23, 24, 25, and 34) were reverse-scored to make sure that all questions that represent variables within the theoretical framework were in the appropriate direction before checking the reliability (Pallant 2001). A summary of the analysis, which used an entire sample of 863 health consumers, performed by SPSS is illustrated in Table 4.9 (p.126). Cronbach Alpha Coefficients (α) were calculated and reported for the two major constructs within this study. The first part was a reliability coefficient of a group of consumer attitudes related to healthcare providers and their information. The second contained the reliability coefficient of a group of attitudes related to alternative medical information sources and their effects. This was because the measurement items of each identifiable dimension were too few to perform the calculation, and the values of Cronbach Alpha Coefficient were quite sensitive to the number of question items in the variable.

Table 4.9: Cronbach Alpha Coefficient (α) for the Constructs

Construct	*Number of Items*	*Items*	*Cronbach Alpha Coefficient (α)*
Attitudes related to HC providers and their information	11	Q. 6, 7, 8, 9,10,11, 12, 14, 15, 39a, 39b	0.69
Attitudes related to alternative medical information sources and their effects	19	Q. 17, 18, 19, 20, 22, 26, 27, 28, 31, 32, 33, 23, 24, 25, 34, 29, 30, 39c, 39d	0.87

With the variables, which contain less than ten question items, it is common to find quite low Cronbach Alpha Coefficient values. In this case, it may be appropriate to report the reliability of the total variable, which contains a number of sub-variables that can be combined to form a total variable score (Pallant 2001). In addition, from the theoretical perspective and the objective of the present study, it is necessary to treat each dimension within two constructs as a variable for gaining valuable insight into the effects of each attitude dimension on behaviour intentions.

Table 4.9 (p.126) provides summary of statistics for the Cronbach Alpha Coefficient (α) of two constructs within the present study, which had shown that the values of reliability coefficient of the constructs within the questionnaire were within an acceptable range above 0.6. The Cronbach Alpha Coefficient (α) values of a group of consumer attitudes related to healthcare providers and their information, and a group of attitudes related to alternative medical information sources and their effects were 0.69 and 0.87 respectively.

Finally, six other constructs: the level of consumer support for DTCA, consumer intentions regarding advertised medicines, consumer backgrounds and characteristics, preferred medical information sources, consumer prior knowledge about drug regulation and prescription drug advertising, and consumer exposure to drug advertising, are category. Therefore, the reliability coefficients were not calculated.

4.4 Population and Sample

When a sample is being selected for an exploratory research project, a high priority may not be placed on accuracy because a highly representative sample may not be necessary (Zikmund 2000; p.360). This study used the *purposive sampling method* on the basis of specific consumer characteristics which were: a) concern about their own health; b) consumers in each group had potentially different attitudes towards medical information and its sources; and c)

consumers needed health services and information from healthcare professionals.

The sample consisted of three groups of consumers from doctor clinics, chemists, and alternative therapist clinics, such as, Chinese medical clinics, acupuncture clinics, traditional herbal clinics, and osteopathic clinics. There are more than 6,170 doctor clinics, 928 chemists, and 395 alternative therapist clinics in Melbourne (Melbourne Citysearch 2002). A sample of doctor clinics, chemists and alternative therapist clinics was drawn up based upon their willingness to participate in the study.

A copy of the research findings was offered to clinics and chemists that agreed to cooperate with the data collection. This was the only incentive offered to participants. Consequently, a purposive sample of consumers from these healthcare businesses was generated. The primary goal of the data collection was to obtain responses from at least 600 consumers. Sample groups were divided equally, with each containing a minimum of 200 participants representing each medical information source. At the end of the data collection, the study achieved its goal and completed data from 863 Australian health consumers was collected. A total of 863 health consumers can be considered an appropriate sample size for performing factor analysis and other statistical techniques. Amongst the sample, 225 consumers (26%) came from doctor clinics, 366 consumers (42%) came from chemists, and 272 consumers (32%) came from alternative therapist clinics. Finally, Table 4.10 (p.129) gives a summary of the sample size from the 25 healthcare businesses that participated in the present study.

This section also reviews the consumer backgrounds and characteristics from the survey. Generally, socio-demographic data is required for guiding a further study and analysis. Within three groups, the consumers were classified by five socio-demographic characteristics, which were age, gender, health condition, level of education, the nature of their occupation, and by their backgrounds, i.e.

Table 4.10: Sample of the Study from 25 Participating Healthcare Businesses

	Doctor Clinics	**Chemists**	**Alternative Therapist Clinics**	***Total***
Number of Healthcare Businesses	7 (28%)	10 (40%)	8 (32%)	***25***
Number of Respondents	225 (26%)	366 (42%)	272 (32%)	***863***

knowledge about drug regulation and prescription drug advertising, and the degree of exposure to drug advertising. Around 900 questionnaires were collected from 25 health-related services businesses across Melbourne and the collected data was entered into the SPSS 11.0 software programme. Then, the descriptive data analysis methods were performed to identify missing values or incorrect data.

4.4.1 Gender, Age, Education, and Occupation

The data was collected from consumers aged 18 or over because they were likely to have developed attitudes towards medical information from healthcare professionals and alternative sources, such as, drug advertising. These attitudes could influence their intentions and their opinions on whether Australia should allow DTCA to the general public. Around 50% of respondents (N = 428) were between 25 and 44 years old, and approximately 5.50% (N = 47) were over 55 years old. The other two age groups together accounted for around 44% of the consumers. Consumers aged 18-24 years represented 33% (N = 290) approximately, and those aged 45-54 years 11.24% (N = 97). The average age of all consumers was 27.60 years old.

Table 4.11 (p.131) shows the consumers' profiles in terms of their gender, age, education, and occupation. Within these 863 respondents, around 46% were male, 54% were female, and 0.58% did not specify their gender. Overall, consumers were quite well educated with over 55% having a university education (undergraduate or postgraduate level), and a further 42% having completed TAFE or high school. The bachelor degree was the mode of consumer education for both male and female groups.

Over 85% of respondents described themselves as being workers. The four dominant occupation categories in the current study were education (18.19%), office/clerical (12.17%), professional (12.17%), and health industry (11.24%).

Table 4.11: Socio-demographic Distribution of the Respondents

	Doctor Clinics N = 225	Chemists N = 366	Alternative Therapist Clinics N = 272
Gender			
Male	94 (41.77%)	190 (51.91%)	111 (40.81%)
Female	130 (57.78%)	176 (48.09%)	157 (57.72%)
Not Specified	1 (0.44%)	0 (0%)	4 (1.47%)
Age			
18-24 yrs	77 (34.22%)	130 (35.52%)	83 (30.51%)
25-34 yrs	79 (35.11%)	105 (28.69%)	75 (27.57%)
35-44 yrs	37 (16.44%)	73 (19.95%)	60 (22.06%)
45-54 yrs	18 (8.0%)	44 (12.02%)	35 (12.87%)
Over 55	14 (6.22%)	14 (3.83%)	19 (6.99%)
Education			
Elementary	3 (1.33%)	8 (2.18%)	4 (1.47%)
High School	45 (20%)	90 (24.59%)	48 (17.65%)
TAFE	44 (19.56%)	73 (19.95%)	60 (22.06%)
Undergraduate	93 (41.33%)	103 (28.14%)	77 (28.31%)
Postgraduate	38 (16.89%)	90 (24.59%)	82 (30.15%)
Not Specified	2 (0.89%)	2 (0.55%)	1 (0.37%)
Total	100%	100%	100%

Table 4.11: (Continued) Socio-demographic Distribution of the Respondents

	Doctor Clinics N = 225	Chemists N = 366	Alternative Therapist Clinics N = 272
Occupation			
Health Industry	56 (25.10%)	22 (6.10%)	19 (7.0%)
Education	29 (13.0%)	79 (21.80%)	49 (18.10%)
Office / Clerical	18 (8.10%)	39 (10.70%)	48 (17.80%)
General Labour	9 (4.0%)	17 (4.70%)	8 (3.0%)
Tradesperson/Craftsperson	6 (2.70%)	9 (2.50%)	7 (2.60%)
Professional	27 (12.10%)	42 (11.60%)	36 (13.30%)
Computer / Technical	13 (5.80%)	21 (5.80%)	26 (9.60%)
Sales / Service / Customer Support	12 (5.40%)	46 (12.70%)	26 (9.60%)
Self-employed	22 (9.90%)	26 (7.20%)	20 (7.40%)
Other	31 (13.90%)	62 (17.10%)	31 (11.50%)
Not Specified	2 (0.89%)	3 (0.82%)	2 (0.75%)
Total	100%	100%	100%

The computer / technique, sales / service / customer support, and self-employed accounted for around 7.0%, 9.80%, and 7.90% respectively.

4.4.2 Health Condition and Consumer Groups

Around 23% of the respondents thought that they were in excellent health, 44.80 % fell in the 'Very Good' group, and 28% fell in the 'Good' group. The other two groups accounted for around 3.9% (Fair) and 0.5% (Poor) respectively. None of the consumers from doctor clinics thought that their health was poor. In addition, 26.90% of consumers from doctor clinics were in the 'Excellent' health category, and they had the highest percentage amongst the three consumer groups (20.50% from chemists and 22.40% from alternative therapist clinics were in the excellent category).

However, consumers from doctor clinics, chemists, and alternative therapist clinics had the same mode of health condition, which was the 'Very Good' category. Table 4.12 (p.134) illustrates the percentage and number of consumer perceptions about their health conditions within the three groups of consumers.

4.5 Problems with Data Collection

Initially, the database of doctor clinics, chemists, and alternative therapist clinics was obtained from Melbourne Citysearch (2002). The main reasons that Melbourne Citysearch was utilised as the major database were: 1) it was Australia's most popular electronic search directory; and 2) the member registers were updated frequently. The first inquiries were made by distributing the letters requesting cooperation to three health business groups in the Melbourne metropolitan area, which were equally divided and selected for convenience, each containing thirty different places. In the letter requesting assistance, the objectives of the study and how the findings would be expected

Table 4.12: Health Conditions and Groups of Consumers

	GROUP		
Health Conditions	*Clinics*	*Chemists*	*Alternative Therapist Clinics*
	N = 225	N = 366	N = 272
Excellent (N = 196 or 22.80%)	60 (26.90%)	75 (20.50%)	61 (22.40%)
Very Good (N = 386 or 44.80%)	88 (39.50%)	167 (45.60%)	131 (48.20%)
Good (N = 241 or 28.0%)	65 (29.10%)	106 (29.0%)	70 (28.0%)
Fair (N = 34 or 3.90%)	10 (4.50%)	15 (4.10%)	9 (3.90%)
Poor (N = 4 or 0.50%)	0 (0%)	3 (0.80%)	1 (0.50%)
Not Specified	2 (0.89%)	0 (0%)	0 (0%)
Total	100%	100%	100%

to benefit healthcare providers, pharmaceutical companies, drug-policy makers, and general consumers were explained. Furthermore, the researcher offered a summary of the final findings to participating healthcare businesses. After waiting around two weeks, there was no response from any clinics or chemists.

It was decided that a telephone call might be inappropriate to explain the objectives and the significance of this study, since the people, who had the authority to provide cooperation and permission to distribute the questionnaire at clinics or chemists, such as healthcare professionals, managers, or owners, were likely to be busy and difficult to contact. Therefore, face-to-face contact was preferable because the researcher could explain the aims and significance of the study to owners or managers, and in order to gather the actual number of consumers who were waiting for services. However, after visiting 20 healthcare businesses in the Melbourne metropolitan area, only 2 healthcare businesses agreed to participate in the present study. No reason was given by non-participating clinics and chemists. Finally, after searching clinics and chemists for around six weeks, and contacting over 200 places, 25 healthcare businesses (7 medical clinics, 10 chemists, and 8 alternative therapist clinics) agreed to collaborate and gave permission to hand out questionnaires at their businesses.

4.6 Administering the Questionnaire

A self-administration methodology was utilised. The prospective respondents were all Australians, who were utilising the services of the twenty-five healthcare businesses that participated in the study. Questionnaires were only distributed to respondents aged over 18 years by either the researcher, research assistants, sales staff, or clinics/chemists' receptionists during June and December 2002. Each questionnaire included a copy of the consent form (Appendix 1) and the cover letter (Appendix 2) as well as small gifts, such as pens, pencils, or key chains, which were offered to respondents who completed the questionnaire in order to increase the response rate. In the cover letter, the

respondents were assured that their responses would be kept confidential and only summaries for groups of consumers would be reported in the final thesis. If consumers decided to participate in the study, they were asked to fill out the questionnaire and return it to the data collector.

A total of 1,000 questionnaires was equally divided and distributed to 25 healthcare businesses in Melbourne. A lack of randomness in the choice of sampling frame was recognised by the researcher as a limitation. After considering the trade off needed between randomness and access, and the constraints governing the study, it was decided to make access to the respondents a main concern. A purposive sampling method, which was considered to be an appropriate technique given the primary objective of exploring consumer attitudes towards DTCA in Australia, was applied in the current study. It should be noted that the sample consisted only of respondents who utilised services of healthcare businesses, therefore, the findings of this study could not be generalised to include consumers who did not utilise these services.

4.7 Data Editing

After collecting the data from 863 health consumers, the answers in every questionnaire were checked for completeness followed by editing if it was required. Nevertheless, it should be noted that incomplete data could not be followed up as the respondents completed the questionnaires anonymously.

4.7.1 Incomplete Questionnaires

Every returned questionnaire was checked and the data were adjusted for omissions, legibility, and consistency to ensure completeness, consistency, and reliability of the data. If the researcher found an incomplete questionnaire, it was categorised into two groups. The first group contained questionnaires where 25% or more of the question items had no response. This group was excluded from the data for analysis. The second group of incomplete questionnaires, where the number of items without a response was less than 25

%, the data were treated as missing values by the computer program (Sekaran 2000; Kinnear and Taylor 1996). Moreover, while conducting the factor analysis, a number of missing data was replaced by item means to avoid the loss of sample size.

4.7.2 Problems with Collected Data

This section discusses the two common problems concerning the collected data, which are *missing data* and *multiple answers*. Moreover, the solutions to these problems, which were utilised in the present study, are provided.

- ***Missing Data***

Missing data, such as item non-response, is almost always a problem in quantitative research, especially, in research that utilises a survey questionnaire. It is not easy to analyse and it remains a risk to the validity of the study. Missing data may indicate that a respondent has failed to participate in some parts of a study or has skipped a number of the questions. Moreover, most of multivariate statistical methods, such as, one-way analysis of variance (one-way ANOVA) require complete data. As a result, missing data is a cause of excluded entire responses. The first standard approach for dealing with incomplete data is *listwise deletion (LD)*, which eradicates any observations where some data value is missing. Consequently, listwise deletion (LD) reduces the sample size and discards valuable information that the respondents have provided.

Secondly, *pairwise deletion (PD)* estimates each sample series individually. It excludes an observation from the computation only when it is missing a value, which is needed for calculation in that particular series. For instance, when the sample covariance of two variables is calculated, pairwise deletion (PD) will omit only the cases that missing value on one or both of the variables is found. Nevertheless, this approach cannot utilise all of the information that was obtained by the survey.

This study did not use any of the above approaches but it utilised the third method, *mean imputation (MI)*, where the missing values of a variable were replaced by an average mean of its observed values, and thus it was possible to include the information from all data cases. As a result, mean imputation (MI) is a more satisfactory approach than listwise deletion (LD) and pairwise deletion (PD) because it utilises all the information that the survey acquired.

- ***Multiple Answers***

If the problem of multiple responses was found, the answer might be assigned as missing data or categorised into a code that represented combinations of responses (Kinnear and Taylor 1996). Accordingly, in the present study, multiple answers of the Likert-type scale items were treated as missing values, and replaced with the values as mentioned above.

4.8 Data Analysis

Quantitative data was analysed by utilising the Statistical Package for Social Science (SPSS) software programme version 11.0. Descriptive statistics, such as, frequency and percentage distributions, mean averages, and standard deviations, were utilised to describe and to summarise profiles of the entire sample in relation to the dimensions of consumer attitudes towards DTCA, consumer backgrounds and characteristics, and consumer knowledge about drug advertising regulation. These statistical techniques were calculated to get the preliminary information about how consumers reacted to each item in the questionnaire. The responses were analysed by utilising reliability coefficient (Cronbach's alpha method - α), factor analysis technique (EFA), Chi-square test (χ^2), and Pearson product-moment correlation coefficient as well as ANOVA in order to assess the validity and reliability of the questionnaire and to test the propositions.

Theoretically, the statistical techniques can be divided into three categories: *univariate*, *bivariate*, and *multivariate* data analysis techniques. Firstly, the univariate data analyses are adopted to describe the statistical aspects of a single

variable. This category includes such measures as mean, frequency distributions, standard deviation, and percentage distributions.

Secondly, when the relationships between two variables are the concern of the study, bivariate data analyses would be a proper method to utilise. These statistical techniques are often applied to situations in which each character in a group has scores on two different variables. The correlation coefficient, such as, Pearson product-moment correlation coefficient and Chi-square test (χ^2), is in this category.

Finally, multivariate data analysis techniques are utilised when the relationships between more than two variables are analysed. These techniques incorporate the methods, such as, simple regression, multiple regression, factor analysis, ANOVA and MANOVA.

In the present study, six statistical techniques, which are descriptive statistics, Chi-square test (χ^2), Pearson product-moment correlation coefficient, Cronbach Alpha Correlation Coefficient (α), one-way ANOVA, and Factor Analysis (PCA varimax rotation), were employed including the factor loading weighted average formula for calculating the mean value of each attitudes' dimension.

In summary, the descriptive statistics were utilised to analyse the data obtained from the survey, and to examine consumer attitudes towards DTCA of prescription medicines and consumer backgrounds and characteristics. Moreover, the products of question items within each attitude dimension from two groups of consumer attitudes towards DTCA were added and calculated by factor loading weighted average formula to give a mean value of each attitude dimension. The one-way Analysis of Variance (one-way ANOVA) was conducted to determine whether there were significant differences for each dimension of attitude across all three-consumer groups (Proposition 1).

Table 4.13: Summary of the Objectives of Statistical Techniques Utilised in the Present Study

Techniques	Objectives	Propositions
Descriptive Statistics	- To analyse consumer attitudes towards DTCA and consumer backgrounds / characteristics	
ANOVA	- To compare consumer attitudes towards DTCA and consumer intentions regarding advertised medicines of the three consumer groups	***Proposition 1***
Pearson Correlation Coefficient	- To examine the relationships between each dimension of consumer attitudes towards DTCA and consumer intentions regarding advertised medicines - To demonstrate the relationships between each dimension of consumer attitudes towards DTCA and the level of consumer support for DTCA	***Proposition 2***

Table 4.13: (Continued) Summary of the Objectives of Statistical Techniques Utilised in the Present Study

Techniques	Objectives	Propositions
	- To investigate the relationship between consumer exposure to prescription drug advertising and the level of consumer support for DTCA	***Proposition 3***
Chi-square Test		
	- To study the relationship between consumer knowledge about drug regulation and prescription drug advertising and the level of consumer support for DTCA	***Proposition 4***

Furthermore, Pearson correlation coefficients were utilised to assess the degree of association between each attitude dimension and behavioural intentions (Proposition 2). Finally, the Chi-square test was employed to investigate the relationships between: a) consumer exposure to prescription drug advertising and the level of consumer support for DTCA (Proposition 3); and b) consumer knowledge about drug regulation and prescription drug advertising and the level of consumer support for DTCA, which was measured by asking consumers to rate their opinions on whether Australia should allow DTCA to the general public (Proposition 4). Table 4.13 (p.140-1) summarises the objectives of statistical techniques that were employed in the present study.

4.9 Conclusion

In this chapter, the research methodology including the development and construction of the survey questions, designing and pre-testing of the questionnaire, identification of the target population, and selection of a sample, to gather the primary data had been discussed. The ethics and limitations were considered. Also, the problems of data collection, which could provide a guideline for future studies, and the pilot study including the results of validity and reliability test, had been presented. The method of data preparation and processing to ensure that the data set was ready for further analysis had been illustrated. In addition, the current chapter had presented and described socio-demographic characteristics of the sample as well as the information concerned with the sample profiles.

In the data analysis section, the purposes of various statistical techniques, e.g. Factor Analysis, Cronbach Alpha Coefficient (α), Descriptive Statistics, Chi-square test (χ^2), Pearson Product-moment Correlation Coefficient, and one-way Analysis of Variance (one-way ANOVA) utilised in the present study, had been reviewed briefly. In the next chapter, a detailed explanation of each analytical technique utilised to achieve the research objectives and to answer the research questions will be provided. Moreover, the findings of this study will be presented and discussed.

Chapter 5

Findings of the Study and Discussion

Chapter 4 provided discussion of the research methods utilised in the present study including the development of question items, reliability and validity of the questionnaire, the pilot test, data collection, and a brief outline of the data analysis. The aim of this chapter is to present the results of the data via descriptive analysis and various statistical techniques. It also explores and compares consumers with differing backgrounds and characteristics and their attitudes towards DTCA of prescription medicines from doctor clinics, chemists, and alternative therapist clinics.

5.1 Introduction

Chapter 5 is divided into three main sections. The first section presents the introduction to this chapter. The second section includes a descriptive analysis of the responses obtained from the survey in order to outline the setting of the sample, and to present findings that relate to the propositions. Additionally, the findings of eight attitude dimensions within two groups of attitudes towards DTCA (*attitudes related to healthcare providers and their information* and *attitudes related to alternative medical information sources and their effects*) of the respondents are reported. Further, the following issues, which relate to proposition-test results, research questions (Chapter 1: section 1.4; p.8), and the theoretical framework (Chapter 3: section 3.6.2; p.84), are presented and discussed in the final section as follows:

- Consumer attitudes towards DTCA and the comparison of these attitudes from three different groups of consumers;
- The relationships between each attitude's dimensions, the level of consumer support for DTCA, and consumer intentions regarding advertised medicines;

- The relationship between consumer exposure to prescription drug advertising and the level of consumer support for DTCA; and
- The relationship between consumer prior knowledge about drug regulation and prescription drug advertising and the level of consumer support for DTCA.

The final section also presents a summary of those findings as well as highlighting the findings from the four proposition testing.

5.2 Consumer Knowledge about Drug Regulation and Prescription Drug Advertising

Consumers were asked whether they agreed or disagreed with 5 statements: Questions 1 to 5 (Table 5.1; p.145) concerning current drug regulation and prescription drug advertising in Australia on a three-point scale, on which '3' was 'Agree', '2' was 'Disagree' and '1' was 'Don't know'. The criteria for evaluating whether the answers were right or wrong was based upon the regulation provided by the TGA (TGA 1999c) as detailed in Chapter 2: section 2.3.1 (p.34). The total knowledge scores were calculated based upon the number of correct answers. Consumers who obtained a total knowledge score equal to 3 or above from 5 question items (at least 60% correct) were categorised as having high knowledge and consumers who acquired a total knowledge score equal to 0, 1, or 2 were classified as having low knowledge regarding drug advertising regulation.

As a result, Table 5.2 (p.146) shows the numbers and percentages of consumers who were classified as having high or low level knowledge according to the three different sources (doctor clinics, chemists, and alternative therapist clinics). Around 40% of the entire respondents fell into the high knowledge category, where consumers had a total knowledge score equal to 3 or above.

Table 5.1: Consumer DTCA Knowledge

	Agree	Disagree	Don't Know
Q.1 *'Prescription drug advertising directly to consumers is banned in Australia'*	406 (47.0%)	153 (17.70%)	303 (35.10%)
Q.2 *'Prescription drug advertising in magazines, radio, television, Internet, or other forms of mass media is illegal in Australia'*	345 (40.0%)	210 (24.30%)	305 (35.30%)
Q.3 *'In Australia, disease-oriented advertising is allowed as long as a product name is not mentioned'*	335 (38.80%)	162 (18.80%)	361 (41.80%)
Q.4 *'Over-The-Counter drugs are drugs that consumers can get without a doctor's prescription'*	699 (81.0%)	110 (12.70%)	53 (6.10%)
Q.5 *'Prescription drugs are drugs that only a doctor can prescribe'*	770 (89.20%)	70 (8.10%)	23 (2.70%)

Table 5.2: Level of Consumer DTCA Knowledge

Consumer DTCA Knowledge	GROUPS		
	Clinics N = 225	*Chemists* N = 366	*Alternative Therapist Clinics* N = 272
High (N = 352 or 40.80%)	90 (40.0%)	148 (40.40%)	114 (41.90%)
Low (N = 511 or 59.20%)	135 (60.0%)	218 (59.60%)	158 (58.10%)

A similar pattern was found amongst the three consumer groups. Around 60% of the respondents within each group had a knowledge score lower than 3, and thus were classified in the low knowledge category. Moreover, there were only 9 respondents who answered all 5 questions correctly, which represents 1% of the test population. At the other end of the scale, there were 58 consumers (6.70%), who obtained a total DTCA knowledge score equal to zero or could not correctly answer any of the five question items.

Interestingly, the findings indicate that around 53% of respondents did not know whether prescription drug advertising directly to consumers is banned or thought that DTCA was already allowed in Australia. Further, around 25% of the entire sample thought that prescription drug advertising in magazines, radio, television, Internet, or other forms of mass media, was legal. In fact, DTCA of prescription medicines in any form is banned in Australia. These findings are also consistent with the finding of AAMI (2002), which conducted a Canadian national survey in August 2001. They found that a number of Canadian respondents (53%) thought that DTCA was already officially permitted in Canada, even though this is not true.

5.3 Consumer Exposure to Drug Advertising

One of the present study's objectives is to identify the factors that influence consumer attitudes towards DTCA of prescription medicines. The level of consumer exposure to drug advertising of either prescription or non-prescription medicines is an interesting factor. In this study, consumer exposure to drug advertising is measured in terms of media exposure. From Question 36 '*Did you see or hear an advertisement for* ***a non-prescription drug*** *in the last three-months?*' and Question 37 '*Did you see or hear an advertisement for* ***a prescription drug*** *in the last three-months?*' 73.60% of consumers answered that they had seen or heard advertising of either prescription or non-prescription medicines in the last three-months (Table 5.3; p.148).

Table 5.3: Consumer Exposure to Drug Advertising

	GROUPS		
Exposure to Advertising	*Clinics*	*Chemists*	*Alternative Therapist Clinics*
of prescription medicines			
Yes (225 or 26.30%)	56 (25.20%)	95 (26.20%)	74 (27.20%)
No or Not sure (632 or 73.7%)	166 (74.80%)	268 (73.80%)	198 (72.80%)
of non-prescription medicines			
Yes (582 or 67.44%)	163 (72.80%)	240 (65.80%)	179 (66.30%)
No or Not sure (277 or 32.20%)	61 (27.20%)	125 (34.20%)	91 (33.70%)
of either prescription or non-prescription medicines			
Yes (635 or 73.60%)	176 (78.20%)	262 (71.60%)	197 (72.40%)
No or Not sure (228 or 26.40%)	49 (27.80%)	104 (28.40%)	75 (27.60%)

Approximately two-thirds of the respondents (67.44%) report that they have seen or heard an advertisement for a non-prescription medicine. Moreover, around 26% of the entire sample had been exposed to prescription drug advertising to some degree, even though this type of drug promotion has been prohibited in Australia. A similar pattern of responses from consumers who report that they have seen or heard advertisements for medicines was found amongst the three consumer groups.

Further, it was found that the group of consumers who had been exposed to non-prescription drug advertising was greater than those who had been exposed to prescription drug advertising. This finding was expected because prescription drug advertising direct to consumers is banned in Australia whereas non-prescription drug advertising is legal. Therefore, the number of consumers who have been exposed to the advertisement of a non-prescription medicine should be greater than those who have seen or heard about a prescription medicine through advertising

Table 5.4 (p.150) summarises the numbers and percentages of consumer responses regarding sources of drug advertising that consumers had been exposed to. For non-prescription drug advertising, the most common type of mass media, where respondents reported that they have seen or heard about drug advertising, was '*Television*' (46%). The second most common was '*Magazines*' (33%). The '*Radio*' and '*Internet*' were around 10% and 8% respectively. It should be noted that the total number of all responses did not equal the total number of the sample because some respondents were exposed to more than one source of drug advertising.

For prescription drug advertising, around a quarter of the respondents (26.30%) reported that they have seen or heard advertising for prescription medicines via '*Television*' (38.0%), '*Magazines*' (31%), '*Radio*' (10.6%), '*Internet*' (15.20%) and '*Other*' (4.90%).

Table 5.4: Sources of Drug Advertising

Sources of drug Advertising	Non-Prescription drug advertising	Prescription drug advertising
Magazines	320 (33%)	103 (31%)
Television	451 (46%)	125 (38%)
Radio	98 (10%)	35 (10.6%)
Internet	77 (8%)	50 (15.2%)
Other	25 (2.6%)	16 (4.9%)

* Total number of responses is based on multiple answers for each source of drug advertising

In summary, the findings illustrate very high levels of awareness of drug advertising amongst the three consumer groups. Over 70% of all respondents recall seeing or hearing either prescription or non-prescription medicine advertising in the last three-months (Table 5.3; p.148), mostly on television and in magazines (Table 5.4; p.150). A high level of awareness of drug advertising was especially significant for non-prescription medicines (around 67% of consumers reported that they had seen or heard about non-prescription drug advertising within the last three months). Interestingly, the finding also shows that Australian health consumers could already access prescription drug information from a variety of sources, even though DTCA of prescription medicines has not been officially permitted in Australia.

Furthermore, a U.S. survey by the National Consumers League (1998) found a similar trend. The findings from that study showed that about 80% of consumers had been exposed to either or both prescription and non-prescription medicine advertising. The study also found that television was the most common medium for that type of advertising.

5.4 Consumer Intentions regarding Advertised Medicines and Sources of Additional Information about Prescription Medicines

In order to document consumer intentions to DTCA of prescription medicines, the present study asked respondents what they intended to do as a result of drug advertising. Particularly, the study was interested to identify where consumers preferred to get additional information from when they had questions about a prescription medicine (Table 5.5; p.153 and Table 5.6; p.155).

Table 5.5 (p.153) illustrates the numbers and percentages of consumer responses to Questions 13 and 21. These two questions were about consumer intentions to seek more information and to ask their healthcare providers

concerning advertised medicines. Where appropriate the mean score values of the responses were calculated. The higher the mean scores mean, the higher the level of agreement with the question statement.

Regarding consumer intention to ask healthcare providers about an advertised medicine, only 15.64% of the respondents report that they would not talk to their healthcare providers about those medicines because it appears that they do not trust their providers. Approximately two-thirds of the respondents (66%) disagreed or strongly disagreed with this statement.

Additionally, one of the key questions in the debate over DTCA is whether this type of drug promotion encourages consumers to look for additional information about advertised medicines or about their health. 18% of respondents predicted that drug advertising would not cause them to seek more information about medicines that might be appropriate. In contrast, slightly more than half of the respondents (57.23%) thought that drug advertising would influence them to look for more information related to those medicines in some way.

This finding is also consistent with the results from a study by the U.S. FDA (U.S. FDA 1999), which reported that, as a result of DTCA, around half of consumers seek out further information about the drugs or about health related issues.

Further, it is claimed that this effect of drug advertising was an impressive result because a primary reason for allowing DTCA in the first place was to improve the public health by encouraging consumers to seek more information related to their health and providing consumers with fundamental information that they were not receiving from other sources (Calfee 2001).

Table 5.5: Consumer Intentions Regarding Advertised Medicines

Q.13 *'I shall not talk to my healthcare provider about an advertised drug because it will seem like I do not trust them'*

Strongly Agree	***Agree***	***Neutral***	***Disagree***	***Strongly Disagree***	***Mean***
18 (2.08%)	117 (13.56%)	156 (18.07%)	443 (51.33%)	128 (14.83%)	2.37

Q.21 *'Prescription drug advertising will cause me to look for more information about the drug that may be appropriate for me'*

Strongly Agree	***Agree***	***Neutral***	***Disagree***	***Strongly Disagree***	***Mean***
73 (8.45%)	421 (48.78%)	207 (23.98%)	121 (14.02%)	35 (4.05%)	3.44

When consumers were asked where they preferred to get additional information about a prescription medicine from, the results of the survey showed that these consumers sought information from a number of sources. These sources included the Internet, healthcare professionals, reference books, friends or relatives, and magazines or print media. The most common additional information source were healthcare professionals (75.66%) followed by the Internet (22.13%), and reference books (17.61%). Friends or relatives and magazines or print media were around 12% and 4.5% respectively. It should be noted that multiple answers were accepted in this question. Therefore, the total percentage was not equal to 100%.

Table 5.6 (p.155) summarises the findings regarding additional information sources about a prescription medicine. From the data obtained, it was found that the most popular source of prescription drug information besides healthcare professionals was the Internet, which was an easy way to access DTCA information. This finding might indicate that why Pesanello and Green (2000) found that current pharmaceutical companies' strategies were focusing on promoting and investing in this new communication channel.

In summary, the current section illustrated the findings concerning consumer intentions to seek more information and to ask their healthcare providers about advertised medicines. Moreover, sources of additional information about prescription medicines that consumers preferred were revealed. In subsequent analysis, these findings will be utilised for testing Proposition 2 (section 5.6.2; p.189).

Table 5.6: Additional Information Sources about a Prescription Medicine

Q.38 '*When you have questions about a prescription medicine, where do you prefer to get additional information?*'

Internet	*Healthcare Professional*	*Reference Book*	*Friend / Relative*	*Magazine / Print Media*	*Other*
191 (22.13%)	653 (75.66%)	152 (17.61%)	104 (12.05%)	38 (4.40%)	16 (1.85%)

* Total number of responses is based on multiple answers for each source of prescription drug information

5.5 Consumer Attitudes towards DTCA of Prescription Medicines

This section presents the findings regarding consumer attitudes towards DTCA of prescription medicines. It is divided into four main parts. The first part illustrates the level of consumer support for DTCA, which was reflected in consumer opinions about whether or not Australia should allow DTCA of prescription medicines. The second part reports consumer beliefs about medical information from traditional healthcare providers, i.e. physicians and pharmacists, and alternative sources, i.e. drug advertising and alternative therapists. The third part presents the findings on the first attitude group: *consumer attitudes related to healthcare providers and their information.* The final part illustrates the findings of the study regarding the second attitude group: *consumer attitudes related to alternative medical information sources and their effects.*

For the analysis of consumer attitudes related to traditional healthcare professionals and alternative medical information sources, the variables (eight dimensions of consumer attitudes towards DTCA) within the theoretical framework (Chapter 3: section 3.6.2; p.84) were reported with the descriptions of variables, the numbers and names of items in the original questionnaire as well as the factor loading weighted average means and the standard deviations in Table 5.13 (p.169) and Table 5.17 (p.179).

The factor loading weighted average is quite straightforward and is very useful for testing propositions. For example, the mean values of items that load onto a particular variable are w, x, y, and z, and the factor loadings of each item are 0.3, 0.4, 0.5, and 0.6 respectively. Therefore the factor-loading weighted mean for that variable is equal to:

$$\frac{[(0.3 * w) + (0.4 * x) + (0.5 * y) + (0.6 * z)]}{(0.3 + 0.4 + 0.5 + 0.6)}$$

This compares with the simple mean of (w + x + y + z) / 4. The factor-loading weighted average mean takes into account the relative importance or strength of loading for each item whereas the simple mean treats each item equally. This is because the factor loadings are the correlation coefficients between each item and variable. It is the percentage of variance in that variable, which is explained by the measurement item.

Finally, where appropriate, the data from five-point scale was reduced to a three-point scale, and then were discussed to observe the pattern of consumer responses to question items within the questionnaire.

5.5.1 DTCA Consumer Support

Consumers were asked questions regarding drug advertising and current DTCA regulation in order to assess the level of consumer support for DTCA, which could reflect the overall attitudes of Australian health consumers towards DTCA (Table 5.7; p.158 and Table 5.8; p.159). The findings revealed that around 44% of respondents thought that if a drug was legal to sell, it should also be legal to advertise. Approximately one-third of the respondents (34%) disagreed or strongly disagreed with this idea. Furthermore, a similar pattern in responses from the three consumer groups was found.

When consumers were asked to rate their opinion about the current DTCA regulation, the group of respondents was divided almost equally, with 35.22% of respondents believing that Australia should allow DTCA and 35.93% disapproving of it.

Table 5.7: Consumer Support for Advertising of Legal Medicines

Q.16 '*If a drug is legal to sell, it should also be legal to advertise*'

	Strongly Agree	***Agree***	***Neutral***	***Disagree***	***Strongly Disagree***	***Mean***
Clinics (N = 225)	18 (8.0%)	76 (33.77%)	45 (20.0%)	59 (26.22%)	27 (12.0%)	3.20
Chemists (N = 366)	35 (9.56%)	125 (34.15%)	83 (22.70%)	89 (24.31%)	34 (9.30%)	3.10
Alternative Therapist Clinics (N = 272)	32 (11.76%)	91 (33.45%)	68 (25.0%)	60 (22.05%)	21 (7.70%)	3.00
Total (N = 863)	85 (9.85%)	292 (33.83%)	196 (22.7%)	208 (24.10%)	82 (9.50%)	3.11

Table 5.8: Consumer Support for DTCA of Prescription Medicines in Australia

Q.35 '*Australia should allow advertising of prescription drugs directly to the public*'

	Strongly Agree	***Agree***	***Neutral***	***Disagree***	***Strongly Disagree***	***Mean***
Clinics (N = 225)	11 (4.88%)	67 (29.77%)	64 (28.50%)	53 (23.55%)	30 (13.33%)	2.86
Chemists (N = 366)	27 (7.37%)	101 (27.59%)	117 (32.0%)	78 (21.31%)	43 (11.74%)	2.98
Alternative Therapist Clinics (N = 272)	12 (4.41%)	86 (31.61%)	68 (25.0%)	64 (23.53%)	42 (15.44%)	2.89
Total (N = 863)	50 (5.79%)	254 (29.43%)	249 (28.8%)	195 (22.60%)	115 (13.33%)	2.92

The number of respondents who strongly opposed DTCA being allowed in Australia (13.33%) was over twice of the number of respondents who strongly supported DTCA (5.79%).

5.5.2 Consumer Beliefs about Medical Information from Healthcare Providers (HC-4) and Alternative Sources (AS-4)

Consumers were asked to rate their opinions on '*how much would you believe the medical information from these sources: doctor, pharmacist, alternative therapist, and drug advertising*'. The answers were from 1 (Not believe at all) to 5 (Believe a lot). The mean values and factor loadings of items measuring consumer beliefs about medical information from healthcare providers (HC-4) and alternative sources (AS-4) were calculated and summarised in Table 5.9 (p.161).

The results showed that consumers viewed the '*Doctor*' as the most trusted group for medical information and the second was the '*Pharmacist*'. Additionally, '*Alternative Therapist*' was seen as a more reliable source than '*Drug Advertising*', which obtained the lowest score amongst the four medical information sources. The present study's findings are consistent with the results of Ferriman (2001b), Kmietovicz (2002), and Doucette and Schommer (1998), which showed that health consumers or patients viewed healthcare professionals, i.e. nurses, physicians, pharmacists, and other health practitioners, as important sources of medical information, and doctors as the most trusted group of health professionals.

Table 5.9: Consumer Beliefs about Medical Information from Healthcare Providers (HC-4) and Alternative Sources (AS-4)

	Mean	**Factor loading**
Traditional Healthcare Providers (HC-4)		
Doctor	4.55	0.83
Pharmacist	4.32	0.82
Alternative Medical Information Sources (AS-4)		
Alternative Therapist	3.29	0.76
Drug Advertising	2.58	0.50

Finally, the factor loadings of consumer beliefs about medical information from physicians and pharmacists onto the variable HC-4 and from alternative therapists and drug advertising onto the variable AS-4 were 0.83, 0.82, 0.76 and 0.50 respectively (Table 5.9; p.161). These factor-loading values onto the variables will be utilised for calculating its factor-loading weighted average mean in subsequent analysis. Then, these mean values will be computed for testing propositions in section 5.6 (p.180).

5.5.3 Consumer Attitudes related to Healthcare Providers and their Information

This section outlines the findings of the present study on consumer attitudes related to healthcare providers and the information they give, which is a part of consumer attitudes towards DTCA in the theoretical framework (Chapter 3: section 3.6.2; p.84). This group of attitudes was divided into four dimensions as follows:

a) Consumer beliefs about medical information from healthcare providers (HC-4), which was presented in section: 5.5.2 (p.160);

b) Consumer attitudes towards healthcare providers (HC-1);

c) Consumer attitudes towards healthcare provider-patient relationship (HC-2); and

d) Consumer beliefs about healthcare provider subsequent behaviours upon consumers requests (HC-3).

- ***Consumer Attitudes towards Healthcare Providers (HC-1)***

The responses, means and factor loadings of items measuring consumer attitudes towards healthcare providers are presented in Table 5.10 (p.163). The findings indicate that around 60% of consumers believed that their healthcare providers gave them enough information about treatment options and what their

Table 5.10: Consumer Attitudes towards Healthcare Providers (HC-1)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Factor loading
Q.6 '*My healthcare provider gives me enough information to let me know what the treatment options are available and what my drug is for*'.						
114 (13.20%)	416 (48.20%)	178 (20.60%)	127 (14.70%)	28 (3.20%)	3.53	0.78
Q.7 '*My healthcare provider explains to me the risks and side effects of medications prescribed*'.						
118 (13.70%)	391 (45.30%)	217 (25.10%)	109 (12.60%)	28 (3.20%)	3.54	0.80
Q.8 '*My healthcare provider explains to me about other* ***prescription*** *products that may be appropriate for me*'.						
89 (10.30%)	342 (39.60%)	216 (25.0%)	187 (21.70%)	26 (3.0%)	3.33	0.81
Q.9 '*My healthcare provider explains to me about other* ***non-prescription*** *products that may be appropriate for me*'.						
74 (8.60%)	319 (37.0%)	219 (25.30%)	221 (25.60%)	30 (3.50%)	3.22	0.71
Q.10 '*Healthcare providers should be the sole source of prescription drug information*'.						
124 (14.40%)	202 (23.40%)	168 (19.40%)	278 (32.20%)	91 (10.50%)	3.53	0.78

drug was for, and explained to them the risks and side effects of medicines that they received. In addition, around half of consumers pointed out that generally their healthcare providers explained to them about other prescription or non-prescription products that might be appropriate for them.

These findings are also consistent with the results of Foley and Gross (2000), who surveyed consumer attitudes towards information from healthcare providers in the U.S. and reported that over half of respondents (54%) believed that their healthcare providers usually talked to them about the drugs that were prescribed or might be appropriate for their conditions.

In short, even though the majority of consumers perceive that they already receive enough prescription drug information from their healthcare providers, 42.70% of the respondents still thought that healthcare providers should not be the sole source of medical information. This might reflect consumers need about the information of prescription medicines from sources other than healthcare professionals.

- ***Consumer Attitudes towards Healthcare Provider-Patient Relationship (HC-2)***

The variable HC-2 measured consumer attitudes towards the healthcare provider-patient relationship when they asked for a drug that was advertised. It did this by asking consumers to rate their opinions on Questions 11 and 12 (Table 5.11; p.165). These two questions assessed consumer thoughts about the effects of consumer asking behaviours on the relationship between them and their healthcare providers. The findings showed that 41% of respondents thought that their healthcare providers would not be dissatisfied if they asked for a prescription medicine that was advertised. Only around 15% of the respondents thought that this asking behaviour would have a negative impact on the relationship between themselves and their healthcare provider.

Table 5.11: Consumer Attitudes towards Healthcare Provider-Patient Relationship (HC-2)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Factor loading
Q.11 '*My healthcare provider will be dissatisfied, if I ask for a prescription drug that is advertised*'						
19 (2.20%)	152 (17.60%)	335 (38.70%)	309 (35.80%)	48 (5.60%)	2.75	0.79
Q.12 '*The relationship between my healthcare provider and me will be weakened if I ask for a drug that is advertised*'						
14 (1.60%)	113 (13.10%)	258 (29.90%)	396 (45.90%)	82 (9.50%)	2.51	0.79

In conclusion, the findings from these two questions were parallel and revealed that consumers generally thought that their asking behaviours about advertised medicines would not have a negative effect on healthcare provider-patient relationships.

- ***Consumer Beliefs about Healthcare Providers Subsequent Behaviours (HC-3)***

The variable HC-3 addressed consumer beliefs about healthcare providers' subsequent behaviour if they asked for an advertised medicine or information related to such a medicine (Table 5.12; p.167). Questions 14 and 15 were used to measure variable HC-3 within the theoretical framework. When consumers were asked to rate their opinions on the extent to which they agreed or disagreed with Question 14, 27.20% of the respondents believed that their healthcare providers would prescribe advertised medicines upon their request. However, 25.40% of consumers did not believe that their healthcare providers would do so.

Regarding consumer beliefs about healthcare provider behaviour subsequent to requests for information about an advertised medicine, 852 consumers responded. Approximately two-thirds of the respondents (66.10%) agreed or strongly agreed that their healthcare providers would provide information about an advertised medicine upon their requests. Only 70 consumers (8.10%) believed that their healthcare provider would not avail such information to them.

In short, the finding from this variable (HC-3) was similar with the findings from variable HC-1, which showed that healthcare providers usually availed information about treatment options and about prescription medicines to consumers.

Table 5.12: Consumer Beliefs about Healthcare Providers Subsequent Behaviours (HC-3)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Factor loading
Q.14 '*My healthcare provider will* ***prescribe*** *the advertised drug that I request*'.						
43 (5.0%)	192 (22.20%)	408 (47.30%)	195 (22.60%)	25 (2.90%)	3.04	0.82
Q.15 '*My healthcare provider will* ***provide information*** *about an advertised drug upon request*'.						
113 (13.10%)	468 (54.30%)	212 (24.60%)	64 (7.40%)	6 (0.70%)	3.71	0.48

After the scores of Questions 11 and 12 were reversed in order to make sure that all question items that measured consumer attitudes related to healthcare providers and their information were in the same direction, factor loading weighted average mean of each variable or each attitude dimension was estimated. The higher mean scores indicated higher positive attitudes. The findings illustrate that consumers generally hold positive attitudes towards their healthcare provider and the information they obtained from this source (Table 5.13; p.169).

Finally, Table 5.13 (p.169) summarises the variable descriptions, the question items measuring each variable, the factor-loading weighted average means, and the total standard deviations of four attitude variables within the first group of consumer attitudes towards DTCA (HC-1, HC-2, HC-3, and HC-4).

5.5.4 Consumer Attitudes related to Alternative Medical Information Sources and their Effects

This section presents the findings on the second group of consumer attitudes towards DTCA relating to alternative medical information sources and their effects. These attitudes consist of four variables within the present theoretical framework (Chapter 3: section 3.6.2; p.84) as follows:

a) Consumer beliefs about medical information from alternative sources (AS-4), which were presented in section 5.5.2 (p.160);

b) Consumer beliefs about the positive effects of DTCA (AS-1);

c) Consumer beliefs about the negative effects of DTCA (AS-2); and

d) Consumer feelings about general advertising (AS-3).

Variable Description	*Items*	*Factor Loading Weighted Average Mean*	*Standard Deviation*
Attitudes related to traditional HC Providers and their Information			
Attitudes towards HC providers (HC-1)	Q. 6, 7, 8,9,10	3.36	0.76
Attitudes towards HC providers-patient relationship (HC-2)	Q. 11, 12	3.37	0.78
Beliefs about HC provider subsequent behaviours (HC-3)	Q. 14, 15	3.24	0.66
Beliefs about information from HC providers (HC-4)	Q. 39a, 39b	4.34	0.59

Table 5.13: Variable Description, Item Number, Factor Loading Weighted Average Mean, and Standard Deviation of Consumer Attitudes related to Traditional Healthcare Professionals

- ***Consumer Beliefs about the Positive Effects of DTCA (AS-1)***

The variable AS-1 contained eleven items, which were related to the possible benefits of DTCA to consumers and the general public (Table 5.14; p.173-4). The responses, mean values and factor loadings of these eleven items onto the variable AS-1 were also provided. The finding revealed that 37.8% of respondents believe that prescription drug advertising would contain the important information that patients needed to know about the prescription drug. However, 38.90% of the respondents did not agree on this issue.

Furthermore, consumers were asked how much they believed the educational properties of DTCA. The findings show that consumers found information from DTCA of prescription medicines useful and informative. Almost half of the respondents (47.40%) said that DTCA could educate them or provide valuable information about risks and benefits of prescription medicines. The findings also indicate that the group of consumers who saw DTCA as a valuable source of information about risks and benefits of prescription medicines was almost two times greater than those who did not see DTCA as a good medical information source. However, it should be noted that even though the results of the study suggest that most consumers view DTCA as a valuable source of information about the potential side effects of prescription medicines, this information was not necessarily successfully communicated to those consumers.

When consumer beliefs about the potential effect of DTCA were assessed, almost half of the respondents (47.60%) thought that prescription drug advertising would guide them to ask healthcare providers questions about their illnesses that they had not previously talked about. Alternatively, nearly a quarter of the respondents (23.70%) thought that DTCA would not have this benefit. Further, over 45% of the respondents said that prescription drug advertising would assist them in having discussions with healthcare providers about their health and only 25% disagreed with this notion.

Similarly, another finding regarding consumer beliefs about the positive effects of DTCA indicated that 42% of respondents believe that prescription drug advertising would increase the chances of consumers receiving early diagnosis and treatment. Conversely, around 25% thought that DTCA would not increase their chances. This finding showed that the largest grouping of respondents were those that held positive beliefs about the possible benefits of DTCA, which parallel with previous findings in this section.

Eight hundred and fifty-six consumers rated their opinions on the question concerning the relationship between DTCA and the quality of pharmaceutical products. Nearly half of the consumers (42.70%) indicated that, in their opinion, the quality of pharmaceutical products would not be enhanced by prescription drug advertising. However, one in four consumers (26.30%) believes that DTCA does have this ability. According to the findings, the question regarding DTCA and the quality of pharmaceutical products had the lowest mean score within the variable AS-1. Additionally, the largest grouping of respondents (39.30%) agreed or strongly agreed that prescription drug advertising would allow consumers to be involved in their health care.

Interestingly, when consumers were asked to assess their beliefs about competition amongst pharmaceutical companies that DTCA would induce, nearly half of the respondents (45.70%) believed that competition amongst pharmaceutical companies would increase as a result of DTCA, and then lead to lower prices for medicines. On the contrary, 27.40% believed that this would not happen. Further, only one in four consumers (25.80%) thought that DTCA of prescription medicines would promote healthcare provider-patient relationship whilst 37.20% of respondents reported that DTCA would not assist them to create a positive relationship with their healthcare providers.

When the performance of DTCA was assessed, most respondents (72.60%) believed that prescription drug advertising would make consumers aware of new drugs. Within this number, 12.50% of respondents held a strong belief that

DTCA would provide this benefit. Only 9% disagreed. Regarding consumer opinion on whether DTCA would assist them to make better decisions about their health, the respondents was equally divided.

In conclusion, proponents of DTCA argue that prescription drug advertising can improve public health by encouraging consumers to be aware of health conditions and potential treatment options, and by providing knowledge that consumers might not have. Generally, the findings from this section illustrate that the majority of respondents support this argument and around half of consumers held an overall positive attitude towards DTCA. They also believed that DTCA would provide various benefits to them and the public.

Moreover, consumers seemed to believe that prescription drug advertising could:

- raise awareness of new drugs, early diagnosis and treatment options, and health problems;
- educate people or provide valuable medical information to consumers;
- guide and assist consumers to ask healthcare providers about medical conditions that they have not talked about before; and
- increase competition amongst pharmaceutical companies, leading to lower prices of prescription drugs.

However, the findings showed that consumers did not believe that DTCA would enhance the quality of pharmaceutical products and assist in creating a positive relationship between healthcare providers and patients.

Table 5.14: Consumer Beliefs about the Positive Effects of DTCA (AS-1)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Factor loading
Q.17 '*Prescription drug advertising will contain the important information that a patient needs to know about the drug*'.						
72 (8.30%)	255 (29.50%)	200 (23.10%)	242 (28.0%)	94 (10.90%)	2.96	0.47
Q.18 '*Prescription drug advertising can educate people or provide valuable information to consumers about the risks and benefits of prescription medicines*'.						
80 (9.30%)	329 (38.10%)	214 (24.70%)	178 (20.60%)	62 (7.20%)	3.22	0.53
Q.19 '*Prescription drug advertising will guide me to ask a healthcare provider about my medical condition or illness that I have not talked to them before about*'.						
53 (6.10%)	358 (41.50%)	248 (28.70%)	167 (19.40%)	37 (4.30%)	3.26	0.61
Q.20 '*Prescription drug advertising will help me to have discussions with a healthcare provider about my health*'.						
52 (6.0%)	343 (39.70%)	257 (29.70%)	174 (20.20%)	37 (4.30%)	3.23	0.63
Q.22 '*Prescription drug advertising will increase the chances for consumers to seek early diagnosis and treatment*'.						
54 (6.30%)	310 (35.90%)	290 (33.50%)	168 (19.50%)	41 (4.80%)	3.20	0.62

Table 5.14: (Continued) Consumer Beliefs about the Positive Effects of DTCA (AS-1)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Factor loading
Q.26 '*Prescription drug advertising will enhance the quality of pharmaceutical products*'.						
32 (3.70%)	195 (22.60%)	268 (30.90%)	281 (32.60%)	87 (10.10%)	2.77	0.69
Q.27 '*Prescription drug advertising will allow consumers to be involved in their health care*'						
39 (4.50%)	300 (34.80%)	281 (32.50%)	189 (21.90%)	54 (6.30%)	3.09	0.73
Q.28 '*Prescription drug advertising will increase competition amongst pharmaceutical companies and then lead to lower prices for prescription drugs*'.						
92 (10.70%)	302 (35.0%)	233 (27.0%)	163 (18.90%)	73 (8.50%)	3.21	0.63
Q.31 '*Prescription drug advertising will help create a positive relationship between healthcare providers and patients*'.						
26 (3.0%)	197 (22.80%)	319 (36.90%)	257 (29.80%)	64 (7.4%)	2.84	0.52
Q.32 '*Prescription drug advertising will help make consumers aware of new drugs*'.						
108 (12.50%)	529 (60.10%)	145 (16.80%)	59 (6.80%)	22 (2.50%)	3.74	0.46
Q.33 '*Prescription drug advertising will help me to make better decisions about my own health*'.						
34 (3.90%)	242 (28.0%)	293 (33.90%)	219 (25.40%)	75 (8.70%)	2.93	0.58

- ***Consumer Beliefs about the Negative Effects of DTCA (AS-2)***

The variable AS-2 assessed the degree of consumer belief about the possible negative effects of DTCA. It was measured by four question items. Table 5.15 (p.176) summarises consumer responses, average values, and factor loadings of questions that measured consumer beliefs about the possible negative effects of DTCA (AS-2). The first question asked consumers to rate their level of agreement with the statement regarding misleading information from DTCA. A higher score means that there is a higher level of agreement. Significantly, nearly half of the respondents (48.30%) believed that DTCA of prescription medicines would confuse or misinform them about an appropriate treatment whilst only 18.30% thought that this would not happen.

Furthermore, the majority of consumers (62%) believe that DTCA would provide only superficial information and then lead them to a wrong conclusion about prescription medicines. On the contrary, approximately 12% of respondents thought that DTCA would not have this negative effect. In addition, nearly half of the respondents (46.4%) hold a belief or a strong belief that DTCA would lead them to improper treatments or over use of medicines, and 24% had the opposite view. These findings are also consistent with the findings from the last question for assessing consumer beliefs regarding the possible negative effects of DTCA (AS-2), which was about the quantity of information from DTCA.

Approximately two-thirds of the respondents (66%) believe that DTCA would not give enough information about the possible risks and negative effects of using a drug. When compared with the number of those who strongly believe that DTCA would provide such information, the difference is considerable. That is, the number of consumers who strongly believe that prescription drug advertising would not give enough information is twelve times greater than those who strongly do not believe in this.

Table 5.15: Consumer Beliefs about the Negative Effects of DTCA (AS-2)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Factor loading
Q.23 '*Prescription drug advertising will confuse or misinform consumers about an appropriate treatment*'						
112 (13.0%)	301 (34.90%)	292 (32.90%)	148 (17.10%)	10 (1.20%)	3.42	0.70
Q.24 '*Prescription drug advertising will provide only a superficial level of information that leads consumers to conclude that they need a particular medicine*'						
187 (21.70%)	348 (40.30%)	229 (26.50%)	91 (10.50%)	8 (0.90%)	3.71	0.75
Q.25 '*Prescription drug advertising will lead to inappropriate treatments or over medication*'						
115 (13.30%)	281 (32.60%)	260 (30.20%)	197 (22.80%)	10 (1.20%)	3.34	0.69
Q.34 '*Prescription drug advertising will not give enough information about the possible risks and negative effects of using a drug*'						
228 (26.40%)	346 (40.0%)	178 (20.60%)	92 (10.70%)	19 (2.20%)	3.78	0.55

In summary, a number of consumers hold positive beliefs about the potential effects of DTCA, such as the fact that DTCA can improve public health by encouraging consumers to be aware of health conditions and potential treatment options and by providing knowledge that consumers might not have. However, the majority of respondents believe that DTCA would create many negative outcomes for consumers and the public, such as, encouraging inappropriate treatments, providing only superficial information, and hiding the potential risks or negative effects of advertised medicines.

- ***Consumer Feelings about General Advertising (AS-3)***

Questions 29 and 30 assessed the variable AS-3 (Table 5.16; p.178). Around one-third of the respondents (35.30%) said that they enjoy viewing print advertisements or are interested to read about drugs through advertising (33.20%). Furthermore, the findings regarding consumer feelings about general advertising revealed that the group of consumers, who agreed, disagreed or felt neutral about those two questions, were equally divided and around 33% of consumers were in each category.

After reversing the scores of Questions 23, 24, 25 and 34 in order to make sure that all question items that measured consumer attitudes related to alternative medical information sources and their effects were in the same direction, the factor loading weighted average values of four attitudes dimensions were calculated. The higher mean scores indicated higher positive attitudes. These values will be utilised for testing propositions in the subsequent analysis.

Table 5.16 (p.178) summarises the mean scores and factor loadings of Questions 29 and 30 representing the variable AS-3. In addition, Table 5.17 (p.179) concludes the variable descriptions, the question items measuring the

Table 5.16: Consumer Feelings about General Advertising (AS-3)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Factor loading
Q.29 '*I enjoy viewing print advertisements when I read magazines*'						
40 (4.60%)	265 (30.70%)	267 (30.90%)	192 (22.20%)	99 (11.50%)	2.95	0.78
Q.30 '*I find it interesting to read about drugs that are available to me through advertising*'						
26 (3.0%)	261 (30.20%)	284 (32.90%)	228 (26.40%)	64 (7.40%)	2.95	0.75

Variable Description	*Items*	*Factor Loading Weighted Average Mean*	*Standard Deviation*
Attitudes related to Alternative Medical Information Sources and their Effects			
Beliefs about the positive effects of DTCA (AS-1)	Q. 17,18,19,20,22,26,27, 28,31,32,33	3.12	0.66
Beliefs about the negative effects of DTCA (AS-2)	Q. 23,24,25,34	2.45	0.73
Feeling about general advertising (AS-3)	Q. 29, 30	2.95	0.93
Beliefs about information from alternative sources (AS-4)	Q. 39c, 39d	3.01	0.87

Table 5.17: Variable Description, Item Number, Factor Loading Weighted Average Mean, and Standard Deviation of Consumer Attitudes related to Alternative Medical Information Sources and their Effects

variables, the factor-loading weighted average means, and the total standard deviations of the four attitude dimensions within the second group of consumer attitudes towards DTCA (AS-1, AS-2, AS-3, and AS-4), which related to alternative medical information sources and their effects.

In conclusion, the findings from the data analysis in this section were utilised to answer Research Question 1 in Chapter 1: section 1.4 (p.8). In general, it showed that consumers hold positive attitudes towards DTCA of prescription medicines. These findings support the results of the U.S. FDA survey (U.S. FDA 2000), which indicated that consumers reported a generally positive attitude towards DTCA, particularly, in comparison to physicians. Moreover, it confirms the results from studies of Reid and Soley (1982), Perri and Nelson (1987), AAMI (2002), and Henry J. Kaiser Family Foundation (2001) which found that, in general, consumers held positive attitudes towards drug advertising. However, whilst the majority of consumers believe that DTCA has the potential to provide a number of positive outcomes, they had expressed their concerns about the quality and reliability of information from this source. Furthermore, they still believe that DTCA would also create a number of negative effects on the general public, such as, encouraging inappropriate treatments, providing only superficial information, and hiding the potential risks and negative effects of advertised medicines.

In regard to the level of consumer support for DTCA, the findings show no evidence that Australian health consumers need or want information directly from drug advertising.

5.6 Proposition-test Results

This section presents the findings from propositions testing as they related to four research questions in Chapter 1: section 1.4 (p.8), and describes the procedures utilised in analysing the data.

5.6.1 Proposition 1

P.1: *Consumer attitudes towards DTCA will differ amongst three different groups of consumers. Consumers who receive health services from alternative therapists will have a higher level of DTCA support than those who utilise services from physicians and pharmacists.*

- ***Purpose of one-way Analysis of Variance (ANOVA) with Post-hoc Tests***

One of the research questions in the present study involved a comparison of the three consumer groups on the attitudes towards DTCA and their levels of DTCA support. When researchers have a variable that can be divided between more than two groups, for instance, occupation and education, and they are interested in the differences amongst the sets of groups, they are dealing with different combinations of pairs of means. Instead of using a comparison of two groups, such as t-tests, researchers can examine the differences amongst more than two groups through an analysis that considers the variation across all groups at once as the *one-way Analysis of Variance (one-way ANOVA)*.

The use of ANOVA is based upon the null hypothesis, such as three population means are equal, and the assumption that all groups are drawn from the same population. A one-way ANOVA means that there is only one independent variable, which is nominal, such as consumer groups in the present study, and the dependent variable has to be continuous. Moreover, ANOVA holds the assumptions that: a) the dependent variable should be normally distributed; b) the groups should be mutually exclusive or independent of each other; and c) the groups should have equal variances (Hair et al 1998).

When ANOVA is performed, a significant F statistical test indicates that one can reject the null hypothesis which states that the population means are equal.

However, a significant F test does not illustrate which groups are different. Therefore, post-hoc analysis should be conducted in order to determine where the differences are between the groups. The post-hoc tests are designed to protect against type I errors, given that all the possible comparisons will be made. Unlike planned comparison, the post-hoc tests are tougher than planned comparison. Therefore, it is harder to obtain significance (Pallant 2001). Even though a number of post-hoc analyses are available, the Scheffe tests were performed in the present study because they allow every possible comparison between the three consumer groups.

The data for testing Proposition 1 did not violate the assumptions of ANOVA. Therefore, one-way ANOVA was utilised to answer the research question and to test the first proposition.

A one-way analysis of variance between groups was conducted to explore the impact of grouping on consumer attitudes towards DTCA. Respondents were divided into three groups according to the type of their healthcare provider's business (Group 1: consumers from doctor clinics; Group 2: consumers from chemists; and Group 3: consumers from alternative therapist clinics). In interpreting the ANOVA outputs, Levene's test for homogeneity of variances was performed to ensure that the homogeneity assumption has not been violated. If Levene's test is not significant ($p > 0.05$) then one can be confident that the population variances for each consumer group are approximately equal. However, the ANOVA test has been shown to be fairly robust, which means that even if one does not rigidly adhere to the assumptions, the results may still be close to the reality (Munro 1997).

Table 5.18 (p.184) illustrates the result from Levene's statistical test. The variances of the scores for each attitude dimension (HC-1, HC-2, HC-3, AS-1, AS-2, AS-3 and AS-4) and the level of DTCA consumer support (B 35), except for the variable AS-4, were homogeneous.

In the case of the variable AS-4, there was a significance of Levene's test ($p < 0.05$) found, and thus any interpretation of the output has to be undertaken with caution. However, when the sample size is large, violations of the assumption of homogeneity of variance do not affect or slightly affect the validity of the ANOVA test (Weinberg and Abramowitz 2002). Also, since only one of the eight attitude dimensions was affected, the data was still appropriate to proceed with the ANOVA (Coakes and Steed 2003).

Table 5.19 (p.186) summarises ANOVA results including variable descriptions, F values, and outputs from Scheffe tests used to analyse the dimensions within consumer attitudes towards DTCA of the three consumer groups. The ANOVA results used to analyse the differences of dimensions within consumer attitudes towards DTCA (Table 5.19; p.186) illustrated that there were statistically significant differences at the $p < 0.05$ level in four attitude dimensions: HC-1, HC-3, HC-4 and AS-4 amongst the three consumer groups. The ANOVA analysis also determined that there was no significant difference between the different groups for four attitude dimensions: HC-2, AS-1, AS-2, and AS-3.

In addition, for the first attitude dimension (HC-1), which had a significant F-value at $p \leq 0.001$, the post-hoc comparisons utilising the Scheffe tests indicated that the mean score for Group 1 was significantly different from Group 2 and Group 3. However, Group 2 did not differ significantly from Group 3. The mean score of HC-1 was based upon five questions for assessing consumer attitudes towards healthcare providers. The higher the score, the more positive the attitude. Consumers from alternative therapist clinics and chemists had higher mean scores than consumers from doctor clinics. In other words, it could be concluded that consumers who received health services from alternative therapists and pharmacists held more positive attitudes towards healthcare providers than those who utilised services from physicians.

Table 5.18: Levene's Test for Homogeneity of Variances

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
HC_1	.899	2	860	.407
HC_2	.088	2	860	.916
HC_3	1.653	2	860	.192
HC_4	2.152	2	860	.117
AS_1	1.312	2	860	.270
AS_2	.053	2	860	.948
AS_3	.675	2	860	.510
AS_4	10.401	2	860	.000
B35	1.777	2	860	.170

For the variable HC-3, the Scheffe tests demonstrated that there were statistically significant differences at the $p \leq 0.05$ level for the three consumer groups. The mean score for Group 1 was significantly different from Group 2 and Group 3. However, Group 2 did not differ significantly from Group 3. The variable HC-3 concerned consumer beliefs about the subsequent behaviour of healthcare providers after they received a request from a consumer. A higher score represents a stronger belief that healthcare providers would act in the way that the consumer would want.

Consumers from doctor clinics (Group 1) had the highest mean score amongst the three consumer groups, and thus this means that consumers from doctor clinics hold a stronger belief that their healthcare providers would prescribe an advertised drug or provide information about a particular medicine upon their request, than those from chemists (Group 2) or alternative therapist clinics (Group 3). Analysis of the variable HC-4 showed that the mean value of consumer responses from doctor clinics (Group 1) differed significantly at $p \leq 0.001$ level from the responses of consumers from alternative therapist clinics (Group 3). The higher score illustrated that consumers gave more credibility to medical information from physicians and pharmacists. Consumers from alternative therapist clinics had a higher mean score than consumers from doctor clinics. Therefore, it could be interpreted that consumers from alternative therapist clinics gave more credibility to medical information from physicians and pharmacists than consumers from doctor clinics.

For the variable AS-4, the results from ANOVA and Scheffe tests showed that there were statistically significant differences at $p \leq 0.001$ level and the mean score for Group 1 was significantly different from those of Group 2 and Group 3. However, there was no significant difference between Group 2 and Group 3. The higher score illustrated that consumers gave more credibility to medical information from alternative therapists and drug advertising. Consumers from doctor clinics had a higher mean score than consumers from chemists and

Table 5.19: ANOVA Results for Attitude Dimensions Analysis between the Three Consumer Groups

Variable Description	F value	Differences Between the Groups (Scheffe tests)
Attitudes related to HC providers and their information		
Attitudes towards HC providers (HC-1)	8.704 ***	1 & 2 ** 1 & 3 ***
Attitudes towards HC provider-patient relationship (HC-2)	0.746	NS
Beliefs about HC provider subsequent behaviours (HC-3)	4.453 *	1 & 2 * 1 & 3 *
Beliefs about medical information from HC providers (HC-4)	0.746 ***	1 & 3 ***
Attitudes related to alternative medical information sources and their effects		
Beliefs about the positive effects of DTCA (AS-1)	0.741	NS
Beliefs about the negative effects of DTCA (AS-2)	0.997	NS
Feelings about general advertising (AS-3)	1.517	NS
Beliefs about medical information from alternative sources (AS-4)	26.86 ***	1 & 2 *** 1 & 3 ***

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

1 = Doctor Clinics, 2 = Chemists, 3 = Alternative Therapist Clinics

NS = No Significant Difference

Table 5.20: ANOVA Result for DTCA Consumer Support Analysis between the Three Consumer Groups

Variable Description	F value	Differences Between the Groups (Scheffe tests)
The Level of DTCA Consumer Support		
Q. 35 '*Australia should allow advertising of prescription drugs directly to the public*'	0.902	NS

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

1 = Doctor Clinics, 2 = Chemists, 3 = Alternative Therapist Clinics

NS = No Significant Difference

alternative therapist clinics. As a result, it could be concluded that consumers from doctor clinics gave more credibility to medical information from alternative therapists and drug advertising than those from chemists and alternative therapist clinics.

Furthermore, an examination of the Levene's test for homogeneity of variances, which assessed the level of DTCA consumer support (B 35), suggested that the ANOVA's assumption had not been violated (Table 5.18; p. 184). Therefore, interpretation of the ANOVA could proceed. Table 5.20 (p.187) illustrates ANOVA result for analysis of the level of consumer support for DTCA. It had been shown that the F value was 0.902 and the P value was greater than 0.05, suggesting that there was no significant difference between the three consumer groups regarding the level of DTCA support.

In summary, when formulating Research Question 2 (Chapter 1: section 1.4; p.8) and Proposition 1 (Chapter 3: section 3.7; p.90), it was expected that consumers would hold positive attitudes towards medical information from healthcare providers and alternative sources. In addition, it was assumed that consumers who visited alternative healthcare practitioners would have a more positive attitude towards DTCA and would be more likely to support the legalisation of DTCA in Australia than those who visited non-alternative healthcare professionals. However, the findings only suggested that there were significant differences between groups of consumers in regard to consumer attitudes towards DTCA of prescription medicines in four dimensions: HC-1, HC-3, HC-4 and AS-4. It also suggested that the groups of consumers did not affect the level of consumer support for DTCA or consumer opinions on whether DTCA should be permitted. In other words, the findings illustrated that there was no significant difference between the levels of DTCA consumer support from the three different consumer groups.

5.6.2 Proposition 2

P.2: *There are significant positive relationships between dimensions of consumer attitudes towards DTCA, the level of DTCA consumer support, and consumer intentions regarding advertised medicines.*

- ***Purpose of Pearson Product-moment Correlation Coefficient***

The most widely used technique in bivariate data analysis is *Pearson Product-moment Correlation Coefficient* (Coakes and Steed 2003). Theoretically, there are two main correlations between the two variables. The correlation can be either positive (+) or negative (-). A positive correlation between two variables means that the two variables consistently change in the same direction or when the value of one variable increases, it will be accompanied by an increase in the value of the other. By contrast, a negative correlation between two variables exists when the value of one variable is changing, and the value of the other is also changing but in the opposite direction. This correlation coefficient has a range of possible values from -1 to +1. The value indicates the strength of the relationship, whilst the sign (+ or -) indicates the direction.

To interpret results, the size of the absolute value provides an indication of the strength of the relationship. Within an applied psychology framework, specific criteria for categorising the magnitude of correlation as strong, moderate and weak are suggested by Cohen (1988): r = 0.29 or below are considered weak; r = 0.3 to 0.49 are considered moderate; and r = 0.50 or above are considered strong. According to Munro (1997), the correlation technique, such as Pearson product-moment correlation coefficient, is commonly used in exploratory studies, in which the researcher's intention is to determine whether any relationships exist, and in proposition testing studies in which researchers would like to test a proposition in relation to a specific relationship.

Due to the exploratory nature of the present study and the usefulness of the Pearson product-moment correlation coefficient, which were discussed above, this technique was employed to test the relationships amongst each dimension of consumer attitudes towards DTCA, the level of DTCA consumer support, and consumer intentions regarding advertised medicines (Proposition 2). By adopting this statistical technique, it was possible to determine whether the relationships between these variables existed or not. If they existed, it was possible to determine which attitude dimensions were important or had a strong correlation with consumer opinions on whether DTCA should be allowed. Therefore, potential targets could be defined and the communication campaigns could be designed to encourage public interest.

The descriptive analysis results of each attitude dimension towards DTCA, the level of DTCA support, and consumer intention regarding advertised medicines were presented in sections 5.4 (p.151) and 5.5 (p.156). Table 5.21 (p.193) illustrates Pearson product-moment correlation coefficient results for an analysis of Proposition 2. To interpret the correlation coefficient, one has to examine the coefficient and its associated significance value (p value). Further, given that a directional proposition was stated, a one-tailed probability test was appropriate. For analysis the relationships between each attitude dimension and the level of DTCA support, consumers were asked to rate their opinions on Questions 16 and 35 and the values of each attitude dimensions were calculated based upon consumer responses and factor loading values of items within each dimension.

The results revealed that there were significant positive relationships at $p < 0.01$ (**) and $p < 0.05$ (*) level between consumer opinion about advertising of legal medicines and attitude dimensions: HC-1**, HC-2**, HC-3*, AS-1**, AS-2**, AS-3** and AS-4**. These findings indicated that if consumers held positive attitudes towards information from healthcare professionals or alternative sources, they would support the advertisement of legal medicines. This was especially true if consumers had positive beliefs about the possible benefits (AS-1) and potential risks of DTCA (AS-2).

Moreover, the relationships between consumers' support for DTCA, which was measured by asking consumers to answer Question 35: '*Australia should allow advertising of prescription drugs directly to the general public*', and various attitude dimensions also existed. Six attitude dimensions had significant relationships with the level of consumer support for DTCA at $p < 0.01$ level (HC-2, HC-3, AS-1, AS-2, AS-3, and AS-4). Additionally, within these variables, variable AS-1 illustrated a strong relationship ($r = 0.60$ at $p < 0.01$) and variables: AS-2 and AS-3 revealed moderate relationships ($r = 0.32$ at $p < 0.01$ and $r = 0.42$ at $p < 0.01$ respectively). These findings indicated that if consumers held positive attitudes towards DTCA, particularly, about the potential benefits (AS-1) or possible risks (AS-2) of DTCA or had good feelings about general advertising (AS-3), they were likely to support DTCA of prescription medicines to the public.

From the Pearson's correlation results (Table 5.21; p.193), only one attitude dimension, which was consumer beliefs about medical information from healthcare providers (HC-4), did not show any significant relationship with the level of consumer support for DTCA (Questions 16 and 35; Table 5.21; p.193). The results from Pearson's correlation also indicated that consumer intentions concerning advertised medicines (Questions 13 and 21) had significant relationships with seven attitude dimensions: HC-2, HC-3, HC-4, AS-1, AS-2, AS-3, and AS-4. In addition, the findings demonstrated a strong relationship ($r = 0.52$) between the variable HC-2 (consumer attitudes towards HC providers-patient relationship) and consumer intention to ask their healthcare providers about an advertised medicine (Question 13). This finding indicated that if consumers thought that their healthcare providers would be dissatisfied or the relationships between them and their healthcare providers would be weakened if they asked for a drug that was advertised, consumers would not talk to healthcare providers about those drugs because it seemed that they did not trust their healthcare providers.

Furthermore, a strong positive correlation between consumer intention to seek more information about a medicine that was induced by DTCA (Question 21) and variable AS-1 was also revealed ($r = 0.58$ at $p < 0.01$ level). This result indicated that if consumers held positive beliefs on possible benefits or potential risks of DTCA (AS-1; $r = 0.58$ at $p < 0.01$ and AS-2; $r = 0.26$ at $p < 0.01$ respectively), they would have an intention to look for more information related to a drug that might be appropriate for them. A similar finding was found by Mitra et al (1999) and Murray (1991). They demonstrated that there was a positive correlation between information search behaviours and consumer attitudes towards risks and benefits of an object. Additionally, the findings also indicated that variable HC-1 and HC-3 did not have any significant relationship with consumer intention to seek more information about a drug (Question 21; Table 5.21; p.193). In addition, five attitude dimensions: HC-2, HC-4, AS-2, AS-3 and AS-4 showed only weak positive relationships with this intention variable.

In conclusion, regarding the relationships between consumer attitudes towards DTCA (as measured by eight attitude dimensions) and a) the level of consumer support for DTCA; b) consumer intentions regarding advertised medicines, there were significant strong positive relationships ($r > 0.50$) between these variables as follows:

- Consumer attitudes towards healthcare provider-patient relationship (HC-2) and consumer intention to ask their healthcare provider about an advertised medicine;

- Consumer beliefs about the positive effects of DTCA (AS-1) and the levels of consumer support for both legal medicine advertising and DTCA; and

- Consumer beliefs about the positive effects of DTCA (AS-1) and consumer intention to seek more information about a drug that DTCA has informed them about.

Table 5.21: Pearson Product-moment Correlation Coefficients between Dimensions of Attitudes towards DTCA, Levels of DTCA Consumer Support, and Consumer Intentions related to Advertised Medicines

	DTCA Support		**Consumer Intention**	
	Q. 16	*Q. 35*	*Q. 13*	*Q. 21*
Attitudes towards HC providers (HC-1)	0.10 **	-0.04	0.05	0.03
Attitudes towards HC provider-patient relationship (HC-2)	0.08 **	0.10 **	0.52 **	0.10 **
Beliefs about HC provider subsequent behaviours (HC-3)	0.08 *	0.11 **	0.11 **	0.03
Beliefs about medical information from HC providers (HC-4)	0.03	0.00	0.11 **	0.10 **
Beliefs about the positive effects of DTCA (AS-1)	0.51 **	0.60 **	0.01	0.58 **
Beliefs about the negative effects of DTCA (AS-2)	0.34 **	0.32 **	0.16 **	0.26 **
Feelings about general advertising (AS-3)	0.24 **	0.42 **	0.07 *	0.27 **
Beliefs about medical information from alternative sources (AS-4)	0.16 **	0.23 **	0.03	0.21 **

* Correlation is significant at the $p \leq 0.05$ level (1-tailed).

** Correlation is significant at the $p \leq 0.01$ level (1-tailed).

In relation to attitudes and intentions, the present study found that consumer attitudes towards healthcare provider-patient relationship (HC-2) and consumer beliefs about the positive effects of DTCA (AS-1) were the two important dimensions of attitudes towards DTCA. These might be utilised to predict consumer intentions to seek more information and to ask healthcare providers about advertised medicines.

According to the TRA (Ajzen and Fishbein 1980) and the TPB (Ajzen 1988; 1985), there are significant relationships between consumer attitudes and intentions. The findings of this study also confirm these theoretical frameworks that one can predict consumer intentions regarding advertised medicines and the levels of consumer support for DTCA by utilising various dimensions of attitudes towards DTCA, especially, HC-2 and AS-1. These findings provided a valuable insight regarding the relationships between each attitude dimension and consumer intentions concerning DTCA, which have not been studied before. It also improved the understanding of consumer attitudes towards DTCA in Australia and has the potential to assist major interest groups to design an effective communication programme about prescription medicines in order to get consumer support or promote public health.

The findings from this proposition testing can be utilised to answer Research Question 4 in Chapter 1: section 1.4 (p.9). One of the main questions in the debate over DTCA of prescription medicines is whether DTCA increases the public's demand for information about advertised medicines. One way to address this question is to ask consumers what they will do as a result of DTCA. After reviewing the findings about consumer intentions in section 5.4 (p.151), it was found that DTCA would encourage consumers to seek more information about advertised medicines or about their health conditions. In addition, the largest grouping of the respondents thought that they would ask their healthcare providers about an advertised medicine and DTCA might stimulate them to seek more information about medicines that might be appropriate for them because

this behaviour would not affect the relationship between them and their healthcare providers.

These findings are also consistent with the results from a U.S. FDA survey (U.S. FDA 1999), which collected data from 1,000 consumers and found that drug advertising encouraged over half of the respondents to seek additional information about advertised drugs from a variety of sources. According to the model of consumer information acquisition and processing (Assael et al 1995), it can be implied that products perceived as high risk, such as prescription medicines, are more likely to result in a heightened information search. Furthermore, the Social Cognitive Theory (Bandura 1986) and the integrated model (Slater 1999), which are supported by the findings from this study, also pointed out that an external stimulus or an effective communication campaign, such as drug advertising, could encourage consumers or modify consumer behaviours by providing an example through mass media.

5.6.3 Proposition 3

P.3: *There is a significant positive relationship between consumer exposure to prescription drug advertising and the level of DTCA consumer support.*

- ***Purpose of Chi-square Test for Independence***

The Chi-square (χ^2) test for independence relies upon a comparison of item scores between two sample groups. It is the most commonly used of non-parametric statistic which measures the difference between what is observed and what might be expected. Moreover, the size of the Chi-square value increases when the difference between the expected number and the actual number increases (Munro 1997). Theoretically, the Chi-square test is employed in each case to assess the statistical significance of the related relations. If the Chi-square value obtained is less than a 95% level of significance, the null

hypothesis will be rejected. In rejecting the null hypothesis, it is accepted that there is some significant relationship between the two variables, and that they are not independent.

To examine the relationship between the degree of consumer exposure to prescription drug advertising and the level of DTCA consumer support (Proposition 3), Chi-square test for independence was utilised. Generally, the data, which can be analysed by Chi-square test, have to be measured on nominal (categorical) or ordinal (ranked) scales. Although the original data is an interval, it can be converted to a nominal variable (Munro 1997).

According to Munro (1997), the basic assumptions underlying the Chi-square test are: a) the individual observations are independent of each other; and b) the expected cell frequencies are not too small; each cell should have an expected frequency at least 5. In the present study, it was proposed that consumers who had recently been exposed to prescription drug advertising were more likely to support the legalisation of DTCA than those who had not been exposed to this type of drug advertising. Therefore, the independent variable was '*whether consumers had been exposed to prescription drug advertising*' and the dependent variable was '*consumer opinions about whether or not DTCA should be allowed*'.

The Chi-square test compares the frequency of cases found in the categories of dependent variable across the different categories of independent variable (Black 1999; Stevens 1992). Conceptually and theoretically, the dependent and independent variable within this proposition were believed to be related, and thus Chi-square (χ^2) test for independence was the analysis of choice for testing Proposition 3. To analyse the relationship between consumer exposure to prescription drug advertising and the level of consumer support for DTCA, the data were categorised and checked to ensure that they met the assumptions of Chi-square test.

Table 5.22: Chi-square Test Result for Analysis of the Relationship between Consumer Exposure to Prescription Drug Advertising and the Level of DTCA Consumer Support

Recent Exposure to Prescription Drug Advertising	**DTCA Consumer Support** *'Australia Should Allow DTCA'*			χ^2
	Support	***Neutral***	***Against***	
Exposed *(N = 225)*	95 (42.22%)	59 (26.22%)	71 (31.55%)	13.747 [a] ***
Not exposed *(N = 323)*	94 (29.10%)	80 (24.76%)	149 (46.13%)	

χ^2 = Pearson Chi-square Value

[a] 0 cells (0.0%) have an expected count at less than 5. The minimum expected count is 57.07.

*** Correlation is significant at $p \leq 0.001$ level (2-sided).

According to the SPSS output, the minimum expected count for one cell was 57.07 (Table 5.22, p.197), and thus it showed that the sample size was adequate for testing Proposition 3.

In addition, the categories for independent and dependent variables were created and designed to ensure that they were mutually exclusive. No answer could be in more than one cell in the design and no answer could be utilised more than once. This means that the answer of one consumer could not influence the answer of another. Finally, the variables in this proposition were created and defined according to the theoretical framework as described in Chapter 3: section 3.6.2 (p.84). Therefore, there were theoretical reasons for creating these categories. As a result, the data met all underlying assumptions of the Chi-square technique and it was appropriate to proceed with the Chi-square test.

Table 5.22 (p.197) revealed that the Chi-square value in this case was 13.747 at the level of $p \leq 0.001$. This means that the proportion of consumers who had recently been exposed to prescription drug advertising and supported DTCA was significantly different to the proportion of consumers who had not been exposed to those advertisements and thought that DTCA should be allowed.

In short, the result from Chi-square analysis for testing Proposition 3 indicated that there was a significant positive relationship between consumer exposure to prescription drug advertising and the level of consumer support for DTCA, which was measured by consumer opinion on whether Australia should allow DTCA to the general public. Therefore, Proposition 3 was supported. Additionally, the finding illustrated that consumers who had seen or heard about prescription drug advertising within the last three months were more likely to support the legalisation of DTCA than those who had not been exposed to this type of drug advertising. In other words, it could be interpreted that consumers who had not recently been exposed to prescription drug advertising tended to oppose the legalisation of DTCA and would think that Australia should ban prescription drug advertising to the public.

Furthermore, the findings from this proposition testing validate the relationship between advertising and consumer cognitive response within the Social Cognitive Theory (Bandura 1986) in that an external stimulus, such as drug advertising, can encourage consumers to perform a favoured behaviour. These findings also verify the framework of Stage-of-Change Model (Prochaska 1979) in that health messages can affect the individual's decision-making process. Thus, consumers, who have recently been exposed to an advertisement with a high level of awareness, are more likely to support that advertisement.

5.6.4 Proposition 4

> **P.4**: *There is a significant relationship between the level of consumer prior knowledge about current drug regulation and prescription drug advertising and the level of DTCA consumer support.*

In order to investigate whether or not there was a significant relationship between the level of consumer knowledge on the topic of current drug regulation and prescription drug advertising and consumer opinion on whether DTCA should be allowed to the general public (Proposition 4), the total consumer knowledge scores (scale from 0 to 5) were transformed to nominal scales (0 = low knowledge and 1 = high knowledge). These knowledge scores were calculated based upon the correct answers to five question items (Questions 1 to 5; Appendix 2). Consumers who had a total knowledge score of at least three from five questions (at least 60% correct) were categorised as having high knowledge, and consumers who obtained a score of zero, one, or two, were classified as having low knowledge. As a result, these transformed data can be utilised to test the relationship within Proposition 4 by employing the Chi-square technique.

To analyse the relationship between consumer knowledge regarding drug regulation and prescription drug advertising and the level of consumer support for DTCA, which might reflect consumer external information needs, two variables were measured and transformed to nominal data. One was a level of consumer knowledge: *low* and *high.* Another was consumer opinion on whether DTCA should be allowed to the general public: *support*, *neutral,* and *against.* Table 5.23 (p.201) demonstrated that the assumption regarding adequate sample size was met because the minimum expected count for the present study was 99.52. The result also indicated that there was a significant relationship between consumer prior knowledge about drug regulation and prescription drug advertising and the level of consumer support for DTCA.

In this proposition, Pearson's Chi-square had a value of 65.094 with a significance value of $p \leq 0.001$, which was far below the alpha level of 0.05. Therefore, it could be concluded that the proportion of consumers with high knowledge about drug regulation and prescription drug advertising who supported the legalisation of DTCA in Australia was significantly different to the proportion of consumers who had low knowledge and supported DTCA of prescription medicines. Interestingly, the result also showed that whilst high knowledge consumers tended to be against DTCA, low knowledge consumers were more likely to support DTCA and agreed that Australia should allow advertising of prescription medicines directly to the general public.

From the test result of Proposition 4 (Table 5.23; p.201), it could be determined that '*consumer prior knowledge about drug regulation and prescription drug advertising*', and '*consumer opinions on whether Australia should allow DTCA to the general public*' were related to each other. Furthermore, it was found that if consumers had high knowledge, they would not support DTCA.

Table 5.23: Chi-square Test Result for Analysis of the Relationship between Consumer Knowledge about Drug Regulation and Prescription Drug Advertising and the Level of DTCA Consumer Support

Consumer Knowledge about Drug Regulation and Prescription Drug Advertising	**DTCA Consumer Support** *'Australia Should Allow DTCA'*			χ^2
	Support	***Neutral***	***Against***	
High Knowledge *(N = 352)*	90 (25.57%)	80 (22.72%)	182 (51.70%)	65.094 [a] ***
Low Knowledge *(N = 511)*	219 (42.86%)	164 (32.09%)	128 (25.05%)	

χ^2 = Pearson Chi-square Value

[a] 0 cells (0.0%) have an expected count at less than 5. The minimum expected count is 99.52.

*** Correlation is significant at $p \leq 0.001$ level (2-sided).

As a result, knowing consumers' level of knowledge regarding drug regulation and prescription drug advertising will be able to predict consumer opinions on whether DTCA should be allowed. From this finding, Proposition 4 was supported. The finding is consistent with previous studies, which proposed that there is a significant correlation between consumer knowledge about the object and the level of external information needs regarding that object (Brucks 1985; Johnson and Russo 1984; Kiel and Layton 1981; Moore and Lehmann 1980; Bettman and Park 1980; Anderson et al 1979; Miyake and Norman 1979).

Specifically, regarding consumer knowledge and drug advertising, the finding from this proposition testing is also consistent with the result from a study of Peyrot et al (1998) who conducted a random survey of 440 health consumers in the U.S. by looking at the effects of demographic factors and media exposure on consumer attitudes towards drug advertising. They concluded that consumers who reported better knowledge regarding the medicines would have more negative attitudes towards drug advertising than those who had lower knowledge. Consequently, consumers with high level of knowledge would not support drug advertising.

In summary, the findings from Propositions 3 and 4 can be utilised to answer Research Question 3 (Chapter 1: section 1.4, p.9). The two significant variables of consumer backgrounds and characteristics, which had an effect on the level of DTCA consumer support measured by assessing consumers' opinions regarding DTCA legalisation, were: 1) the previous experience of the consumer in relation to the level of exposure to prescription drugs advertising; and 2) consumer prior knowledge about drug regulation and prescription drugs advertising. The findings illustrated that consumers who had recently been exposed to prescription drug advertising were likely to support DTCA rather than those who had not seen or heard of this kind of drug promotion. Another finding of paramount significance was the negative relationship between consumer knowledge about drug regulation and prescription drug advertising,

and the level of DTCA support. Consumers who had high knowledge tended to oppose DTCA rather than consumers who had low knowledge, and thus they thought that DTCA should be banned in Australia.

Table 5.24 (p.204) summarises the major findings from the present study, which related to research problem, research questions, and propositions.

5.7 Conclusion

In this chapter, the findings of the present study and the results from propositions testing were presented and discussed. Specifically, consumer attitudes towards DTCA of prescription medicines were explored. The factors that had an effect on these attitudes were also examined. The findings illustrated that there were several significant relationships amongst dimensions within consumer attitudes towards DTCA, the level of consumer support for DTCA, and consumer intentions concerning advertised medicines. In the next chapter, the conclusion, implications, and limitations of the present study will be discussed. Moreover, Chapter 6 will provide a number of recommendations for future studies in the area of DTCA of prescription medicines in Australia.

Table 5.24: Summary of the Major Findings of the Study

- *53% of respondents did not know whether prescription drug advertising directly to consumers was banned or thought that DTCA was already allowed in Australia.*
- *A quarter of the respondents (25%) thought that DTCA of prescription medicines is legal in Australia, even though this is not true.*
- *Almost three quarters of the respondents (73.58%) had seen or heard about drug advertising.*
- *26.30% of respondents had already been exposed to prescription drug advertising to some degree, even though this type of drug promotion is prohibited in Australia.*
- *The common types of mass media, where respondents reported that they had seen or heard about drug advertising, was 'Television', 'Magazines', 'Radio' and 'Internet' respectively.*
- *Around 15% of respondents would not talk to their healthcare providers about an advertised medicine because it appeared that they did not trust their providers.*
- *57.20% of respondents thought that DTCA of prescription medicines would cause them to look for more information about a drug that might be appropriate for them. In other words, the finding suggested that DTCA would encourage consumers to seek more information about advertised medicines or about their health.*
- *The common sources of information for a prescription medicine for respondents besides healthcare professionals were 'Internet', 'Reference Books', 'Friends or Relatives' and 'Magazines or Print Media' respectively.*
- *44% of respondents agreed or strongly agreed with the statement 'if a drug is legal to sell, it should also be legal to advertise'.*

Table 5.24: (Continued) Summary of the Major Findings of the Study

• *Around one in three respondents (35.22%) thought that Australia should allow advertising of prescription medicines directly to the public; however, there was no evidence that consumers need or want medical information from DTCA.*
• *Respondents viewed 'Doctor' as the most trusted group of medical information sources. The second was 'Pharmacist' followed by 'Alternative Therapist' and 'Drug Advertising'.*
• *One out of four respondents (24.70%) pointed out that generally their healthcare providers did not explain to them about other prescription products that might be appropriate for them.*
• *42.70% of respondents thought that healthcare providers should not be the sole source of prescription drug information.*
• *Generally, respondents thought that their asking behaviours about advertised medicines would not have a negative effect on the healthcare provider-patient relationship.*
• *27.20% of respondents believed that their healthcare providers would prescribe an advertised medicine upon their request.*
• *Whilst respondents seemed to believe that prescription drug advertising could provide various benefits to general consumers and the public, such as a) raising awareness of new drugs, early diagnosis and treatment options; b) educating people; c) guiding consumers to ask healthcare providers about medical conditions that they have not talked about before; and d) increasing competition amongst drug companies, they still believed that DTCA would also create many negative outcomes, such as, a) encouraging inappropriate treatments; b) providing only superficial information; and c) hiding the potential risks or negative effects of advertised medicines.*

Table 5.24: (Continued) Summary of the Major Findings of the Study

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- *The findings suggested that there was no significant difference between groups of consumers (from doctor clinics, chemists and alternative therapist clinics) in regard to the level of consumer support for DTCA.*

- *There were significant strong positive correlations between dimensions within attitudes towards DTCA and consumer intention as follows:*

  a) consumer attitudes towards healthcare provider-patient relationship (HC-2) and consumer intention to ask their healthcare providers about an advertised medicine;

  b) consumer beliefs about the positive effects of DTCA (AS-1) and the level of DTCA consumer support; and

  c) Consumer beliefs about the positive effects of DTCA (AS-1) and consumer intention to seek more information about a drug that DTCA had informed them of.

- *Consumer exposure to prescription drug advertising and consumer prior knowledge about drug regulation and prescription drug advertising had a significant relationship with the level of consumer support for DTCA.*

- *Consumers who had recently been exposed to prescription drug advertising are more likely to support the legalisation of DTCA than those who had not seen or heard about this type of drug promotion.*

- *A negative relationship between consumer prior knowledge about drug regulation and prescription drug advertising and the level of DTCA consumer support was found. Consumers with high knowledge tended to oppose DTCA rather than consumers who had low knowledge regarding drug regulation and prescription drug advertising.*

Chapter 6

Conclusion, Implications, and Limitations

Chapter 5 presented the findings of the study in relation to the research questions in Chapter 1 and theoretical framework described in Chapter 3. This final chapter provides a summary of those findings as well as the final conclusion of the present study.

6.1 Introduction

This chapter illustrates the implications of the findings for theoretical, methodological, and practical aspects as well as implications for consumers, policy makers, healthcare providers, marketing managers, and advertisers. Additionally, this final chapter reveals the limitations of the study, which have been identified but have not been addressed due to time constraints and a limited budget. Chapter 6 also proceeds with recommendations for future research on the topic of consumer attitudes towards DTCA in Australia.

6.2 Research Conclusion

At the early stage of this exploratory study, an extensive literature review was conducted to engage with the concept and measurement of attitudes, the history and current situation of DTCA and the debate about prescription drug advertising. The scope of this literature review covered the marketing literature, the literature of pharmaceutical marketing, and the literature of consumer psychology. The literature review illustrated a basis of the design of the present study, for instance, the variable operationalisation, the unit of analysis, the research method as well as the theoretical framework. Within this theoretical framework, twelve research variables were created to form a scheme determining consumer attitudes towards medical information, particularly, from DTCA of prescription medicines. These twelve variables were as follows:

- Consumer attitudes towards healthcare providers;
- Consumer attitudes towards healthcare provider-patient relationship;
- Consumer beliefs about healthcare provider subsequent behaviour;
- Consumer beliefs about information from healthcare providers;
- Consumer beliefs about the positive effects of DTCA;
- Consumer beliefs about the negative effects of DTCA;
- Consumer feelings about general advertising;
- Consumer beliefs about information from alternative sources;
- Consumer support for DTCA;
- Consumer intentions regarding advertised medicines;
- Consumer DTCA knowledge; and
- Consumer exposure to prescription drug advertising.

These research variables were then operationalised in order to develop the questionnaire, which included 47 measurement items about consumer attitudes towards DTCA of prescription medicines. The questionnaire was distributed to health consumers at 25 healthcare businesses in the Melbourne metropolitan area. Finally, the usable data from 863 consumers was collected. Then, the data was entered into a computer and analysed by using SPSS version 11 software programme. An exploratory factor analysis was conducted to determine key dimensions of consumer attitudes towards DTCA. Based upon the results from the factor analysis, factor-loading weighted average values were computed and utilised in the analyses of descriptive and inferential statistics to determine the relationships of variables within the theoretical framework.

Generally, this exploratory study found that Australian consumers held positive attitudes towards medical information from alternative sources, such as DTCA of prescription medicines. Whilst the majority of consumers believed that DTCA would provide various benefits, they still thought that this type of drug advertising would also create a number of negative effects on them and the public, such as encouraging inappropriate treatments, providing only superficial

information, and hiding the potential risks or negative effects of advertised medicines. Furthermore, in regard to consumer opinions about the legalisation of DTCA in Australia, the group of respondents was divided almost equally: for and against DTCA. Therefore, there was no evidence that Australian health consumers need or want medical information from prescription drug advertising.

When consumers were asked to rate the credibility of medical information from four sources: physicians, pharmacists, alternative therapists, and drug advertising, the results illustrated that consumers view drug advertising as the lowest credible source. Furthermore, they believe that they usually get enough information about treatment options and what their drugs are used for from their healthcare providers. Moreover, consumers pointed out that their healthcare providers explain about the risks and side effects of medicines that they receive, or what medicines might be appropriate for them. In other words, generally, consumers have positive attitudes towards information from their healthcare providers regarding prescription medicines. However, almost half of the respondents expressed the view that healthcare providers should not be the sole source of prescription drug information. As a result, even though consumers believe that DTCA might provide unreliable information and they get enough information about treatment options and prescription medicines from their healthcare professionals, they still have positive attitudes towards information from DTCA and think that DTCA would generate various benefits to them.

Whilst the majority of consumers believe that DTCA would make them aware of new drugs, and prescription drug advertising could: a) educate people or provide valuable information to consumers; b) guide and assist consumers to ask healthcare providers about their medical conditions that they have not previously discussed; and c) increase competition amongst drug companies which would lead to lower prices for prescription medicines, nearly half of consumers do not believe that DTCA would enhance the quality of medicines

and promote a positive relationship between patients and their healthcare providers.

Regarding the differences of consumer attitudes towards DTCA between the three consumer groups, it was expected that consumers would hold positive attitudes towards medical information from healthcare providers and alternative sources. Also, it was assumed that consumers who visited alternative healthcare practitioners would have more positive attitudes towards DTCA, and be more likely to support the legalisation of DTCA in Australia than those who visited non-alternative healthcare professionals. However, the findings only indicated that there were significant differences of the four attitude dimensions (HC-1, HC-3, HC-4, and AS-4) amongst the three consumer groups, and there was no significant difference between the groups of consumers in regard to their opinions about the legalisation of DTCA in Australia.

Regarding the first attitude dimension: HC-1 (attitudes towards healthcare providers), the findings illustrated significant differences between the attitudes of consumers from doctor clinics and those of the other two consumer groups: chemists and alternative therapist clinics. There is evidence that consumers from doctor clinics have the lowest positive attitude towards their healthcare providers amongst three consumer groups.

Additionally, for the attitude dimension: HC-3 (beliefs about healthcare providers subsequent behaviours), the findings demonstrate significant differences of attitude scores between consumers from doctor clinics and: 1) consumers from chemists; and 2) consumers from alternative therapist clinics. Consumers from doctor clinics had the highest mean score amongst the three consumer groups, and thus it could be interpreted that they hold stronger beliefs that their doctors would prescribe an advertised medicine or provide information about a prescription drug upon request than those who came from chemists or alternative therapist clinics.

For the attitude dimensions: HC-4 and AS-4 (beliefs about medical information from healthcare providers and alternative sources). Significantly, the results illustrate that consumers from alternative therapist clinics give more credibility to information from physicians and pharmacists than those from doctor clinics. On the contrary, consumers from doctor clinics give more credibility to medical information from alternative sources, such as alternative therapists and drug advertising, than those from chemists and alternative therapist clinics.

Moreover, the two significant variables, which had an effect on the level of DTCA consumer support, are *previous consumer exposure to prescription drug advertising* and *consumer prior knowledge about drug regulation and prescription drug advertising*. An understanding of these variables might lead to indicative predictors about future consumer support for DTCA. The findings illustrate that consumers who have recently been exposed to prescription drug advertising are likely to support DTCA rather than those who had not seen or heard of this kind of drug promotion. Another significant finding was the negative relationship between consumer knowledge about drug regulation and prescription drug advertising and the level of consumer support for DTCA. Consumers with high knowledge tend to oppose DTCA rather than consumers with low knowledge. Therefore, the high knowledge consumers believe that DTCA should be banned in Australia.

Additionally, the evidence gathered from the present study generally shows that most Australian health consumers who support the legalisation of DTCA hold overall positive attitudes towards general advertising and the potential risks and possible benefits of DTCA.

Regarding the relationships between consumer attitudes and intentions, attitude dimension: HC-2 (attitudes towards healthcare provider-patient relationship) revealed a strong positive correlation with consumer intention to talk to their healthcare providers about an advertised medicine. If consumers hold positive attitudes towards healthcare provider-patient relationship, they are more likely

to ask their providers about an advertised drug. In addition, consumer beliefs about the positive effects of DTCA play a central role in consumer intentions to seek more information about a drug. These attitude dimensions could be utilised as a predictor for consumer intentions and assist interest groups in designing an effective communication programme about prescription medicines. Furthermore, the findings suggest that DTCA would encourage consumers to seek more information about advertised drugs or about their health conditions

The conclusive findings from this exploratory study contributed to theoretical knowledge by providing a valuable insight and evidence for the relationships between each attitude dimension and consumer intentions regarding advertised medicines, which have not been studied previously. It also improved the understanding of consumer attitudes towards medical information, particularly, from DTCA of prescription medicines.

6.3 Implications

6.3.1 Theoretical Implications

The present study was an exploratory study concerned with consumer attitudes towards medical information from healthcare providers and drug advertising in Australia. Although previous studies examined consumer attitudes towards drug advertising in different countries, for instance, Perri and Nelson (1987) and U.S. FDA (1999), the present study was important because it explored the dimensions of consumer attitudes towards DTCA and examined the factors that affected these attitudes. It was also significant because the DTCA issues raised are increasingly important not just in Australia but also in a global context.

In addition, the findings extended the validity of the Theory of Reasoned Action – TRA (Ajzen and Fishbein 1980), the Social Cognitive Theory (Bandura 1986), and the first stage of the multi-stages model (Assael 1995) in two specific ways. Firstly, the findings have shown that when consumers see or hear prescription drugs advertising (even though DTCA has not been allowed in Australia), they would develop a set of positive attitudes towards medical

information from drug advertising, particularly, if they concluded that sample behaviours, which were provided by drug advertising, would be rewarded and information from that advertising could be useful.

According to the Social Cognitive Theory (Bandura 1986), consumer attitudes and intentions can be driven and modified by the cognitive part. In addition, consumer behaviours and intentions (i.e. visiting-doctor and searching information behaviours) can be encouraged either by modifying people's personal factors (i.e. beliefs about those behaviours) or by altering environmental factors (i.e. providing an example through the mass media to encourage healthy behaviour). The present study confirmed the framework of Bandura (1986). It also suggested that the advertising of prescription medicines promoted consumer learning and could drive or shape the cognitive part of consumers as well as the environment in which a consumer lived. As a result, consumers develop a set of positive attitudes towards drug advertising, and thus they would support DTCA.

Secondly, the findings showed that several attitude dimensions, which have not been identified in any previous studies, had a significant relationship with consumer opinions on whether Australia should allow DTCA and consumer intentions relating to advertised medicines. These attitude dimensions, especially, HC-2 (*attitudes towards healthcare provider-patient relationship*) and AS-1 (*consumer beliefs about the positive effects of DTCA*), could be utilised to predict consumer intentions and the level of consumer support for DTCA. In addition, these findings confirmed the framework from the Theory of Reasoned Action – TRA (Ajzen and Fishbein 1980) and the Theory of Planned Behaviour – TPB (Ajzen 1988 and 1985) that behavioural intentions could be predicted by attitudes.

Overall, the present study suggested that consumer prior knowledge about drug advertising regulation and recent exposure to prescription drug advertisement had an impact on consumer attitudes towards DTCA. These attitudes led

consumers to seek more information and to ask healthcare providers about advertised medicines or about their health conditions. Seeing that DTCA could provide possible benefits in supporting consumers to deal with their information needs, a number of consumers had adopted and supported it. The adoption of DTCA was the first step in the consumer information acquisition and processing action. Additionally, consumer support for DTCA generated modified behaviours and encouraged consumers to ask their healthcare providers for an advertised medicine and to look for more specific information about a particular medicine or a particular disease.

6.3.2 Methodological Implications

The development of modified items for assessing variables within the present study, in particular, new scales for measuring consumer prior knowledge regarding drug regulation and prescription drug advertising, provided a methodology that has not been presented in previous studies. These measurement items can be refined or similar items added for improving validity and reliability of the research instruments in future studies about DTCA.

Moreover, the problems with data collection and administration of the questionnaire, which were presented in Chapter 4: sections 4.5 (p.133) and 4.6 (p.135), can be utilised as a guideline for future studies. Researchers can adapt the strategies and solutions used by the present study in order to improve the response rate and reduce the data collection time.

6.3.3 Practical Implications

The major pharmaceutical companies and advertising agencies have put pressure on current Australian DTCA regulation. This is particularly true, where the communication programmes of global organisations do not rely solely on one country and existing regulations cannot effectively control prescription drugs advertising direct to consumers. The results from Chapter 5: section 5.3 (p.147) showed that one out of four respondents have been exposed to

prescription drugs advertising in some degree, even though this type of promotion is still prohibited in Australia.

Two issues should be taken into consideration before any recommendations are provided. The first is the informal introduction of DTCA into Australia via various types of mass media. The second, which is related to the first, is consumer opinions about current DTCA regulation. Only 36% of respondents did not agree with the statement '*Australia should allow advertising of prescription drugs directly to the public*'. It is envisaged that current Australian DTCA regulation should be changed either to achieve more effective control of global prescription drug advertising or to accept some degree of DTCA in Australia. Further, the legal confusion surrounding the status of DTCA amongst consumers has to be resolved quickly so that consumers will know exactly where DTCA stands. This issue needs to be addressed immediately. When the legal confusion has been addressed through new legislations, a clearer indication as to the effects of DTCA on the general public, the entire industry (both pharmaceutical and advertising industry), and on consumers can be observed.

If DTCA is allowed, the implication for consumers is that the options available to them may be noticeably greater and their information costs may be reduced. However, the quality and reliability of the advertising programmes from mass media may decrease considerably. This issue also needs to be addressed in any new legislation to control DTCA in Australia. Furthermore, the deregulation of pharmaceutical advertising will encourage many types of new medical information into Australia. Subsequently, the purposed agenda for drug advertising and the actual circumstances surrounding DTCA will be understood. A more rigorous communication programme can then be designed to meet the interests of Australian health consumers. However, if consumers are exposed to unfair business practices, misleading information, limited choice of alternative products or suppliers, the prescription drug price may be too high. In the

absence of competition, the deregulatory programme is unlikely to provide net benefits for the general public.

Another implication for the major stakeholders comes from the findings of the current study, which indicated that separating the two groups of consumer attitudes towards DTCA into eight dimensions improved an understanding of the relationships amongst consumer attitudes, the level of consumer support for DTCA, and consumer intentions regarding DTCA information. Furthermore, consumer background and characteristic variables, which here were *consumer prior knowledge about current drug regulation and prescription drug advertising* and *previous exposure to prescription drug advertising*, had a significant effect on consumer opinions about allowing DTCA.

These findings should be of concern to major interest groups, such as advertisers and marketing managers. These interest groups can apply such information in designing, planning, and implementing effective communication programmes for promoting consumer interest. For the present study, consumers were classified by various criteria, such as socio-demographic characteristics including psychological profile and behavioural characteristics. Consumers can be distinguished through segments of the market by utilising such information from the present study because each target consumer group has a particular set of beliefs, attitudes, backgrounds, and characteristics. Therefore, communicators need to understand this information in order to design a specific and effective communication programme around the needs of each particular segment within a target group. Understanding the target consumers in these ways enables interest groups to make more accurate predictions of consumer needs, which are fundamental in influencing the desired outcomes. Moreover, by selecting target consumers, interest groups will be able to identify influence groups who can affect the programme's success and prevent undesired results.

According to the findings of the study, approximately a quater of the respondents (26%) had been exposed to prescription drug advertising.

Marketers or advertisers can employ this information to shape their strategies. The less information consumers have about a prescription medicine, the greater the perceived risk. The greater the perceived risk, the more information is required. Unlike other products, consumers are not sure about the actual risks and benefits of drug advertising. Also, they have to rely on either direct or vicarious experience to convince themselves of DTCA's performance. However, potential consumer targets are less likely to have the knowledge or the experience to evaluate the real effects of DTCA properly. In a high-involvement setting, consumers require a vast deal of thought and consideration, and actively search for information about a particular product (Asseal et al 1995). Consequently, consumers may want to try DTCA as a result of receiving messages from mass media. Marketing managers and advertisers can utilise the repetition of messages to potential target groups, which were identified in the present study, in order to encourage consumers to support DTCA.

Further, healthcare professionals should be made aware of the emergence of DTCA of prescription medicines in Australia and should be prepared to talk to their patients about advertised drugs. This may perhaps reduce the pressure and frustration that some physicians and pharmacists may feel if they receive many questions from their customers about a prescription drug campaign.

In addition, the educational approaches, which constitute the bulk of the anti-DTCA campaigns in the U.S., Canada and New Zealand, believe that the decision to stop DTCA can be influenced by either information on its negative consequences or information on current DTCA regulation and its circumstances. This belief has shaped the adoption of the educational approach. It has also been supported by the findings from this study which showed that consumers with high knowledge about drug regulation and prescription drug advertising were likely to oppose DTCA. As a result, those consumers would think that DTCA should be banned. However, such public educational efforts reflect an acceptance that DTCA is growing and assume that target consumers make rational decisions. Even though it has been shown that some consumers are

generally aware of the risks of DTCA, they still continue to support DTCA and utilise information from this alternative source.

6.4 Limitations of the Study

Although the present study has provided many interesting findings, some limitations should be noted when interpreting the findings from this study. However, these limitations present several opportunities for further research. The limitations in the present study included the following issues:

- ***The Area and Sample Numbers Surveyed***

The implications to be drawn from the present study are subject to some limitations regarding the sample. As the current exploratory study concentrated on a restricted area and the data was collected mainly from consumers who were in the Melbourne metropolitan area and had accessed healthcare services. It should be noted that the sample did not include consumers from other states or from other types of businesses. Therefore, the sample was not entirely representative of all Australian consumers. As a result, future studies need to cover a wider area and survey a greater number of respondents for the results to be validated and more generalised.

- ***Changing Information Technologies***

Another limitation of the present study includes the speedy convergence of information technologies. This means that as technologies quickly change, a new type of pharmaceutical promotion strategy could enter Australia even more quickly and easily. An information technology breakthrough can lead to more publicly desired behaviours about prescription drug information, which previously relied only on healthcare professionals. Moreover, these new technologies will assist pharmaceutical companies to capture a considerable share of the hidden targets, which may be in countries that restrict DTCA. Therefore, when the findings and recommendations of the present study are considered, the factors that relate to changing information technologies, which

may affect consumer attitudes towards DTCA over time, have to be taken into account.

- ***Theoretical Framework and Questionnaire Design***

The investigation of consumer attitudes towards medical information and the factors that impacted those attitudes relied largely on specific theoretical frameworks, for instance, the theory of behavioural change – TRA (Ajzen and Fishbein 1980) and TPB (Ajzen 1988; 1985), the social cognitive theory (Bandura 1986). Since the relationships between consumer attitudes and behavioural intentions are complex, the use of other theories may produce different findings from the same research questions. Additionally, the present study confronted some difficulties in the analysis and interpretation of the responses to questions contained in the questionnaire. The questionnaire should include open-ended questions, which would allow consumers to express additional comments and to express their ideas freely.

Despite the above limitations, this study did provide a consumer profile of Australian health consumers with the details of who they visited, what their attitudes are towards each type of medical information and its source, what their understandings of DTCA is, which additional information sources they prefer, and what they expect from their healthcare providers as well as insights into the level of DTCA consumer support and consumer intentions regarding advertised medicines. However, further and more extensive research would assist in obtaining a greater understanding about the effects of DTCA on consumer intentions and actual behaviours, and in examining other factors that affect consumer attitudes towards DTCA, which this study did not incorporate.

6.5 Suggested Future Research

The present study has addressed some of the issues involving consumer attitudes towards medical information from healthcare professionals and from alternative sources. It is clear that any further statistical analysis of the study data should include multivariate analysis of variance, discriminant analysis,

multiple regression, and SEM. This will help to expand the research's explanatory ability and statistical efficiency. It will also aid in the investigation of the causal relationship between consumer attitudes and behavioural intentions. This study did not perform those techniques because this study is an exploratory research and investigation of the causal relationship is not an objective of this study. Although the findings from the present study have contributed to knowledge in the area of pharmaceutical marketing, especially, in the area of DTCA of prescription medicines and have provided implications for major stakeholders, additional future studies are needed to verify the validity and reliability of the present study. Firstly, as discussed earlier in the previous section, the findings from this exploratory study should encourage future researchers to explore issues surrounding DTCA in Australia. In addition, future studies should be conducted utilising a more representative sample of health consumers and a wider sample area in order to be able to generalise the current findings and obtain more complete information about the most common consumer characteristics from various locations within Australia. It may be useful to investigate consumer attitudes from various parts of the country and compare them in order to detect any differences in consumer attitudes and the factors that affect these attitudes. Additionally, due to the exploratory scheme of the present study and the comparatively new area of DTCA in Australia, a number of studies need to be conducted with a more extensive analysis in order to provide a deeper understanding of DTCA and the relationship between attitudes and intentions.

Secondly, the influence of some factors on consumer intentions and actual behaviours should be included and examined. As discussed in Chapter 3, previous studies indicated a relationship between various factors and actual behaviours. The social factors, such as subjective norms, and other factors, such as perceived behavioural control, could also be included. Moreover, considering that Australia consists of people from different ethic backgrounds, future research should incorporate cultural and other social characteristics variables when investigating the relationship between attitudes towards DTCA and

consumer intentions regarding DTCA information. Although the socio-demographic characteristics of the respondents were also applied in the present study, it was utilised solely for classification purposes. A study that incorporates these factors could be useful in understanding the actual behaviours of consumers and determining the size of an effect of the variable on consumer attitudes, intentions, and actual behaviours. This is because such knowledge would allow for increased effectiveness and efficiency when considering, planning, and implementing pharmaceutical communication programmes as well as offering options to fit the needs and demands of particular consumer targets.

Thirdly, since the present study concentrates on current consumer attitudes towards medical information from healthcare providers and alternative sources, future studies are suggested to examine consumer needs and their perceptions about ideal DTCA. The characteristics of ideal DTCA that consumers require may provide more precise recommendations on appropriate solutions concerning current Australian DTCA regulation. Future studies could also focus solely on the effect of one attitude dimension on consumer intentions and actual behaviours regarding advertised medicines. This may provide a more accurate interpretation and deeper understanding about the relationships between attitudes, intentions, and behaviours concerning information from prescription drugs advertising.

Finally, future research in the area of DTCA of prescription medicines and probably other aspects of pharmaceutical promotions needs to consider the use of specific measures for each stakeholder's perspective. The present exploratory study provides the general view of consumers on DTCA rather than the overall view of the entire community, which should include major stakeholders, such as healthcare professionals, policy makers, marketing managers, and advertisers. This provides an opportunity for future researches to study the attitudes of other parties regarding DTCA information and may lead to a better understanding of

the integrated perspectives. For example, future studies could compare consumer attitudes towards DTCA with healthcare professionals' attitudes.

The rapid growth in DTCA of prescription medicines in recent years has encouraged discussions about a number of issues concerning consumer attitudes towards such advertising. The present study is about an aspect of consumer attitudes towards medical information, in particular, from DTCA of prescription medicines, which is often shrouded in mystery. It is also about the psychology of the consumers, and about how the researcher learns to see the connections between consumers' psychological phenomena and factors around them.

The findings of the present exploratory study have shown that around a quarter of the respondents has already been exposed to DTCA in some degrees and one in three consumers thought that Australia should allow DTCA of prescription medicines to the general public. As a result, the controversy about DTCA concerning the risks and benefits of bypassing healthcare providers and going directly to consumers has increased. Therefore, new legislations as well as more research to determine whether DTCA would have actual benefits to public health should be considered. In addition, the present study was designed to explore consumer attitudes towards DTCA and to inform debate about DTCA of prescription medicines by assessing what consumers thinks about DTCA, and how they perceive DTCA. It goes beyond other studies by investigating what factors had an effect on consumer psychological responses, such as levels of consumer support for DTCA and consumer intentions to perform related behaviours, and which attitude dimensions related to these intentions regarding DTCA.

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APPENDICIES

APPENDIX 1

Sample of Informed Consent Form

Victoria University of Technology

VICTORIA UNIVERSITY

INFORMATION TO PARTICIPANTS:

We would like to invite you to be a part of a study into:

Title: ***Consumer Attitudes towards Medical Information: An Exploratory Study of Direct-To-Consumer Prescription Drug Advertising in Australia.***

This study is concerned about your attitudes toward medical information from healthcare providers and prescription drug advertising. Your participation is completely ***voluntary*** and all information obtained will be completely ***anonymous*** and ***confidential***. We will have only anonymous data file, so no individual's opinions will be identified

Procedures:

The questionnaire will be placed with employed respondents aged over 18 years by clinics' receptionists, sales staff or researchers and will be indicated that completion of it is completely voluntary. It should take the participant around 10 – 15 minutes to complete the entire questionnaire.

The objectives of the study, together with any risks associated with the procedures to be carried out in the research, will be fully explained to you. You can withdraw from this study at any time and this withdrawal will not jeopardize you in any way.

Full anonymity will be assured.

Any queries about your participation in this project may be directed to the researcher Name: Dr. Verawoot Vatjanapukka ph. (03) 92481075 or my supervisor, Dr. Robert Waryszak, ph. (03) 92481268. If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University of Technology, PO Box 14428 MC, Melbourne, 8001 (Ph. 03-96884710).

APPENDIX 2

DTCA Survey Questionnaire

Consumer Attitudes towards Medical Information:

Direct-To-Consumer Prescription Drug Advertising Survey

VICTORIA UNIVERSITY

This questionnaire is about your attitudes towards medical information from healthcare providers and drug advertising, as a part of a doctor of business administration degree. The main objective of this project is to establish an understanding of consumer attitudes towards Direct-To-Consumer Advertising of prescription medicines (DTCA). This survey will use the words '*healthcare provider*' to signify the person you are visiting now. This could be a doctor, a pharmacist, or an alternative therapist. Your participation is completely ***voluntary*** and all information obtained will be completely ***anonymous*** and ***confidential***. We will have only anonymous data file, so no individual's opinions will be identified. Please answer each question as honestly as you can. There are no right or wrong answers. It should take you around 10 – 15 minutes to complete the entire questionnaire.

If you have any questions, concerns or suggestions regarding this study or if you would like a summary of the general results when the study is completed, please contact Dr. Verawoot Vatjanapukka at verawoot.vatjanapukka@research.vu.edu.au ph: (03) 92481075 or Dr. Robert Waryszak at robert.waryszak@vu.edu.au ph: (03) 92481268, Faculty of Business and Law, Victoria University.

Do you agree or disagree with each of the following statements?

(Please √ only *one box* for each statement.)		Agree	Disagree	Don't Know
1.	Prescription drug advertising directly to consumers is banned in Australia.	3	2	1
2.	Prescription drug advertising in magazines, radio, television, Internet, or other forms of mass media is illegal in Australia.	3	2	1
3.	In Australia, disease-oriented advertising is allowed as long as a product name is not mentioned.	3	2	1
4.	Over-The-Counter drugs are drugs that consumers can get without a doctor's prescription.	3	2	1
5.	Prescription drugs are drugs that only a doctor can prescribe.	3	2	1

To what extent do you agree or disagree with each of the following statements?

(Please √ only *one box* for each statement.)		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
6.	My healthcare provider gives me enough information to let me know what the treatment options are available and what my drug is for.	5	4	3	2	1
7.	My healthcare provider explains to me the risks and side effects of medications prescribed.	5	4	3	2	1

To what extent do you agree or disagree with each of the following statements?

(Please √ only *one box* for each statement.)		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
8.	My healthcare provider explains to me about other ***prescription*** products that may be appropriate for me.	5	4	3	2	1
9.	My healthcare provider explains to me about other ***non-prescription*** products that may be appropriate for me.	5	4	3	2	1
10.	Healthcare providers should be the sole source of prescription drug information.	5	4	3	2	1
11.	My healthcare provider will be dissatisfied if I ask for a prescription drug that is advertised.	5	4	3	2	1
12.	The relationship between my healthcare provider and me will be weakened if I ask for a drug that is advertised.	5	4	3	2	1
13.	I ***shall not talk*** to my healthcare provider about an advertised drug because it will seem like I do not trust them.	5	4	3	2	1
14.	My healthcare provider will ***prescribe*** the advertised drug that I request.	5	4	3	2	1
15.	My healthcare provider will ***provide information*** about an advertised drug upon request.	5	4	3	2	1
16.	If a drug is legal to sell, it should also be legal to advertise.	5	4	3	2	1

To what extent do you agree or disagree with each of the following statements?

(Please √ only *one box* for each statement.)		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
17.	Prescription drug advertising will contain the important information that a patient needs to know about the drug.	5	4	3	2	1
18.	Prescription drug advertising can educate people or provide valuable information to consumers about the risks and benefits of prescription medicines.	5	4	3	2	1
19.	Prescription drug advertising will guide me to ask a healthcare provider about my medical condition or illness that I have not talked to them before about.	5	4	3	2	1
20.	Prescription drug advertising will help me to have discussions with a healthcare provider about my health.	5	4	3	2	1
21.	Prescription drug advertising will cause me to look for more information about the drug that may be appropriate for me.	5	4	3	2	1
22.	Prescription drug advertising will increase the chances for consumers to seek early diagnosis and treatment.	5	4	3	2	1
23.	Prescription drug advertising will confuse or misinform consumers about an appropriate treatment.	5	4	3	2	1

To what extent do you agree or disagree with each of the following statements?

(Please √ only *one box* for each statement.)

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
24.	Prescription drug advertising will provide only a superficial level of information that leads consumers to conclude that they need a particular medicine.	5	4	3	2	1
25.	Prescription drug advertising will lead to inappropriate treatments or over medication.	5	4	3	2	1
26.	Prescription drug advertising will enhance the quality of pharmaceutical products.	5	4	3	2	1
27.	Prescription drug advertising will allow consumers to be involved in their health care.	5	4	3	2	1
28.	Prescription drug advertising will increase competition among pharmaceutical companies and then lead to lower prices for prescription drugs.	5	4	3	2	1
29.	I enjoy viewing print advertisements when I read magazines	5	4	3	2	1
30.	I find it interesting to read about drugs that are available to me through advertising.	5	4	3	2	1
31.	Prescription drug advertising will help create a positive relationship between healthcare providers and patients.	5	4	3	2	1

To what extent do you agree or disagree with each of the following statements?

(Please √ only *one box* for each statement.)		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
32.	Prescription drug advertising will help make consumers aware of new drugs.	5	4	3	2	1
33.	Prescription drug advertising will help me to make better decisions about my own health.	5	4	3	2	1
34.	Prescription drug advertising will not give enough information about the possible risks and negative effects of using a drug.	5	4	3	2	1
35.	Australia ***should allow*** advertising of prescription drugs directly to the public.	5	4	3	2	1

36. Did you see or hear an advertisement for a ***non-prescription*** drug, in the last three-months?

- ❑ Yes…from
  - □ Magazines
  - □ Television
  - □ Radio
  - □ Internet
  - □ Other (Specify)……
- ❑ No
- ❑ Not Sure

37. Did you see or hear an advertisement for a ***prescription*** drug, in the last three-months?

- ❑ Yes…from
  - ❑ Magazines
  - ❑ Television
  - ❑ Radio
  - ❑ Internet
  - ❑ Other (Specify)……
- ❑ No
- ❑ Not Sure

38. When you have questions about a prescription medicine, where do you prefer to get additional information?.

- ❑ Internet
- ❑ Healthcare professional
- ❑ Reference book
- ❑ Friend or Relative
- ❑ Magazine or Print Media
- ❑ Other (Specify)……

39. How much would you believe the medical information from these sources?

	A lot	**Some**	**Neutral**	**A little**	**Not at all**
a) Doctor	5	4	3	2	1
b) Pharmacist	5	4	3	2	1
c) Alternative Therapist	5	4	3	2	1
d) Drug Advertising	5	4	3	2	1

Please answer the following questions about yourself:

40. Age:

- ☐ 18-24 years
- ☐ 25-34 years
- ☐ 35-44 years
- ☐ 45-54 years
- ☐ 55-64 years
- ☐ Over 65 years

41. Gender:

- ☐ Male
- ☐ Female

42. Overall, would you say your health is:

- ☐ Excellent
- ☐ Very Good
- ☐ Good
- ☐ Fair
- ☐ Poor

43. What is the highest level of education you have achieved?

- ☐ Elementary
- ☐ High School
- ☐ TAFE
- ☐ Undergraduate University
- ☐ Postgraduate University

44. What is the nature of your job? (please √ only one box).

- ❑ Health Industry
- ❑ Education
- ❑ Office / Clerical
- ❑ General labour
- ❑ Tradesperson / Craftsperson
- ❑ Professional
- ❑ Computer / Technical
- ❑ Sales / Service / Customer Support
- ❑ Self-employed
- ❑ Other (Specify).....

Thank you very much for participating in this study.