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FACULTY OF HEALTH SCIENCES
SCHOOL OF HEALTH SCIENCES
DISCIPLINE OF DENTISTRY

**A comparative analysis of oral healthcare policy development
between a developed country (Australia) and a developing
country (South Africa)**

**A thesis submitted in fulfilment of the requirement for the
Doctor of Philosophy in Health Sciences Degree**

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Date of Acceptance: 28 November 2014

Declaration of Candidate

I, **Tufayl Ahmed Muslim**, declare that:

- (i) The research reported in this thesis, except where otherwise indicated, is my original work.
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Declaration of Prior Publication

I, **Tufayl Ahmed Muslim**, hereby declare that this thesis has not been submitted for a degree at any other university, and that its only prior publication was in the form of conference posters, papers and journal publications as listed below:

- Muslim, TA and Singh, S. 2014. Comparative Analysis of Oral Health Workforce Forecasting using Systems Dynamics. An oral presentation at the 92nd General Session & Exhibition of the IADR Africa/Middle East Regional Meeting, Cape Town International Conference Centre. Cape Town, South Africa, 25-28 June 2014.
- Muslim, TA and Singh, S. 2014. Incentivising oral health-care workers towards reducing inequalities – A cross-national policy analysis. An oral presentation at the 54th Annual Scientific Meeting of the International Association for Dental Research. Australia and New Zealand Division. Brisbane Convention and Exhibition Centre. Queensland, Australia, 29 September - 01 October 2014.
- Muslim, TA and Singh, S. 2014. Can systems dynamic modelling be an analytical and simulation tool in predicting oral health human resources policy development, implementation and reform outcomes? African Health Sciences Journal.

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Contribution of Authors and Co-Authors

I, Tufayl Ahmed Muslim, hereby declare that contributions of the authors to the conference posters, conference papers, manuscripts and journal publications are as listed below:

Author: Tufayl Ahmed Muslim

Contributions: Conceived and implemented the study design. Collected and analysed data. Wrote first and final drafts of the manuscripts. Made the major contribution in the formulation of the paper.

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Contributions: Assisted in the contextualisation of the paper. Helped conceive the study design. Provided field expertise, feedback on statistical analysis and early drafts of the manuscript. Provided comments on the manuscripts.

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*“And as we let our own light shine,
we unconsciously give other people
permission to do the same,”*
Nelson Mandela, Father of our nation.

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*“On the playing field of life there is nothing more important
than the quality of education”*

President JG Zuma

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Abstract

Introduction: Health policy analysis aims to explain the interaction between institutions, interests and ideas in the policy process in order to ensure the best possible health outcomes. Cross-national policy analysis of oral health policies can be undertaken using a conceptual framework, and the results of this analysis could allow for cross-national lessons to be learnt that could be used to improve policy processes. This could result in improved population oral health service delivery and health outcomes.

Aim: To undertake a cross-national policy analysis of a developed country (Australia) and a developing country (South Africa) in order to highlight lessons that could be learnt to improve policy development, implementation, reform and service delivery, that could lead to improved oral healthcare policy-making and provision.

Objectives: This study sought to develop, and apply, a conceptual framework to undertake a cross-national comparative policy analysis study of a developed country (Australia) and a developing country (South Africa). This developed conceptual framework would need to allow policy analysts to undertake a comprehensive comparative policy analysis that could lead to an understanding and contextualisation of the complex policy environments found in developed and developing countries.

Methods: A cross-national policy analysis of oral health policies for the period 2001-2011 was undertaken. A policy analysis conceptual framework was developed and used to comparatively analyse the various constructs, policy influences and policy actors that were involved in oral health policy-making. Data from a desktop literature search, and key stakeholder interviews were comparatively analysed using thematic content analysis, and a Strengths, Weakness, Opportunities and Threats (SWOT) analysis was used to identify lessons in policy development, implementation and reform that could be applied cross-nationally. Thereafter a Systems Dynamic (SD) computer simulation model was constructed and applied cross-nationally to human resources for health forecasting in order to expound the use of SD modelling in policy development and reform.

Results: The results revealed that both countries have policy development and implementation structures that are historically embedded within the countries unique social contexts, and offer lessons regarding their strengths and weaknesses that could be applied cross-nationally to improve healthcare policy-making and provision. The results of the document analysis, together with the interviews and literature review, were triangulated and comparatively analysed using the themes outlined in the conceptual framework. These results revealed that a general policy development theory could be formulated and modified to suit local conditions. The need for high-quality valid and reliable data was also highlighted. Another result is the need for the appropriate needs-based and equitable reallocation of resources in order to ensure a feasible and practical oral healthcare system.

Conclusions: The lessons offered from the cross-national oral health policy analysis could be adjusted and implemented to both developed and developing countries in order to improve their oral health policy development, implementation and reform structures and processes.

Keywords: cross-national comparative analysis, oral health policy, developing country, developed country, Australia, South Africa

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List of Abbreviations

ABS	Australian Bureau of Statistics
ADA	Australian Dental Association
ADB	Australian Dental Board
ADC	Australian Dental Council
ADOHTA	Australian Dental & Oral Health Therapists' Association
AHMAC	Australian Health Ministers' Advisory Council
AHMC	Australian Health Ministers' Conference
AHPRA	Australian Health Professions Regulatory Authority
AMWAC	Australian Medical Workforce Advisory Committee
AHWMC	Australian Health Workforce Ministerial Council
AIDS	Acquired Immune Deficiency Syndrome
AIHW	Australian Institute of Health and Welfare
ANC	African National Congress
BHF	Board of Healthcare Funders
CMS	Council for Medical Schemes
CPD	Continuing Professional Development
DBA	Dental Board of Australia
DENTHASA	Dental Therapy Association of South Africa
DMFT	Decayed, missing or filled teeth
DOH	Department of Health
GDP	Gross Domestic Product
GNI	Gross National Income
GNP	Gross National Product
HIV/AIDS	Human immunodeficiency virus/acquired immune deficiency syndrome
HPCSA	Health Professions Council of South Africa
HWA	Health Workforce Australia
KZDoH	KwaZulu-Natal Department of Health
NHI	National Health Insurance
OOP	out-of-pocket
OSD	Occupation Specific Dispensation
PCE	Per capita expenditure
PCI	Per capita income
PHC	Primary Healthcare
PHIAC	Private Health Insurance Administration Council
SARS	South African Revenue Service
SHI	Social Health Insurance
SoP	Scope of Practice/Scope of Practice Registration Standard
StatsSA	Statistics South Africa
SWOT	Strengths, Weaknesses, Opportunities and Threats
USD/US\$	United States Dollars
WHO	World Health Organization

Key terms

Access - Freedom or ability to obtain or make use of.

Accessibility - The ease with which health care can be reached in the face of financial, organizational, cultural, and emotional barriers.

Actor - Short-hand term used to denote individuals, organizations or even the state and their actions that affect policy.

Advocacy coalition - Group within a policy sub-system distinguished by shared set of norms, beliefs and resources. Can include politicians, civil servants, members of interest groups, journalists and academics who share ideas about policy goals and to a lesser extent about solutions.

Affordability of dental care - Affordability difficulties encountered in purchasing dental services refers to those respondents who:

- have avoided or delayed visiting because of cost
- report that cost had prevented recommended dental treatment.

Agenda setting - Process by which certain issues come onto the policy agenda from the much larger number of issues potentially worthy of attention by policy makers.

Analysis - Separating a problem into its constituent parts so as to better understand its whole.

Content - Substance of a particular policy which details its constituent parts.

Context - Systemic factors – political, economic, social or cultural, both national and international – which may have an effect on health policy.

Demand - or “effective demand,” which generally refers to willingness to purchase or use goods or services and, in the case of effective demand, the ability to do so.

Dental disease - Diseases of the oral cavity, the most common of which are caries (dental decay) and periodontitis (gum disease).

Dental appearance - Self-reported perception of dental appearance related to frequency of feeling uncomfortable with their dental appearance ('never' or 'hardly ever' compared with 'very often', 'often' or 'sometimes').

Dental check-up - Visit to dental professional for the purposes of a dental examination.

Dental impairment - Persons with complete tooth loss or few remaining natural teeth have more limited oral function.

Dental professional - Dentist, dental hygienist or dental therapist.

Dental treatment - Treatment services received during dental visits, such as fillings, extractions and scale and clean services.

Developed country - According to the World Bank (2013) countries are defined according to their Gross National Income (GNI) per capita per year. Countries with a GNI of more than US\$ 11,905 in 2013 were defined as developed (as specified by the World Bank, 2013).

Developing country - According to the World Bank (2013) countries are defined according to their Gross National Income (GNI) per capita per year. Countries with a GNI of less than US\$ 11,905 in 2013 were defined as developing (as specified by the World Bank, 2013).

Evidence - Any form of knowledge, including, but not confined to research, of sufficient quality to be used to inform decisions.

Evidence-based policy - Movement within public policy to give evidence greater weight in shaping policy decisions.

Healthcare Barriers - Refers to obstacles within the healthcare system that prevent vulnerable patient populations from getting the care they need.

Implementation - Process of turning a policy into practice.

Implementation gap - Difference between what the policy architect intended and the end result of a policy.

Need - the amount of care that experts believe a person should have to remain or become as healthy as possible, based on current knowledge.

Non-governmental organization (NGO) - Originally, any not-for-profit organization outside government, but, increasingly, used to refer to structured organizations providing services.

Oral health - Being orally healthy means that people can eat, speak and socialise without discomfort or embarrassment, and without active disease in their mouth which affects their overall well-being.

Policy - Broad statement of goals, objectives and means that create the framework for activity. Often take the form of explicit written documents but may also be implicit or unwritten.

Policy agenda - List of issues to which an organization is giving serious attention at any one time with a view to taking some sort of action.

Policy elites - Specific group of policy makers who hold high positions in an organization, and often privileged access to other top members of the same and other organizations.

Policy instrument - One of the range of options at the disposal of the policy maker in order to give effect to a policy goal (e.g. privatization, regulation, etc.).

Policy makers - Those who make policies in organizations such as central or local government, multinational companies or local businesses, schools or hospitals.

Policy Process - The way in which policies are initiated, developed or formulated, negotiated, communicated, implemented and evaluated.

Policy stream - The set of possible policy solutions or alternatives developed by experts, politicians, bureaucrats and interest groups, together with the activities of those interested in these options (e.g. debates between researchers).

Policy windows - Points in time when the opportunity arises for an issue to come onto the policy agenda and be taken seriously with a view to action.

Political system - The processes through which governments transform ‘inputs’ from citizens into ‘outputs’ in the form of policies.

Politics stream - Political events such as shifts in the national mood or public opinion, elections and changes in government, social uprisings, demonstrations and campaigns by interest groups.

Power - The ability to influence, and in particular to control, resources.

Presidential system - The president or head of state is directly elected in a separate process from the election of members of the legislature.

Private sector - That part of the economy which is not under direct government control.

Profession - a collective of expert service providers who have jointly and publicly committed to always give priority to the existential needs and interests of the public they serve above their own and who in turn are trusted by the public to do so

Public dental services - State- or territory-funded dental care available to adults with low income or other forms of social disadvantage.

Private dental services - Dental care provided in private practice to adults and children, usually self-funded by the recipient.

Stakeholder - An individual or group with a substantive interest in an issue (i.e. interest group), including those with some role in making a decision or its execution.

State - A set of institutions that enjoy legal sovereignty over a fixed territorial area.

Street-level bureaucrats - Front-line staff involved in delivering public services to members of the public who have some discretion in how they apply the objectives and principles of policies handed down to them from central government.

Utilization: - To make use of goods and services that have been made available by services providers and/or manufacturers

Outline of the study

The study will consist of three chapters. These are outlined as follows:

Table 1: Outline of study

Chapter	Content	Description
One	Introduction	An introduction to the study, background, aims and objectives, literature review and additional theory pertaining to health policy analysis.
Two	Four manuscripts	<p>Examples and case studies will be used prolifically to illustrate and clarify concepts, policy development, policy implementation and policy outcomes in these manuscripts. The four manuscripts are as follows:</p> <ul style="list-style-type: none"> • Manuscript One The development and use of a conceptual framework in conducting a cross-national comparative policy analysis of oral health policy development and implementation between a developed country (Australia) and a developing country (South Africa). • Manuscript Two A cross-national oral health policy comparative analysis of access to oral healthcare between a developed (Australia) and a developing country (South Africa). • Manuscript Three Human resources in transition: A comparative policy analysis of oral health human resources in developed country (Australia) and a developing country (South Africa). • Manuscript Four Can systems dynamic modelling be an analytical and simulation tool in predicting oral health human resources policy development, implementation and reform outcomes?
Three	Discussion, Conclusion and recommendations	An overall discussion of the findings of the study will be presented. This chapter concludes the study by providing a summary of the main points discussed throughout the study, and points out the major findings and implications for oral health policy development in Australia and South Africa. Importantly, the concluding chapter also discusses and proposes future research areas that need to be investigated in order to facilitate policy reforms.

CHAPTER 1

Introduction to the study

CHAPTER 1

1. Preface

Health policy analysis aims to explain the interaction between institutions, interests and ideas in the policy process (Marmor, 2012:11-19; Walt *et al.*, 2008:308). It is useful, both retrospectively and prospectively, to understand past policy failures and successes so that lessons can be learned from them and used in planning for future policy implementation and reforms (Walt *et al.*, 2008:308). Health policy analysis is central to health policy development and reforms (Marmor, 2012:19; Walt *et al.*, 2008:308; Walt and Gilson, 1994:50-56; Chen *et al.*, 1997: 8). Thus, it is essential to gain an understanding of various aspects of the complex policy processes and environments, in order to learn and benefit from comparative policy analysis studies.

By comparing their own oral healthcare systems with those of other countries policies, a generalised theory could be formed and used in the oral health policy development, implementation and reform (Chen *et al.*, 1997: 8). Thus, oral health policy analysis can be projected onto a wider range of general health policy development, implementation and reform applications that aim to improve and enhance health delivery in other sectors of the national healthcare system's policy milieu (Walt *et al.*, 2008:308; Walt and Gilson, 1994:56; Chen *et al.*, 1997: 8).

In the field of scholarship of comparative policy analysis, the study will allow for learning in the field of cross-national policy analysis of two similar countries (one developing and one developed). Marmor (2012) claims that the field of comparative policy analysis is “*somewhat under-theorized*” and that whilst there are many empirical observations and frequent claims regarding lessons learnt from cross-national policy analysis, there are few studies on how to, or how not to, undertake cross-national policy analysis (Marmor, 2012:19). Marmor (2012) suggests that policy analysis can improve cross-national policy analysis and understanding in both obvious and less-obvious ways (Marmor, 2012:19). One less-obvious way is to more clearly define what is on the policy agenda by referring to similar or different formulations elsewhere, wherein the “*more similar the problems or policy responses the more likely one can portray the nuanced formulations of any particular country*” (Marmor, 2012:19-20).

Marmor (2012:19-20) further argues that researchers are to use their own reasoning and perspective, which may or may not bring with it explanatory insight, lesson drawing and policy recommendations (Marmor, 2012:19-20). Marmor (2012) states that the more dissimilar the policies are, the more striking the contrast will be when related to what one takes for granted in one's own policy setting (Marmor, 2012:19-20). A different approach, suggested by Marmor (2012), is to treat cross-national policy analysis and experiences as quasi-experiments, wherein the researcher hopes to draw lessons from the cross-national policy analysis about why some policies seem either: promising, practicable and implementable; or promising, impracticable and impossible to implement; or implementable but showing little promise of succeeding (Marmor, 2012:19-20).

Cross-national comparative policy studies can provide a basis for understanding the variety of policy options that exist within oral health policy, as comparison holds the possibility of learning from other countries and their oral health policy successes, failures, strengths, weaknesses, opportunities and threats. Cross-national comparative studies also provide policymakers with the opportunity to identify which oral health policy 'works best,' that is, using evidence-based policy-making and policy-innovation material in a structured manner that leads to successful policy implementation and outcomes (Blank and Barau, 2010:244).

Leichter (1979) argues that policymakers do not embark on entirely new courses of action when faced with challenges to policy development or implementation but rather tend to borrow from an apparently finite, existing set of solutions (Leichter, 1979:66). This is termed 'policy borrowing' (Syed *et al.*, 2012:11). Amongst the strengths of policy borrowing the idea that the successes of tried and tested policies may be harnessed, whilst an identified weakness of policy borrowing is that the success of the policy may not be repeatable or even appropriate in changed circumstances (Leichter, 1979:67). Blank and Burau (2010) and Marmor *et al.*, (2005) concur that the offer of "*tried and tested*" policy solutions becomes especially attractive to policy actors in times of crisis, as the pressures of economic crisis trigger the need for new policies that are able to address some, if not all, of these pressures that are placed on health service delivery (Blank and Burau, 2010:244; Marmor *et al.*, 2005;19-20). These pressures include reduced funding, levels of human resource allocation and the type, quality and quantity of oral health services offered (Blank and Burau, 2010:244; Marmor *et al.*, 2005;19-20).

Health policy has a crucial influence on the manner in which healthcare systems operate and Walt (1994) exposes the influence of health policy on disease levels by outlining the role of the state, which is often the primary policymaker, in prioritising certain healthcare issues (Walt, 1994:14-16). These issues include the enactment of legislation to encourage or discourage certain behaviours (such as promoting physical exercise or banning tobacco advertising), and having separate laws and discriminative per capita healthcare spending that tend to disenfranchise certain gender, special needs, cultural and racial groups (Walt, 1994:14-16).

Oral health policy development differs significantly from country to country, and is the result of a complex range of factors such as historical, political, economic and social factors (Lee, Buse and Fustukian, 2002: 7). In both developed and developing countries, the state plays a central role in healthcare policy development and healthcare provision (Walt, 1994:13). However, health decision-making is much more complex and requires that other factors such as structural (oral health policy-makers), cultural (specific oral health and hygiene cultural beliefs and practices), need to be considered (Chen *et al.*, 1997:56).

There is a tendency for policymakers, when faced with a particular problem, to look for a similar or comparative situation in another system or country and to try to emulate the solutions used by others as a solution to the challenges that they face (Blank and Barau, 2010:244). Policy borrowing may be more prevalent amongst less-developed nations because of the continuing impact of the colonial legacy, the general lack of expertise and technical factors (Leichter, 1979:66). It is also argued by Leichter (1979:72) that the courses of action open to policymakers are largely limited to, and by, the decisions and conditions handed down by their predecessors.

Lee, Buse and Fustukian (2002) postulate that some of the benefits of comparative policy analysis are improved academic knowledge about, and insight into, oral health policy development and implementation (in terms of the scientific, descriptive, explanatory and predictive objectives) (Lee, Buse and Fustukian, 2002: 7). Comparative studies can lead to improvements in oral health policy processes, contents and outcomes, and can influence or control policy processes and content in order to ensure the desired outcomes (Lee, Buse and Fustukian, 2002: 7).

2. Statement of the problem

A review of the literature reveals that there are gaps in oral health policy development, implementation and reform, and that policy-makers are largely limited to and by the decisions and conditions handed down by their predecessors (van Rensburg, 2010:315-336; Leichter, 1979:72). The problem that is being addressed in this study is that the oral health policy development, implementation and reform processes between Australia (a developed country) and South Africa (a developing country) have not been comparatively analysed, and thus lessons that could be learnt from this cross-national comparative analysis process are unexploited. According to the World Bank (2013) countries are defined according to their Gross National Income (GNI) per capita per year. Countries with a GNI of more than US\$ 11,905 in 2013 are defined as developed country. Those countries with a GNI of less than US\$ 11,905 in 2013 are defined as developing (as specified by the World Bank, 2013). In 2013 Australia had a per capita GNI of US\$65 390 and South Africa US\$7190 , thus satisfying the criteria of being classified as a developed and developing countries (World Bank, 2013).

Thus, this study seeks to understand policy-making and policy reform processes that could be formed into a generalised theory which could be applied cross-nationally to both developed and developing countries. In addition, there are very few policy analysis conceptual frameworks that support the analysis of general and oral health policies, for a variety of reasons, such as the difficulty in conducting such analysis due to the significant differences that exist between countries. This study seeks to develop a conceptual framework for oral health policy analysis that could be adjusted and applied to other areas of health policy analysis. Developed countries and developing countries have different needs and resources and have learnt to maximise the use of these resources, thus offering each other lessons that could be used to improve the healthcare of its population. However, there are no guarantees that the lessons that have been highlighted could provide solutions to other countries, nor that these lessons will be applicable in dynamic policy environments.

3. Research Questions

The primary research question that this study seeks to answer is: Can comparative oral health policy analysis between a developed and a developing country offer lessons that may be applied cross-nationally in order to improve policy-making and policy reform processes, and can these lessons in general be applied to other countries and contexts?

The study seeks to answer the following secondary research questions:

1. Are there lessons to be learnt from undertaking a cross-national comparative policy analysis of oral health policy development and implementation using a conceptual framework between a developed and a developing country, and can these lessons be applied cross-nationally?
2. Can oral health policies be comparatively analysed cross-nationally and provide lessons that could be used for policy development and reform?
3. What are the current debates related to oral healthcare human resources policies, provision, distribution, and skills-mix influences on the development and implementation of oral healthcare service delivery in a developed (Australia) and developing county (South Africa)?
4. Can systems dynamic modelling be applicable as a human resources for health forecasting model tool that may be used for health policy development, reform, and cross-national oral health care worker (OHCW) forecasting?
5. Is there on-going interaction amongst the policy-actors (policy developers) and the policy-implementers who influence oral healthcare access in Australia and South Africa in the policy development process, and are there any lessons to be learnt from the presence or absence of varied stakeholder input?

4. Aim and Objectives

Aim

The aim of the study was to analyse oral health policy by developing and applying a conceptual framework to comparative oral health policy analysis. This application and comparison could contribute to an understanding of the theoretical knowledge and scholarship of cross-national comparative oral health policy analysis.

Objectives

The objectives of this study are:

- To conduct a comparative cross-national oral health policy analysis using different sources of data, and then, to apply a tool to establish lessons that could be learnt and applied to other countries.
- To understand and contextualise access to oral healthcare service delivery and how the on-going interaction among the policy-actors (policy developers) and the policy-implementers influence oral healthcare access in Australia and South Africa
- To understand and contextualise how the ongoing debates related to oral healthcare human resources policies, provision, distribution, and skills-mix influence the development and implementation of oral healthcare service delivery in a developed (Australia) and developing county (South Africa).
- To determine the applicability of systems dynamic modelling, using human resources forecasting as an example, as a forecasting model tool that could be used for health policy development and reform.

5. Research assumptions made in this study

Based on a review and understanding of the literature a number of research assumptions have been made in this study:

- Multiple and varied stakeholders play, and are allowed to play, a role and provide input into the development and implementation of oral health policy, with this involvement not being limited to the select few (“policy elites”).
- Oral health policy documents and statements that have been developed or proposed do not remain mere policies, statements or proposals, but are actually implemented.
- There is sufficient policy-related information, epidemiological and statistical data available that would allow for cross-national oral health policy analysis.

6. Significance of the study

Cross-national health policy comparative analysis studies can provide new perspectives from which to view local policy (Buse, Mays and Walt, 2005:144). The public health significance of this study is that the new knowledge and information gained could be used to formulate a general theory and conceptual framework that could be used to gain a better understanding of some of the universal problems of oral health policy development and implementation. Blank and Barau (2010:244) argue that cross-national comparative studies can also provide policymakers (actors) with the opportunity to identify which oral health policy 'works best,' by using evidence-based policy-making and policy-innovation material in a structured manner, and which leads to successful policy implementation and outcomes

The study utilises both a retrospective and a prospective policy analysis, with the retrospective component spanning the years 2001 to 2011 and the prospective analysis being from 2011 to 2021. The retrospective analysis allowed the study to look back into the history of oral health policy formulation in order to gain an understanding of the policy processes and to be able to contextualise how and why the various policy developments occurred. The prospective analysis is aimed at understanding how, based on past policy processes, proposed policy processes would pan out. This theory could also help develop possible solutions that will be applicable to the two selected countries, one being a developed country (Australia) and the other being a developing country (Australia). SD modelling could contribute to the realisation that oral health policy is no longer a *“heritage maintained without effort, but needing a carefully planned preventive and complementary national oral health policy”* (Chen., 1997: 3). Thus, the lessons learnt from this cross-national comparative policy analysis and SD modelling study could be applied to developing and developed countries in the development of oral health policy and policy reformation. These lessons can also contribute to the development of oral health policy and lead to improved oral health outcomes.

7. Selection of countries

The two countries were purposefully sampled for comparative case study analysis. The choice of countries is based on a number of factors. The first factor is that the researcher has practised as an oral health practitioner in both countries, and thus has an intimate knowledge and understanding of the oral healthcare systems of both countries. A second factor is that both countries have a number of similar socio-economic, political, funding and healthcare

systems. Both countries are neoliberal democracies that were previously colonised by the British and sections of the population were subjected to various atrocities and disparities (Durey, 2010:S87; Rudd, 2009:2).

In Australia, the Indigenous people were subjected to numerous oppressive processes such as mass murder, denial of appropriate healthcare and forced land removals (Rudd, 2009:2). Racially discriminative oral healthcare funding was also evident, and in 2004–2005, state expenditure on oral health services was substantially less *per capita* for Indigenous people than the Australian average (Pulver *et al.*, 2010:4). A similar situation existed in South Africa, with legislation enforcing the Apartheid system, thus denying the majority various rights and disenfranchising the majority non-white races (Okorafor *et al.*, 2007: 6). A by-product of these oppressive policies was that the majority non-white population was relegated to the outskirts/remote areas/regional areas, and received minimal healthcare services. Australia has a comprehensive social health insurance scheme that has been in place for a number of years and is well resourced (Hillness and Healy, 2001:17-56). In contrast, South Africa is in the early phases of the roll-out of a social health insurance scheme, and it will take many years of reform to ensure that healthcare receives the appropriate funding and resource allocation that is required to offer optimal healthcare services to South Africans (Department of Health, 2011: 2-12; van Rensburg, 2010:315-336). Australia and South Africa have many similarities and differences in their political and healthcare systems, and the researchers in this study suggest that this makes them suitable for cross-national policy analysis. There are also numerous differences between these two countries, and they are listed in the table that follows.

Table 1.1: Similarities and differences between Australia and South Africa

	SIMILARITIES	
Dimension	AUSTRALIA	SOUTH AFRICA
Historical	Former British colony and member of Commonwealth (Hillness and Healy, 2001:17-56).	Former British colony and member of Commonwealth (with French, Dutch and German influences) (van Rensburg, 2010:315-336).
Political	Neoliberal, federal government with centrally made decisions (Hillness and Healy, 2001:17-56). There are two main political parties and a number of minor parties, which make up the Commonwealth Parliament. Each state and territory also has its own government (Hillness and Healy, 2001:17-56).	A federal state comprising of a national government and nine provincial governments. South Africa is a unitary, parliamentary republic. South Africa is a constitutional democracy with a three-tier system of government (van Rensburg, 2010:315-336). Each province has its own government.
Social	Australia is still a young country in population terms with fewer elderly people than many other developed countries. Those aged 65 years and over comprised 12.1% of the population in 2000 (World Bank, 2014). Australia has a large majority population of non-indigenous people, with a small minority of indigenous aboriginal people who were previously denied adequate and appropriate healthcare.	South Africa is still a young country in population terms with 96.3% of the population being aged under 65 years old, and 34.8% being under 15 years old in 2006 (World Bank, 2014). South Africa has a small minority of non-indigenous people and a large majority population of indigenous people, who were previously denied adequate and appropriate healthcare.
Legal system	Australia follows a Westminster system of government and law inherited from the British who originally colonised the country (Hillness and Healy, 2001:17-56).	South Africa has a 'hybrid' or 'mixed' legal system, comprising of a civil law system inherited from the Dutch, a common law system inherited from the British, and a customary law system inherited from Indigenous Africans (van Rensburg, 2010:315-336).
Population	In 2012 the Australian population was 22.3 million, which is 2.32 times less than the South African population (World Bank, 2014). Many of these people are immigrants. The population growth rate in 2012 was 1.7% (World Bank, 2014).	In 2012 the South African population was 51.6 million, which is 2.32 times more than the Australian population (World Bank, 2014). Many of these people are immigrants. The population growth rate in 2012 was 1.3% (World Bank, 2014).
Economy	Australia has a free capitalist economy, and it has a very low unemployment rate (3-6%) and enjoys high standards of living (Palmer and Short, 2007:14-24). Gross Domestic Product (GDP) growth rate in 2012 – 2.2% (World Bank, 2014).	South Africa has a free capitalist economy but a very high unemployment rate (25-35%) (van Rensburg, 2010:315-336). Gross Domestic Product (GDP) growth rate in 2012 – 3.6% (World Bank, 2014).

<p>Culture</p>	<p>Multicultural, western culture (Hillness and Healy, 2001:17-56).</p> <p>Nationally-made decisions and policies, with provincial policy implementation (Hillness and Healy, 2001:17-56).</p>	<p>Multicultural Anglo-Saxon, Indian and African cultural influences (van Rensburg, 2010:315-336).</p> <p>Nationally-made decisions and policies, with provincial policy implementation (van Rensburg, 2010: 315-336).</p>
<p>Health Systems</p>	<p>A socialized centrally planned, controlled and co-ordinated health system (AIHW, 2012:1-13).</p> <p>Substantial private healthcare sector with a small patient population base (AIHW, 2012:1-13).</p> <p>Small public sector with a large population base (AIHW, 2012:1-13).</p> <p>Similar mix of oral healthcare workers (dentists, dental therapists, oral hygienists) (AIHW, 2012:1-13).</p> <p>In 2012 Public health expenditure as a percentage of GDP was 6.3% (World Bank, 2014).</p> <p>In 2012 total health spending was AU\$116.36 million, of which state expenditure was AU\$83.301 million (72% of total expenditure). State expenditure on oral health in 2012 was AU\$1.885 billion (Australian Institute of Health and Welfare, 2012:12-14).</p>	<p>A socialized centrally planned, controlled and co-ordinated health system (van Rensburg, 2010:315-336).</p> <p>Substantial private healthcare sector with a small patient population base (van Rensburg, 2010:315-336).</p> <p>Small public sector with a large population base (van Rensburg, 2010:315-336).</p> <p>Similar mix of oral healthcare workers (dentists, dental therapists, oral hygienists) (van Rensburg, 2010:315-336).</p> <p>In 2012 Public health expenditure as a percentage of GDP was 4.1% (World Bank, 2014).</p>
<p>Geography</p>	<p>Large urban settlements, with many small rural towns (World Bank, 2014).</p> <p>The total land area is 7 741 000km² (World Bank, 2014).</p>	<p>Large urban settlements, with many small rural towns.</p> <p>The total land area of 1 219 090km² is 6.35 times less than that of Australia (World Bank, 2014).</p>

DIFFERENCES

Dimension	AUSTRALIA	SOUTH AFRICA
Historical	The minority was oppressed for many years, with the Aboriginals only gaining the vote in 1974 (Hillness and Healy, 2001:17-56).	The majority was oppressed for many years, with the non-whites only receiving the vote in 1994 (Hillness and Healy, 2001:17-56).
Political	Executive power is vested in the monarch (the Queen) (Hillness and Healy, 2001:17-56).	Executive power is vested in elected representatives (van Rensburg, 2010:315-336).
Social	Minimally affected by HIV/AIDS with a prevalence of 0.02% in 2012 (World Bank, 2014).	Largely affected by HIV/AIDS (prevalence of 18.9% in 2012) (World Bank, 2014).
Population	Minority Indigenous population, large migrant and refugee population with Aboriginals making up about 2.32% of the population, and whites making up 92% (Hillness and Healy, 2001:17-56).	Majority Indigenous population with a large migrant and refugee population (van Rensburg, 2010:315-336). Non-whites constitute 87% of the total population and whites 13% a (van Rensburg, 2010:315-336).
Economy	First world (developed) country (World Bank, 2014). Low unemployment rate (World Bank, 2014).	Third world (developing) country (World Bank, 2014). High unemployment rate (World Bank, 2014).
Culture	Multicultural, western culture with little traditional influences (Hillness and Healy, 2001:17-56).	Multicultural, western culture with traditional influences and influences from Malay and Indians (van Rensburg, 2010:315-336).
Health Systems	Health system consists of a small public sector and a large private sector (Hillness and Healy, 2001:17-56). Well-resourced public sector (Hillness and Healy, 2001:17-56).	Health system consists of a large public sector and a smaller but fast-growing private sector (van Rensburg, 2010:315-336). The public sector is under-resourced in terms of staff, infrastructure and management (van Rensburg, 2010:315-336).
Geography	An island continent, the world's sixth largest country (7,682,300 sq km) (Hillness and Healy, 2001:17-56).	Part of continental Africa (van Rensburg, 2010:315-336).

8. Theoretical knowledge and background of the study

The theoretical knowledge and background in this study is intended to, amongst other things, understand and contextualise the field of health policy and oral health analysis in developed and developing countries. Much of the theory from oral health policy analysis has resonance for general health, and these policy processes could be applicable to other areas of health policy analysis (Buse, Mays and Walt, 2005:144). Singh, Myburgh and Lalloo (2010:17) cite various authors who write that health policy research is:

“concerned with the intimate balance of political relations, needs and beliefs of the ultimate users, coalitions and conflicts of the decision makers, impact of past policy efforts, organizational impact and other contextual influences within the context-specificity of health policy-making” (Howlett and Lindquist, 2004; Howlett *et al.*, 2007).

Policy analysis initially focused on the state (public sector) and on politicians, bureaucrats and other interest groups (Grindle and Thomas, 1991; Hogwood and Gunn, 1984). Since the beginning of the new millennium, scholars have acknowledged a shift in the nature of policy and policy-making, which points to the involvement of a much larger array of actors in the policy process (Buse, Mays and Walt, 2005). The private sector, for example, includes for-profit and not-for-profit organizations, and has become an important player in health policy development, implementation and reform (Buse, Mays and Walt, 2005). Partnerships between public and private sectors have also changed the health policy environment of developed and developing countries and can usefully inform research in those areas (Buse, Mays and Walt, 2005).

8.1. Health policy

Health policy has been described as being *“complex, multi-level, continuous and driven, to varying degrees, by government, the public, including interest groups”* (Walt and Gilson 1994:14-27). In order to understand the process of developing and making oral health policy, the key *concept* of ‘policy-making’ needs to be developed, clarified and to understand how it will be used in this study. The process of developing oral health policy will be explained. Then the theories in constructing and implementing oral health policy will be reviewed. These theories will do two things: they will describe the oral health policy development and implementation environment (the world in which we live), and they will prescribe a path towards an ideal world in which the population receives appropriate and ethically-justifiable

oral healthcare. The reasons for the success or failure of policies can be gained by theoretically understanding the tools of policy language, process, stakeholders, prescriptions, policy-making paths and agendas.

8.2. Definition of Policy

In order to understand what policy is, it is important to define the concept ‘policy’. Various definitions of policy exist, including that a policy is “*a statement of intent or an action plan to transform a perceived problem into a future solution*” (Cloete and de Coning, 2011: 4). Another definition of policy is the choice to take, or not to take, any action regarding a matter that is on the policy agenda (Buse, Mays and Walt, 2005: 6; Walt, 1994:40).

Policy is also a term that is used in many different ways, and includes different types of statements, intentions and actions (Palmer and Short, 2000:22). Thus, ‘policy’ can refer to the following:

- A very broad and general statement of intentions, aims and objectives, such as when politicians make general policy speeches.
- The past set of actions that were employed by the state in a particular matter.
- A specific statement of future intentions and actions.
- A set of standing rules that are intended as a guide to action or inaction.

(Palmer and Short, 2000:22-23).

Another definition of policy is a “*purposive course of action followed by an actor or set of actors in dealing with a problem or matter of concern*” (Anderson, 1975 - cited by Buse, Mays and Walt, 2005: 8). The researchers in this study defines policy as being

“including but not limited to any document, speech, rule, regulation, intent or action that offers or proposes rules, guidelines, tasks, actions or facilitates programmes and strategies that lead to action or inaction in maintaining or changing the status quo”.

Health policy refers to policy pertaining to health, and embraces all causes of action and inaction that affect institutions, organisations, services and funding arrangements of the health system (Buse, Mays and Walt, 2005:6). Palmer and Short (2000:23) agree that health policy generally embraces courses of action that affect people, institutions, organisations, services and funding arrangements (healthcare systems), and includes the actions and

intended actions of public, private and voluntary actors (stakeholders) that have an impact (either directly or indirectly) on health. It is important to recognise that there are important overlaps between social, economic and health policies, and that whilst social and economic policies focus on wealth maintenance, distribution and the provision of services such as transport, safety and security and housing health policies have a much narrower focus, that of meeting the health needs of the population (Palmer and Short, 2000:27). Therefore, political parties' intended policies (presented as manifestoes) that may become actions should they be elected into power, are also policies. (Palmer and Short, 2000:23). An example of such a policy would be the finance policies of the country which dictate healthcare funding resource allocations, thus having a bearing on healthcare. Pal (1994:16) defines health policy as being:

“authoritative decisions made within government that are intended to direct or influence the actions, behaviours, or decisions of others pertaining to health and its determinants. These decisions can take the form of laws, rules and operational decisions.....Policies can be allocative or regulatory in nature” (Pal, 1994:16).

Another definition that Pal (1992:16) affords is that of policies being *“a course of action or inaction chosen by public authorities to address a given problem or interrelated set of problems,”* and that policies are also authoritative statements of intent which are adopted by governments, on behalf of the public, with the express intention of improving the health and welfare of the population, and is a centrally determined basis for action (Pal, 1994:16).

Other definitions of policy, which are cited by Cloete and de Coning (2011: 4-7) include:

- *“ A declaration and implementation of intent”* (Ranney, 1968: 7);
- *“ The authoritative allocation through the political process, of values to groups or individuals in the society”* (Easton, 1953:129);
- *“ A comprehensive framework of and/or interaction”* (Starling, 1979: 4); and
- *“ A mechanism employed to realise societal goals and to allocate resources”* (Barker, Michaels and Preston, 1975: 12-15).

Policies are developed and implemented by a variety of ‘policy actors’, including (but not limited to) governments; academic and research institutions; public and private companies; non-governmental organisations (NGOs); multilateral organisations such as the United Nations (UN) and the World Health Organisation (WHO); political parties; and a host of other stakeholders (Fourie, 2006: 9). Policy may be expressed as a series of instruments,

practices, statements, regulation and laws, and may be implicit or explicit, discretionary or statutory (Cloete and de Coning, 2011: 4-7).

8.3. Types of Policies

There are four main types of health policies. They are indicated in the table below:

Table 1.2: Four main types of health policies

Types of Health Policies	Description
Laws	A rule of conduct or action prescribed or formally recognized as binding or enforced by a controlling authority. Enacted by any level of government. Can also be referred to as a programme. For example, the Medicare health programme in Australia.
Rules/Regulations	Designed to guide the implementation of laws. Can be made in the executive branch by the organisations and agencies responsible for implementing laws.
Operational Decisions	Operational decisions that are made by the executive branch of the government as a part of the implementation of a law. Normally these decisions consist of protocols and procedures that follow the implementation of a new law. These decisions tend to be less permanent than rules or regulations.
Judicial Decisions	Policies that are created as the result of a decision made by the judiciary.

Source: Cloete and de Coning, 2011: 4-7).

8.4. Policy Typologies

There are a number of policy classifications (typologies). A critique of these policy types and typologies is that they tend to categorise and compartmentalise the various constructs of policy development and policy analysis into neat categories, when in fact the policy environment is highly complex and cannot be viewed or analysed in these categories or typologies. These typologies include the following:

Table 1.3: Five typologies of health policies

Policies Typology	Description
Distributive policies	Distributive policies seek to distribute goods and services to stakeholders (the population) in order to achieve equity.
Redistributive policies	Redistributive policies seek to redistribute benefits such as wealth or healthcare in society from the haves to the “have-nots”.
Regulatory policies	Regulatory policies seek to control or limit the discretion of individuals and organisations in order to compel them to behave in a certain manner. Compliance with policy directives is ensured through regulations and the threat of punitive measures such as fines or sanctions.
Constituent policies	Constituent policies deal with laws and by-laws, and are legally enforceable.
Miscellaneous policies	These are policies that do not fall within any of the above mentioned pre-determined categories.

Source: Cloete and de Coning (2011: 4-7)

8.5. Policy Development

Policy development occurs at many levels in central, provincial and local government with decisions being made by a specific group of decision-makers (“*policy elites*”) in a manner known as process (Buse, Mays and Walt, 2005:5; Walt, 1994:38). These policy elites include those who hold high, and often privileged positions in organisations that may be influential in policy decision-making (Buse, Mays and Walt, 2005:5; Walt, 1994:38). Also included in the policy decision-making process, though not as influential, are interest groups such as professional dental associations (Buse, Mays and Walt, 2005:5; Walt, 1994:38). Issues of high politics (policies that are of macro importance) are developed and imposed by the elites or ruling class (state policy-makers) and those issues that are regarded as being of low politics (policies that are of day-to-day importance or are of a microscopic nature) and that can be developed based on the influences of many different groups, including civil servants,

health workers, and patients (Walt; 1994:10). State policy-makers are found at various levels of government (federal, state/territorial, regional, national, provincial, district, and local government) and include the leaders of political parties, Heads of States, Ministers of Health, Heads of Departments of Health and other health authorities, senior officials and a host of other bureaucrats (Palmer and Short, 2000:29).

8.6. Policy and Power

There are two theories (pluralist view and elitist view) that are related to how power is diffused through society (Walt, 1994: 36). A brief description of these two views is presented in the table below:

Table 1.4: Theoretical views of power diffusion

View	Description
Pluralist	This view states that power is diffused throughout society, and no single group wields total power over another. Even though elitists exist in this state, there is a plurality of elites as no particular elite is dominant. The government is seen as being a neutral negotiator between different interests.
Elitist	This is a Marxist elitist view that suggests that policy is dominated by a particular social group, and that the state’s primary function is to ensure the dominance of this group. This political elite is usually only open to members of dominant economic classes who influence policy, and may consist of the military leadership or senior politicians. Interest groups have little input in policy-making processes.

Source: adapted from Walt (1994:36-39)

Both Australia and South Africa encompass aspects of both theoretical views in their power diffusion systems. Australia is governed by the elected political party leader (elitist view), but may need to form a coalition government if the majority of parliamentary seats have not been won by a single party. Whilst there are policy elites that dominate the policy agenda, the influences of advocacy groups and other stakeholders could be substantial (pluralist view). In South Africa there has been a single dominant ruling political party since 1994 (elitist view). However, the opposition political parties, advocacy groups and other stakeholders actively participate in policy-making (pluralist view).

When policy analysis is being conducted, many analysts are of the opinion that the capacity of the elitists is over-estimated, and that non-elitists *do* exercise power and influence to force policy change (Walt, 1994:39). This researcher suggests that this is noticeable, even in developing countries, where interest groups are not always sufficiently well-organised to pressurise governments, as these advocacy groups are able to exercise some influence on government via professional and religious groups.

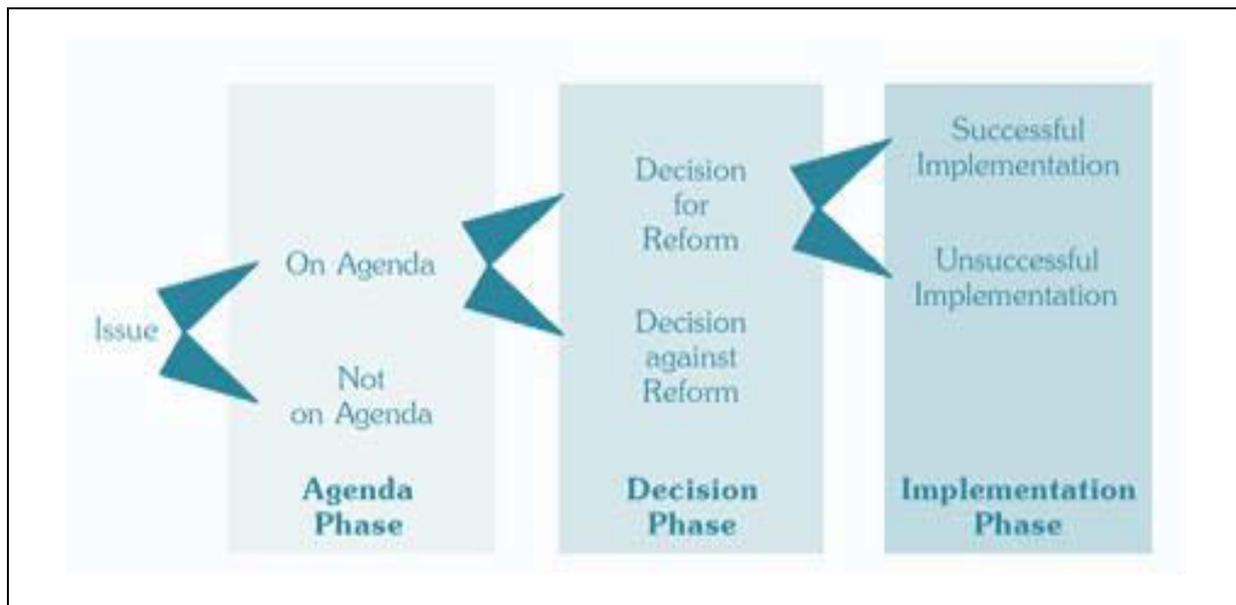
8.7. The policy-making process

This researcher suggests that to understand the dynamics behind policy development, it is essential to gain an understanding of, and to differentiate explicitly, the processes in policy-making. Process refers to the manner in which policies are initiated, developed, formulated, negotiated, communicated, implemented and evaluated (Buse, Mays and Walt, 2005:10; Marmor, 2012:22).

A number of models have been developed that describe the policy-making process (Hardee *et al.*, 2004: 3). Policy practitioners make predictions/prescriptions/forecasts about issues that need to be addressed through policy (identify problems, and then place these problems onto the agenda), and then policymakers develop a policy which is then implemented (Hardee, 2004: 6). This researcher critiques this model of policy-making in that it does not allow for a forward-backward consultation and policy revision process.

To capture the dynamic nature of policy-making, Hardee *et al* (2004: 6) uses the Stages Model of policy-making which takes into account the dynamic (changing) nature of policy-making (Hardee *et al.*, 2004: 6). The framework allows for changes or decision to be made for or against the policy at any stage of the policy-making process, and this complex framework, which consists of four phases, is illustrated in the diagram below.

Figure 1.1: Stages Model of Policy-making

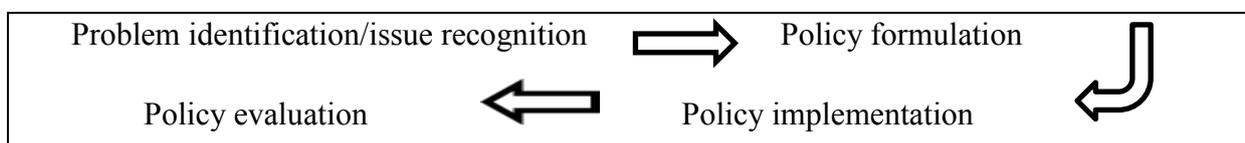


Source: Grindle and Thomas (1991), in Hardee *et al* (2004: 6)

Kingdon (1984) presents an alternate policy model, by suggesting that policy change comes about when three streams – problems, politics and policies – all interact simultaneously (Hardee *et al.*, 2004: 6). Each of these streams has its own forces which act upon and influence policy (Hardee *et al.*, 2004: 6). These three streams often meet as a result of the actions of policy advocates, so that policies can be developed to suit the resolution of an identified need (a problem) (Hardee *et al.*, 2004: 6).

One of the most common policy models is the ‘stages heuristic’ model in which the policy process is broken down into the following ‘stages’ (Cloete and de Coning, 2011: 4-11):

Figure 1.2: Stages heuristic approach to policy development



Source: Cloete and de Coning (2011: 4-11)

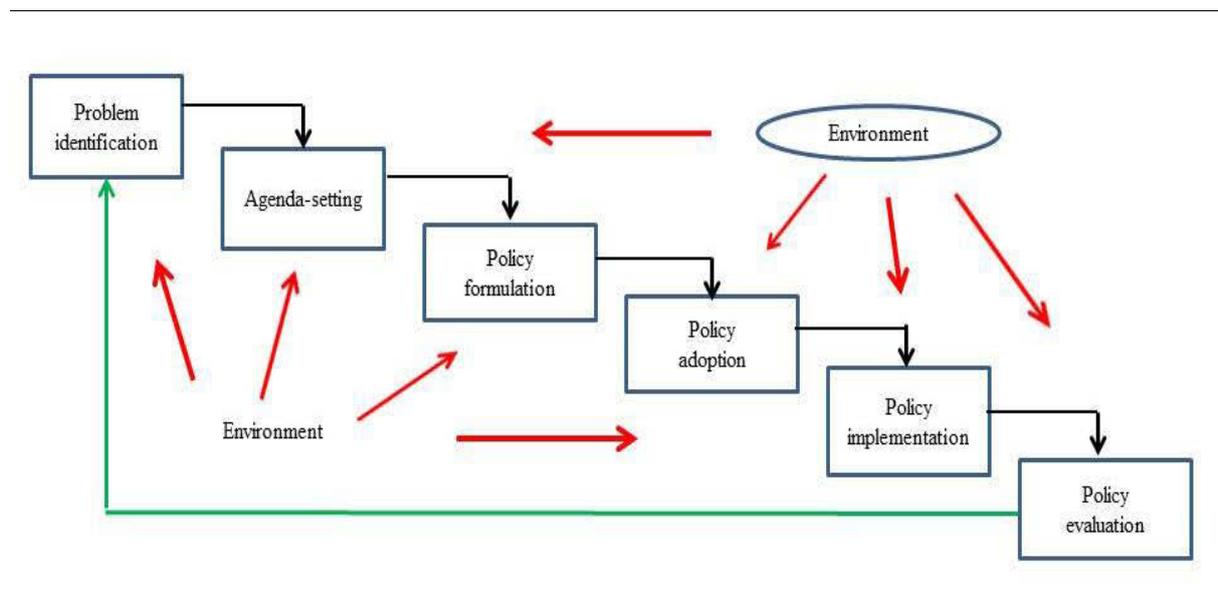
Policy-making is an iterative process that is affected and influenced by various actors (Walt, 1994:73). Policy-making is not merely an analytical problem-solving process but a complex political process that involves negotiation, bargaining, trade-offs, and the accommodation of

multitude and variety of interests which tend to mirror the ideology and political interests of the sitting government (Walt, 1994:73). Policy development also takes into account the nuances of existing policy, and financial and other resources that are required to implement the policy, and also positive and negative public and political support (Walt, 1994:73).

Policy-making processes do not occur within a ‘*socio-political vacuum*’, nor do they use all the stages, nor do the stages follow each other sub-sequentially (Anderson, 2000:100). Policy-making should be contextualised within a policy environment, which broadly encompasses factors such as demographic variables, the natural and built environments, population variables (age, race, size distributions), geographical variables (spatial location, topography), and the political and cultural environment (regime type, geopolitical position, social and class structure, religions) (Anderson, 2000:100).

The basic stages in the policy-making process are illustrated in the figure below.

Figure 1.3: Policy-making stages



Source: Adapted from Van der Waldt (2001:94)

Not all policies are made using all these steps, nor in these sequences. Policies need to adapt to the environment, or to respond to sudden and unexpected changes that occur in the policy environment in order to implement policy initiatives and reforms efficiently and effectively, and therefore policy development is flexible.

8.8. Decision-making

Anderson (1995) describes three different ways in which decisions are made, and these processes are important because they describe how the decision-making process came about (Anderson, 1995: 6-10). Decisions can be made on an *ad hoc* (incrementalist) basis, wherein decisions are made by making small, incremental changes to existing policies (Anderson, 1995: 4-10). Incremental decision-making tends to lead to policy decisions that are viewed as being expedient, politically safe, practical, and with the minimal disruption of policy (Anderson, 1995: 6-10). Graycar (1978) states that incrementalism, rather than innovation, has been the norm in Australia's policy development sphere and concluded that this leads to conservative policies because the power of the most influential actors are strengthened, whilst the interests of less powerful actors are neglected (Graycar, 1978: 8).

Another type of decision-making is the rational-comprehensive decision-making method (Anderson, 1995: 6-10). Here decisions are made after a clear and comprehensive understanding has been gained of each of the proposed policy changes, so that a rational and objective evaluation of the alternatives could be made and the most suitable policy decision made (Anderson, 1995: 6-10).

Mixed-scanning is the third type of decision-making model, and here a 'compromise' approach wherein both rational-comprehensive choice and incrementalist decision-making processes are adopted (Anderson, 1995: 6-10).

A critique of these types of decision-making is that they are often made in response to a need, and that they are not because of an initiative or a need that has been identified through research and/or forecasting. Furthermore, both types of decision-making appear to be conservative and politically safe and correct. However, the answers to some policy problems are not always conservative nor are they politically safe. An illustrative example of this would be former Australian Prime Minister Kevin Rudd's decision to render a formal apology in parliament to the Aboriginals for the atrocities that were carried out against them in the past (McAuley, 2012: 1-3). This was not only a politically unsafe decision that could have cost him political support from certain Australians but was also a momentous policy decision. In South Africa, former president FW de Klerk's decision to usher in democracy and end apartheid-rule was a politically unsafe decision that altered South Africa's socio-economic and political structures (Osade, 2002:80).

8.9. Policy Analysis

There is a wide variety of policy analysis and evaluation methods ranging from literary, critical and historical scholarship and the use of simple measurement and statistical measures, to the use of complex techniques such as cost-benefit analysis, experimental design and multivariate analysis (Palmer and Short, 2000:27).

Palmer and Short (2000:27) cite Ham and Hill (1993:174-6) who state that there are three broad levels of policy analysis. The first level is the decision-making level within which the primary focus of the analysis is the identification of who makes the choices, and how these choices are made by governments and individuals. The second level focuses on the health policy-making process and considers the actions and mechanisms wherein agenda is defined and policies are developed and implemented. The third level is the structural level where the principle objective is the analysis and evaluation of existing policies within the economic, political, social and cultural structures.

This study seeks to comparatively understand and contextualise the development and implementation of oral health policies (including rules, regulation, announcements and policy positions) for a 10-year period from January 2001 until December 2011. The methods employed in this study include a literature review, comparative policy analysis conducted in certain areas, case studies, and interviews with ten key informants (five from each country). The informants are drawn from the fields of academia, the health department, healthcare funders, oral health advocacy groups and oral healthcare worker professional groups. Some of the difficulties of health policy analysis include the relative paucity of statistical material bearing on policy outcomes (when compared to other areas of policy); the lack of well-developed theories and other evidence that links health inputs to health outcomes and status, and the relatively large number of influential contextual factors that are beyond the control of policy makers (Palmer and Short, 2000:26).

It has been noted that the health policy analysis is an inherently complex research process (Singh, Myburgh and Lalloo, 2010:18). Greater engagement in the process of oral health policy development and implementation can lead to improvements in this process if consultations and engagement occur wherein the impact of coalition groups and partnerships in response to competition for scarce resources is recognised. Lupton, 1994 and Poland *et al.*, (1998) who concur that policy-making is a social process and that *“the analysis and promotion of certain policy options require the facilitation of conversations and dialogue*

between the different participants in the policy process". Rispeli and Moormanii (2010: 7-9) argue that whilst an understanding of the rules, regulations and policy guidelines may be viewed as being the "end-points" of policy development, these factors are actually the starting points. They base this argument on the premise that policy is "*brought alive*" by the manner in which the various stakeholders (*actors*), such as interest and advocacy groups, the public, and the civil service translate and implement these policies.

In the First International Symposium on Health Systems Research held in Monteux, from 16th-19th November 2010, various speakers concluded that health policy analysis is important. These speakers reported that when conducting reviews of the existing body of published health policy work, and after reflecting on the research designs and methods of health policy analysis, they found that:

- it is a small body of work, of limited scope, in terms of topics studied and questions asked, and of limited depth, in that there are few papers in any one policy area or for any one country;
- current work is largely descriptive in nature and experiences are often only weakly contextualised;
- relatively little work seeks to be analytical or explanatory;
- there is surprisingly little use of relevant theory to guide studies or frame analysis, or little attempt to test and extend theory;
- there is surprisingly little and only weak use of case study design;
- authors often demonstrate little reflexivity despite the importance of interpretation and judgment in analysis; and
- there are weak links between policy researchers and policy makers and health system managers.

Source: Monteux statement on HPA Research for Governance and Implementation (2010, 1-5).

Therefore, in concurrence with the arguments of various authors (Singh, Myburgh and Lalloo, 2010:18; Rispeli and Moormanii, 2010: 7-9) it is postulated that by conducting comparative oral health policy analysis of Australia and South Africa a contribution to the scholarship of policy analysis theory could occur.

As the major healthcare funder, the state should have a major role to play in, and assume responsibility for, the development and implementation of policy, as well as an overall health

services plan (Palmer and Short, 2000:22-27). This is especially so because health policies have significant budgetary implications for governments (Palmer and Short, 2000:22-27). A policy analysis perspective is the best way to examine these and many other healthcare issues (Palmer and Short, 2000:22-27).

Therefore, it is evident that there is a clear need for policy analysis. But what exactly is policy analysis? Pal (1992:12) defines policy analysis as being “*the disciplined application of intellect to public problem*”, whilst Weimer and Vining (1992) offer the definition of “*client-oriented advice relevant to public decisions and informed by social values*”. Other authors such as Patton and Sawicki (1993) offer the following more detailed definition:

“a process that usually begins with problem definition rather than the broader inventory phase of the planning process. It also yields alternatives, but the final document is likely to be a memorandum, issue paper, or draft legislation. It has a specific client and a single point of view, a shorter time horizon, and an openly political approach. The final product of such a process is called policy analysis.”

8.10. Comparative Analysis Theory

Developed and developing countries can generate effective solutions to healthcare challenges, and by analysing these solutions, rich and poor countries could provide new insight into practices and policies (Syed *et al.*, 2012: 3). A critique of this is that whilst the process of a developed-developing country comparative analysis could generate effective solutions that could lead to policy reforms, there are no guarantees that this knowledge will be appropriate, applicable or generalizable, from and between developed and developing countries. Some lessons from cross-national analysis between a developed country and a developing country, as suggested by Syed *et al.*, (2012: 3) include:

Table 1.5: Potential lessons that could be learned from cross-national comparative analysis

Lesson	Description
Service delivery	Developing countries could provide good examples of effective, safe, good quality healthcare, excellent health delivery models, infrastructure and leadership.
Health financing	Some developed and developing countries can offer insight into health financing systems that achieve universal coverage through social insurance schemes.
Policy development	Both developed and developing countries can provide insight into leadership and governance models from successful initiatives.
Human resources	Developing countries have found unique and innovative ways of dealing with the human resource crisis in health and have designed programmes on planning and scaling-up workforce, and thus can provide insight into how best to recruit and retain workers and fill gaps in skills and shortages.

Source: Syed *et al.*, (2012: 3)

8.11. Need and benefits of policy analysis

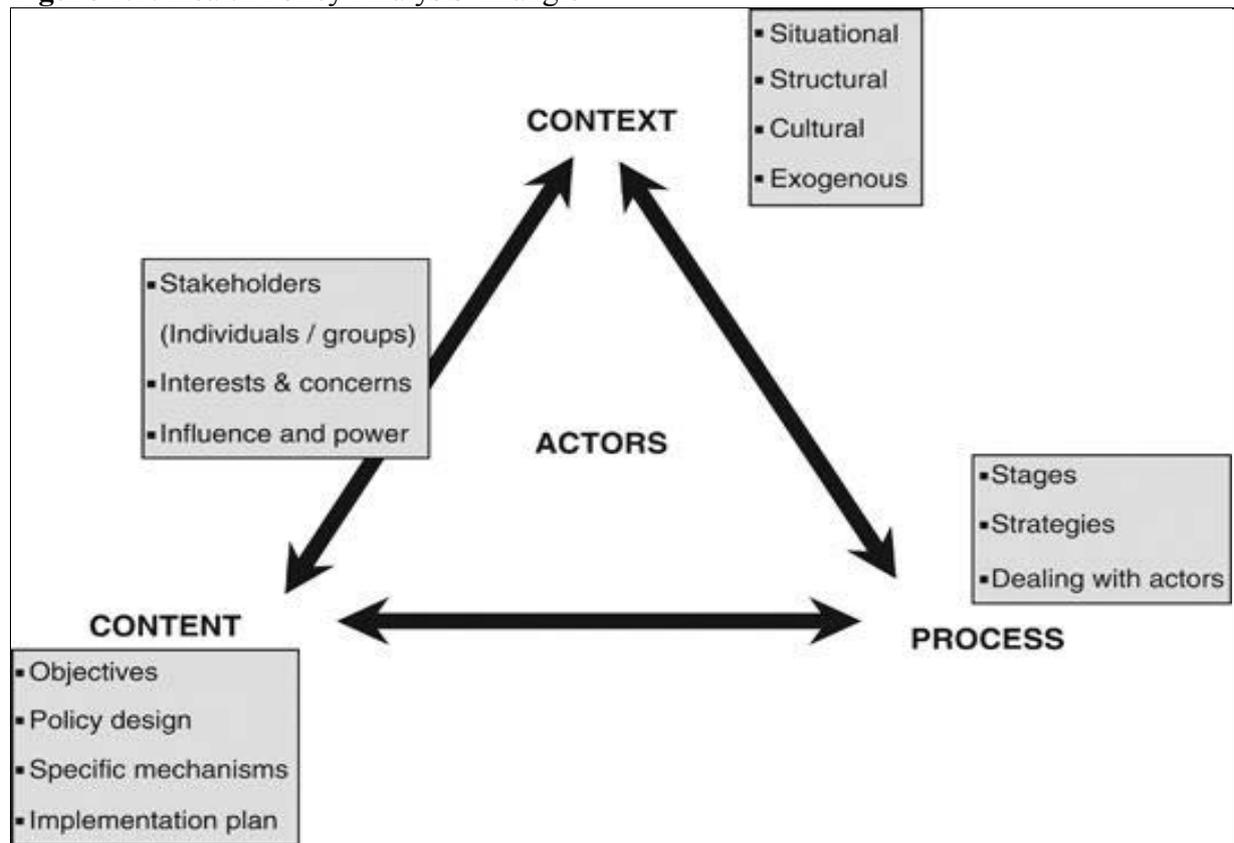
Marmor (2012) claims that the field of comparative policy analysis is “*somewhat under-theorized*” and that whilst there are many empirical observations and frequent claims regarding lessons learnt from cross-national policy analysis, there are few studies on how to – or not to – conduct cross-national policy analysis (Marmor, 2012:19). This view is supported by Cyr and deLeon (1975: 375), who also argue that most policy analysis has too much of a “*domestic orientation*”. Marmor (2012) suggests that policy analysis can improve cross-national understanding in both obvious and less-obvious ways. One less-obvious way is to simply more clearly define what is on the policy agenda by referring to quite similar or quite different formulations elsewhere, wherein the “*more similar the problems or policy responses the more likely one can portray the nuanced formulations of any particular country*” (Marmor, 2012:19).

Cyr and deLeon (1975: 376) write that comparative policy analysis is not simply a matter of conducting a straightforward analysis and examination of the similarities and/or differences between and/or amongst policies and their outcomes, as this would not begin to address the problems that may appear. These authors further suggest that it is virtually impossible to determine whether the different policy outcomes are due to variations in the specifications of the policies themselves, or in the nature and type of problems that they seek to address, or in the general cultural and political milieus that they operate in, or even in a combination of these factors. Whilst the policies may be directed at addressing the same, or very similar issues, these authors argue that it could be self-defeating to comparatively study them as the two policies may be vastly different (Cyr and deLeon, 1975:376).

This researcher suggests that these differences may occur through cultural, economic, administrative and/or political differences and experiences between the countries being studied. Other factors such as the different conceptions of, and societal demands for, problems to be addressed; the employment of different political systems tax and healthcare funding structures; the social, cultural, political and environmental content within which these policies are operationalised are not always apparent. This may have a negative impact on the interpretation of the results of the comparative policy analysis, and render such analysis incomplete or obsolete (Cyr and deLeon, 1975:378).

In order to analyse the process in which oral health policies are developed, the different actors and the content of oral health policy will be analysed. To facilitate this analysis, the health policy analysis triangle, developed by Walt and Gilson (1994), as illustrated below, will be used as the basis for the development of a conceptual framework. The health policy analysis triangle framework is a highly simplified approach that enables the systemic analysis of the complex interrelationships in oral health policy development (Buse, Mays and Walt, 2005: 8). The Walt and Gilson analytical framework focuses on policy content, context, process and actors and takes into account various factors such as the policy development context and the political ideology (Walt and Gilson, 1994:56). The developed conceptual framework allows for the systemic exploration of health policy politics, and allows for the analysis of the complex inter-relationships of health policy development (Buse, Mays and Walt, 2005: 9).

Figure 1.4: Health Policy Analysis Triangle



Source: Walt and Gilson, 1994 (from Buse, Mays and Walt, 2005: 8).

The four focal areas of the Walt and Gilson framework are described in the table below.

Table 1.6: Focal areas of the Walt and Gilson health policy analytical framework

Focal Area	Description
Context	Context includes situational factors (the specific conditions of a moment in history that impact on the policy change intended), structural factors (the relatively unchanged circumstances of the society and the polity such as the structure of the economy and the political system), cultural factors (the values and commitments of society and groups), and exogenous factors (the events and values outside of any one country or system).
Content	Content relates to the specific nature and design of legislation or policies, the interaction between these policies and other institutional changes, and existence of implementation guidelines.

Actors	Actors are the people or organisations involved in health policy change and the roles of policy actors, including implementers and beneficiaries, how actors use their power in taking forward, blocking or challenging policy implementation, and the influence of laws, norms and customs (institutions) over the behaviour of various stakeholders.
Process	Process is concerned with the way in which laws/policies are identified, formulated and implemented, their timing, the strategies used, as well as the specific mechanisms or bodies established to take these strategies forward.

Source: Rispeli and Moormanii. (2010: 8-10).

It is postulated that in order to improve the policy-making process, an evaluation should be conducted into the policy-making process of the past (retrospectively) and the present, in an effort to uncover which sound, inappropriate or erroneous policies were formulated in the past, and more especially why. Therefore, this study utilises health policy analysis tools to understand and contextualise the complex process of oral health policy development, implementation and reform in Australia and South Africa.

Fourie (2006: 6) explains that it is useful to differentiate between an examination of the policy responses (the actual policy documents) and the policy-making process. He goes on to point out that there are a number of possible results:

- Good policies may be produced, but fail nevertheless (for example through the occurrence of unforeseen circumstances, or if there is no political will for the policy to succeed).
- Good policy-making procedures may occasionally produce poor policies, as no procedure may always produce satisfactory outcomes.
- Bad policy-making procedures may, because of unintended or unexpected consequences, inadvertently produce good policies.

(Fourie, 2006: 6)

A critique of the health policy analysis triangle and the other policy analysis conceptual frameworks (such as the Stages Heuristic framework and the Advocacy coalition framework) is that they are not encompassing and broad-based enough to incorporate the various and unique circumstance that may exist in the oral health policy environments in Australia and

South Africa. Another critique is that these conceptual frameworks do not consider factors such as the technological advances, the need for research, and how forecasting future needs and demands can affect policy development. Therefore, this study analysed the various constructs of these policy conceptual frameworks and after making modifications, adapted them into a comprehensive conceptual framework for this study.

However, it must be noted that conceptual frameworks do have strengths and weaknesses. Marmor and Weldt (2007:11-20) argue that some of the strengths of conceptual frameworks are:

- Conceptual frameworks that concentrate on policy actors and healthcare systems allow for an analytical understanding of the processes in policy development, and could contribute to improved policy-making; and
- Healthcare policy analysis conceptual frameworks can contribute to meaningful policy analysis theories that could result in improved policy decision-making (Marmor and Weldt, (2007:11-20).

However there are also weaknesses in conceptual frameworks such as:

- Comparative policy analysis conceptual frameworks that utilise literature reviews as the basis of their analysis may not be able to fully understand and appreciate the complex nature of health policy analysis; and
- Conceptual frameworks that isolate and divide political actors and healthcare systems may result in health policy analysis that is not analytically meaningful and is disjointed (Marmor and Weldt, 2007:11-20).

8.12. Influences on Policy

Oral health is a complex and dynamic entity influenced by many non-health related factors such as poverty, sanitation, economic policies, religion and politics (Buse, Mays and Walt, 2005: 5). Oral health policy is synonymous with politics and deals explicitly and specifically with who influences policymaking, how these influences are exercised and the conditions under which health policy is developed (Buse, Mays and Walt, 2005:6-8). Other exogenous factors that affect oral health policy include environmental (climate), structural (economic wealth and stability), cultural (historical traditions), and situational (demographic transitions, epidemiological profile and unmet oral health factors) (Walt, 1994:29-30).

8.13. Power and the policy process

Policy analysis can occur through an analysis of policies from either a macro- or a micro-theoretical viewpoint (Walt, 1995:35). Macro-theories deal with power in political systems, which can be differentiated by the themes of either consensus or conflict (Walt, 1995:35). In the consensus theoretical approach, political power is perceived as the ability of governments to collectively decide and implement agreed policies, whilst in the conflict theoretical approach, the focus is on the small number of elites or the many different groups who make policy (Walt, 1994:35). The micro theories focus more on the mechanisms and administrative aspects of policy-making (Walt, 1994:35).

9. Stakeholders, Power and Political Systems

9.1. Who makes policy?

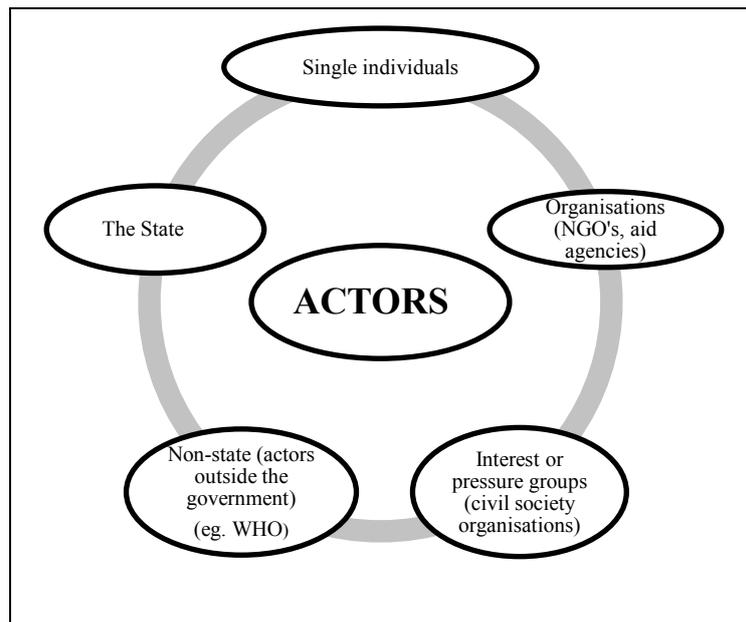
Actors

The 2003 Institute of Medicine (IOM) report (2003:41) defines six critical “actors” who are in a position to affect health greatly: communities, the healthcare delivery system, employers and business, the media, academia, and government. Further, the IOM (2003:28) finds that a public health system is a

“complex network of individuals and organizations that have the potential to play critical roles in creating the conditions of health. They can act for health individually, but when they work together toward a health goal, they act as a system - a public health system.” (IOM, 2003:28)

Buse, Mays and Walt (2005: 5), have identified actors in the health policy process, and they are reflected below:

Figure 1.5: Actors in health policy development.



Source: Adapted from Buse, Mays and Walt (2005)

These actors may be neutral or display varying levels of support or opposition: such as high opposition, medium opposition and low opposition to a policy (Buse, Mays and Walt, 2005:180). The state plays a major role in health policy development and does more than any other actor in deciding which policies to adopt and implement, whilst keeping some agendas “hidden” for personal, political or unknown reasons (Buse, Mays and Walt, 2005:180). A critique is that in the field of oral health policy, these five critical actors play a role, to varying degrees, in the development of oral health policies. In Australia, there are very strong and vocal oral health advocacy groups and actors who exert strong influences on oral health policies, whilst in South Africa, the influence of such groups is minimal.

9.2. Role of politics in health and health policy

Walt (1994) writes that a country’s political system provides the framework that allows for people’s participation in the policy-making process by highlighting the mechanisms that are available to the population wherein they are encouraged to participate or discouraged from participating in policy-making processes (Walt, 1994:11).

9.2.1. Interdependence of policies

Walt (1994) and Cyr and deLeon (1975) state that they are keenly aware of the interdependence of policies, and that there is a correlation between, for example, the policies of defence and health (Walt, 1994:11-15; Cyr and deLeon, 1975:380-382). These authors also write about the phenomenon of ‘unanticipated consequences’ of other policies, and of effects

of a policy that were not apparent to the initiators of the policy which undermine successful policy outcomes. Oral health policy is dependent on various constructs, such as a good water supply, and in both Australia and South Africa, there are numerous influences policies that are interdependent on each other. Funding allocation policies, general health policies, and even economic policies such as job creation programmes all play a role in oral health (in keeping with the common-risk factor approach), and thus policy development and analysis are interdependent on other policies.

9.2.2. Effects of politics on policy

Cyr and deLeon (1975) emphasise the importance of politics and political interference on policy development (Cyr and deLeon, 1975:381). These authors illustrate an example of where a policy is inconsistent in administrative terms but may be implemented because it is politically useful for politicians to appease their constituencies (Cyr and deLeon, 1975:381). The result of this political interference could be that the problem may not be adequately addressed, or that a relatively simple policy change in order to harmonise policy responses flounders and fails in the face of political barriers and agendas (Cyr and deLeon, 1975:381). In liberal democracies, such as both Australia and South Africa, two or more political parties compete for power (van Rensburg, 2010:315-336; Hillness and Healy, 2001:65). As part of their drive to win political support from their respective populations, they make election promises, wherein they produce policy documents or make statements of intent (manifestoes) to demonstrate to their (potential) supporters what their intended plans are to address certain problems, if they are voted into government (Cyr and deLeon, 1975:381).

These policies are usually a response to population needs, and are discussed at party meetings and congresses where representatives from local communities provide input and suggest amendments or agree to the suggestions (Cyr and deLeon, 1975:381). However, once the party is elected into power, they are not bound by these promises, although they are at risk of losing popular support (Cyr and deLeon, 1975:381). Alternately, they may have to compromise or shelve their plans if they do not receive sufficient electoral support and have to enter into coalition governments (Cyr and deLeon, 1975:381).

In countries where there is a single dominant party, with post-apartheid South Africa being a good example, the political party formulates all policies and government implements these policies (van Rensburg, 2010:315-336). So, whilst Parliament acts as a forum for debate it is the party that is the supreme and dominant policy-maker (van Rensburg, 2010:315-336; Walt,

1994:5). In countries where there is a single dominant party, and this occurs in many African developing countries, elections do not provide the population with many choices or alternatives, and criticisms of the ruling party often become mute or stifled (Walt, 1994: 5). Apartheid South Africa (pre-1994) is an example of this, where the ruling National Party (NP) was able to reform policy to suit their ideologies, despite resistance from the majority (van Rensburg, 2010:315-336).

However, this study argues that the situation has not changed, even though the democratically elected African National Congress Party (ANC) was elected into power in 1994, as there is little or no room for public participation because the policy intentions of the dominant party are implemented whilst the policy intentions of the opposition political parties (and their supporters) are often not taken into account. Walt (1994:75) writes that in single party states, there is often no separation between party and government as many people often hold positions in both, and this makes policy reform difficult. This researcher asks the question: are the current, and on-going, service delivery protests being experienced in South Africa not an example of the population's unhappiness with the dominant political party's policies?

The stakeholders (actors) are the different role-players in the policy development process and are influenced by the context within which they live and work (Buse, Mays and Walt., 2005: 8-10). This context is influenced by factors such as political ideology and the history and culture of policy-making (Buse, Mays and Walt, 2005: 8-10). The position of the actors in the power structures, and the personal values and expectations also play a role (Buse, Mays and Walt, 2005: 8-10). The actors include government, advocacy groups, religious groups, as well as non-state role-players who do not seek political power but want to influence those who possess formal political power (Buse, Mays and Walt, 2005:8-10). Examples of such policy actors are social movements which are made up of different groups who get together to display strong feelings about particular issues (Buse, Mays and Walt, 2005: 8-10).

Actors attempt to influence policy at various levels of government and often become part of these networks, and seek to influence policy, although these attempts may be hindered or advanced by their perceived or actual power (Buse, Mays and Walt, 2005: 8-10). Power is a mixture of wealth, personality, knowledge and/or authority, and is strongly tied-up with the structures and organisation within which the actor(s) works and lives (Buse, Mays and Walt, 2005:10). The concept of power in policy development refers to the ability to achieve a

desired outcome, and is thought of in a relational sense as ‘having power’ over others in three dimensions of decision-making, non-decision-making and thought control (Buse, Mays and Walt, 2005:10). These dimensions have been unpacked by Buse, Mays and Walt, (2005:22-25), as follows:

- Decision-making: the acts of individuals and groups who influence policy, with such influence being direct or indirect;
- Non-decision making: powerful groups influence or control the agenda through exerting dominant influences. An example would be that of bureaucrats who tend to favour policies that will entrench their positions; and
- Thought control: involves the ability to influence others by shaping their preferences, and has been described as one of the most ‘insidious’ forms of power as it dissuades people from having objections by shaping their perceptions, cognitions and preferences. This causes people to accept their role, as they see no alternative.

Power comes with vested interests and hidden agendas, and actors use their power to negotiate and bargain with other actors in order to achieve other direct or indirect interests (Buse Mays and Walt, 2005:13-19). These interests may be difficult to identify because the policy content may be vague or there may be a number of variants of the policy under review (Buse, Mays and Walt, 2005:13-19). Publicly aired policy positions may differ to privately held ones for a variety of reasons, such as to win votes in the case of politicians or to secure funds in the case of bureaucrats (Buse, Mays and Walt, 2005:180-181). The role of the state in healthcare policy development and implementation varies significantly between countries, and even within countries, and depends on factors such as the presence of private markets and the nature and degree of state control of economic and regulatory functions (Buse, Mays and Walt, 2005:48-52). Politics therefore plays a role in oral health policy development, implementation and reform.

9.3. Exogenous factors that affect policy

There are an a large range of factors that influence or determine what governments do, or choose not to do in developing and implementing policy. Walt (1994:30) lists some of these factors, aside from the effects of the country’s political system, as being international tension, climate, economic wealth, culture, traditions, political history, literacy levels, wealth, natural

resources, among others. Walt (1994) cites Leichter (1979) as having classified the factors influencing policy into four groups. These are tabulated and explained below:

Table 1.7: Factors affecting policy

Type of Factor	Description of Factor
Situational factors	Factors that are more or less transient, impermanent or idiosyncratic conditions that have an impact on policy, such as radical changes in political leadership, mass disasters and financial crises.
Structural factors	Factors that are relatively unchanging elements of the society and polity, such as the economic base of the country, and changes in technology and migration.
Cultural factors	Factors which are the value commitments of groups within communities or the society as a whole, such as whether people trust the government, language, religion and other traditional social values.
Environmental factors (also known as external or international structural factors)	Factors which are events, structures and values that exist outside the boundaries of a political system but which influence decisions within it, such as large transnational companies who dominate healthcare policy (such as tobacco and pharmaceutical companies), international organisations such as the World Health Organisation (WHO) and unilateral financial institutions such as the International Monetary Fund (IMF) who influence policy by providing finance to those countries that follow their policy positions.

Source: Modified from Walt (1994:30-33).

These factors have to be taken into account when considering policy change, as they provide the context within which policy-making occurs. These factors play a role in oral health policy in both Australia and South Africa.

10. Methodology

It is imperative to provide an overview of the methodology used in this study, noting that the individual manuscripts have their own methodology used to achieve the aims and objectives of the study. This overview is provided in the sections that follow, with further details being provided in the individual manuscripts found in chapter two.

10.1. Research design

This study utilised a cross-national cross-sectional time series (2001-2011) comparative analysis case-study design that involved using extended literature review and documentary and policy statements analysis, and key stakeholder interviews. A combination of research tools were utilised to ascertain the various factors, influences and outcomes related to oral health policy development, implementation and service delivery in two countries. These countries are a developed country (Australia) and a developing country (South Africa). To gain an understanding of the nature of oral health policy numerous research tools were used, including literature reviews, policy analysis using a researcher-developed conceptual framework and key stakeholder interviews, and these will be discussed in subsequent paragraphs and in the four manuscripts in chapter two.

10.2. Study site

The study was conducted across two countries, one a developed country (Australia) and the other a developing country (South Africa). The countries fit the World Bank (2013) definitions of being developed or as developing based on the per capita Gross National Income, and these definitions have been presented earlier in this chapter. The two countries were selected for this study as they both have similar historical, political, legal, socio-economic and healthcare backgrounds (Palmer and Short, 2007:41-58; van Rensburg, 2004:64-72). Both countries are resource-rich with key industries being mining and agriculture (Hillness and Healy, 2001:1-70; Burger, 2011:16). Both countries have a history of political and legislative oppression of certain groups of people which resulted in less-than-optimal healthcare delivery (Palmer and Short, 2007:41-58; van Rensburg, 2004:64-72). Both countries have undergone political reform to remedy the situation and have democratically elected governments (Palmer and Short, 2007:41-58; van Rensburg, 2004:64-72). Universal healthcare funding policy reforms have occurred in both countries, and these reforms could have a profound effect on their populations' oral health status (Palmer and Short, 2007:41-58; van Rensburg, 2004:64-72). Other reasons include that the researcher practised as an oral health practitioner in both countries, and thus has a good knowledge and understanding of both countries' oral healthcare systems.

10.3. Sample size

As this is a cross national comparative case study a census sample of two countries was selected. Interviews were conducted with ten policy stakeholders (five Australian and five South African) who were likely to generate appropriate and useful data that could contribute to the development of the theory and knowledge required for this study, were purposively selected to be interviewed based on current/past roles in oral health policy development and/or implementation. These individuals are representative of the national oral health departments; the private sector associations; private healthcare funders; researchers and dental health lobby and advocacy groups, and the sample and selection of this sample is outlined in the table below.

Table 1.8: Study sample and study sample selection criteria

Selection criteria	Study sample - Australia	Study sample – South Africa
National/State oral health departments	Director of a State Oral Health Department (there is no national oral health director/chief dental officer in Australia).	Chief Dental Officer of the South African National Oral Health Directorate.
Private sector associations	Australian Dental Association	South African Dental Association
Private healthcare funders	MediBank	Board of Healthcare Funders of South Africa.
Researchers	Academic from a University community oral health research department.	Academic from a University community oral health research department.
Dental health lobby and advocacy groups	Australian Healthcare and Hospitals Association.	Public Health Association of South Africa.

10.3.1. Limitations of sample selection

Whilst acknowledging that oral health policy analysis is a complex processes that has multiple and varied confounders, and that the ideal would be to have had a much larger and more representative sample to interview this study concentrated on the ‘policy-elites’. These policy-elites are a small representative group that have a powerful influence on oral health human resources policy development, implementation and reform.

10.4. Inclusion/exclusion criteria

Inclusion criteria

- The stakeholder had to have played a senior/policy elite role in oral health policy of their respective countries.

Exclusion criteria

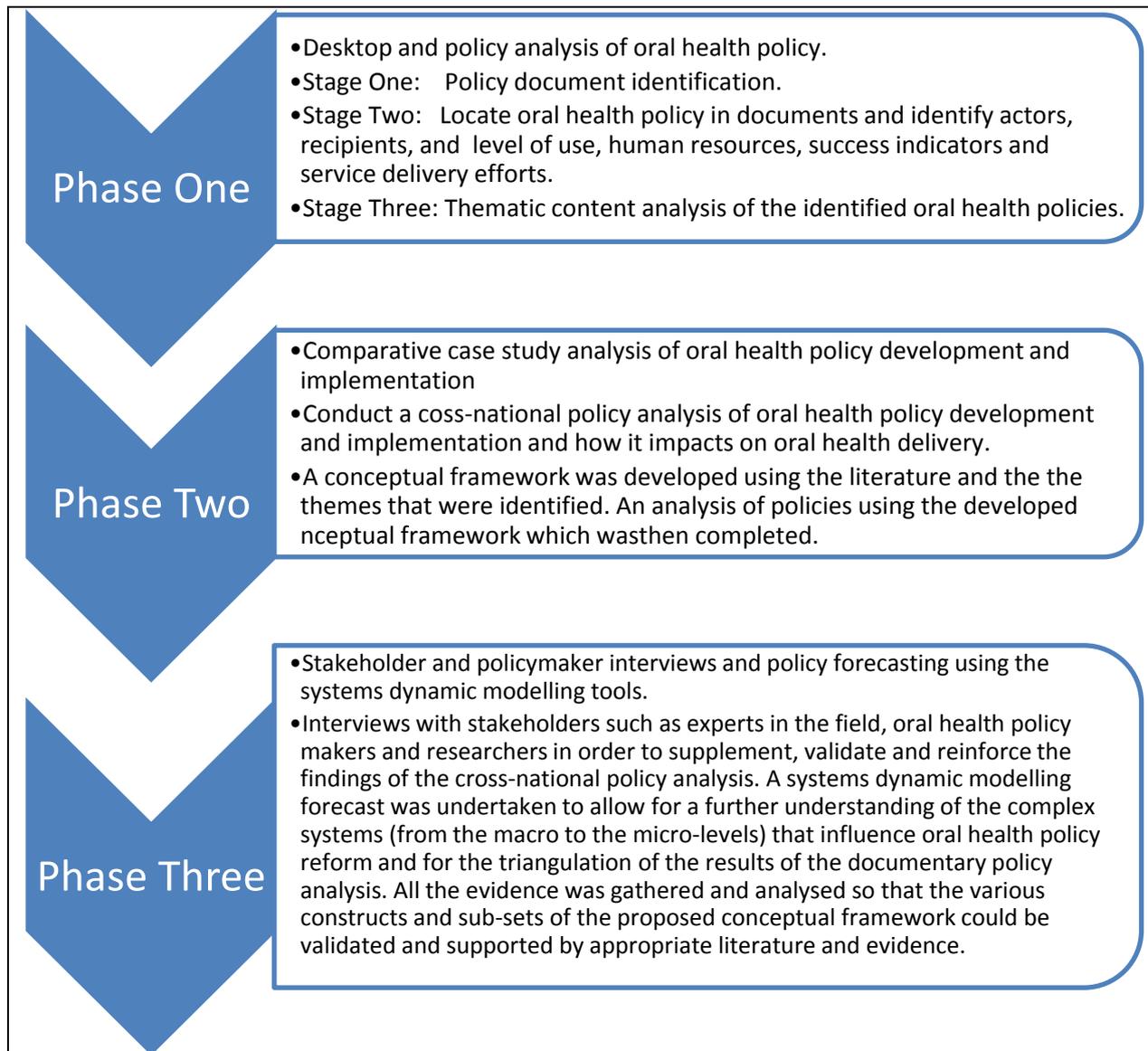
- Those stakeholders who did not play a senior/policy-elite role in oral health policy.

10.5. Phases in the study, data collection and data management

The study occurred in a three phases.

These phases are diagrammatically presented in the figure below.

Figure 1.6: Phases of research in this study



Phase One

Oral healthcare policies related to oral health human resources were sourced by undertaking a comprehensive and exhaustive documentary desktop search and literature review. These policy documents were initially reviewed in order to locate policies that were relevant to human resources in health. Data that was collected from numerous documents (policies, census, statistical reports, indexed articles that appeared in academic research databases, government reports, professional body reports, health and professional body statistics and reports, and research reports) until data saturation was reached. These documents included information on regulatory aspects, policy developments and reforms, health indicators, stakeholders' opinions and submissions, policy briefs, government white and green papers and oral health policy development and trends analysis (see Appendix 5 for a comprehensive list of policy documents). The selection criteria were not restricted and were extended to include any policy that contained references to oral health relevant to Australia and South Africa. All policy documents and policy statements that contained references to oral health human resources were included in the study. Any policy document and policy statement that had no reference to oral health human resources was excluded from the policy analysis process.

Phase two

Phase two of the study was the analysis of the selected policies using thematic content analysis, by using the nVivo version 10 software analytical tool (QSR international). Data relating to oral health human resources was gathered and analysed, and then used to undertake a comparative oral health policy analysis. In analysing the data factors such as the history, structure (oral healthcare workers deployment levels, employment sector – public versus private sector), situation (population, socio-economic situation,), culture (including the skills mix), and other exogenous factors were analysed.

Phase three

A schedule of questions was developed using questions that were highlighted during the documentary analysis phase and the development of the conceptual framework (see appendix 2). Permission from the gatekeepers was obtained (Appendix 4) and the informed consent of the individual research participants was obtained (see appendix 1). Face-to-face or telephonic interviews were conducted with ten policy key stakeholders, of whom five were South

African and five Australian. These stakeholders were selected based on their current/past roles in oral health policy development and/or implementation, and research.

Data collected from the interviews was analysed using the standard qualitative methodological approach of open coding method of thematic analysis and the software package NVivo® 10 (QSR International). Each of the ten interview transcripts were analysed for key policy concepts and themes. Thereafter the data was arranged thematically and then key words were used to identify a common link and to show policy development, implementation and reform processes. Interview transcripts and answers that displayed similar contents were thematically grouped together, and then triangulated with the literature review and desktop policy analysis. All the data was scrutinised by an independent researcher and any discrepancies identified the allocation of themes were discussed and resolved. The interview transcripts were also sent back to the research participants in order to be verified, or corrected if necessary.

There are numerous and varied elements involved in policy development. Some of these elements include the state of the economy, the availability of funds, and the growth in demand for goods and services. This study undertook limited forecasting of a selected element (human resources) in order to determine the applicability of using the Systems Dynamic (SD) forecasting tool to assist policy-makers in planning, policy development and policy reform. The SD modelling tool (Vensim® PLE Version 6.2, Ventana Systems Inc.) was utilised to conduct a retrospective cross-national comparative analysis of OHCW forecasting for the period 2001 to 2011. Detailed methods for this phase of the research are presented in another paper that explores the use of systems dynamics as a modelling tool.

10.6. Data collection and analysis, validity and reliability

The type of data that was collected in this study as well as how reliability and validity was assured is presented in the table below:

Table 1.9: Overview of data management.

Task	Phase One	Phase Two	Phase Three
Type of Data	Secondary data (data that has been generated by other researchers, was used in this study). Examples include research report, policies and position papers.	Secondary data.	Primary data (data that has been created as a result of research conducted in this study). Examples are data gathered from stakeholder interviews.

<p>Validity and Reliability</p>	<p>Reliability was measured using face value, which is the extent to which, on the surface, an instrument looks like it measures a certain characteristic; validity was ensured by using the concepts of triangulation, and internal consistency, wherein all the policy documents were reviewed twice in order to yield similar results. Reliability was ensured by the use of peer examination of data and accuracy checks.</p>	<p>Reliability and validity was ensured by using the concept of triangulation. (the use of multiple research methods, data sources and theoretical concepts to answer a critical research question) (Baum 1998; Singh 2005). The identified policies were analysed twice, and the data identified was verified and cross-checked with data extracted from other secondary sources.</p>	<p>Validity was done using construct validity. All participants must be asked the same questions in the interviews. Reliability can be further ensured by utilising internal consistency, thus ensuring that the same clear, relevant and unambiguous questions will be administered to the research participants in a similar manner, with the intention of yielding similar results.</p>
<p>Data Sources</p>	<p>Primary data sources: academic books and journals; evaluations; think-tanks; government and intergovernmental Agencies (e.g. World Health Organisation) reports and documents; unpublished reports: minutes of meetings; White and Green papers: and the media.</p> <p>Secondary data: written and other sources of information that is relevant to the policy analysis framework.</p>	<p>Statistical records, oral health annual reports and policy documents.</p> <p>Inclusion Criteria All policy documents that have direct or indirect relevance to oral health.</p> <p>Exclusion Criteria Documents that do not have relevance to oral health.</p>	<p>Questionnaires to, and telephonic and face-to-face interviews with, stakeholders.</p>

10.7. Ethical Considerations

In research that involves human sample subjects, the researcher has certain responsibilities towards research participants. The researcher must protect the dignity and welfare of research participants and these participants must have the freedom to withdraw from the study without penalty. The research participants' identities must be protected, and the confidentiality of research data maintained. The following ethical considerations were observed before and during the study.

The researcher completed an ethics online course in order to comply with the requirements of the University of Kwazulu-Natal research ethics committee. The study only commenced once

ethical approval was obtained from the relevant ethics committee at the University of KwaZulu-Natal (Humanities and Social Sciences Ethics Committee protocol reference number HSS/0010/013D refers).

10.8. Gate-keeper permission

Gatekeeper permission was obtained from the necessary gatekeepers of the organisations, and in some cases the gatekeepers were the research participants (Appendix 4).

10.9. Confidentiality and privacy

In order to protect the research participants from any negative effects of harm, confidentiality and anonymity needed to be maintained. All information and data was treated in as confidential a manner as possible. In order to maintain and protect the identity and confidentiality of participants, where possible the participants have been referred to by their organisations, rather than by the names or positions.

All records collected are being kept at the University of KwaZulu-Natal (Discipline of Dentistry) in a locked cupboard or in a password protected hard-drive. After a period of five years, this data will be destroyed through shredding the paper records and by deleting the data on the hard-drive.

10.10. Informed consent

Researchers have an ethical commitment to ensure that a potential research participant has sufficient information and comprehension to make a sound decision about participating in a study. Written informed consent was obtained before data collection (Appendix 1). Participants were free to withdraw at any stage of the research if they so wished, without penalty or loss of potential benefits.

11. Summary

From an understanding and review of the theory and literature it is evident that oral health policy analysis is a complex task that requires substantial insight into the processes of policy development, implementation and reform. Additionally, the literature provides an understanding of the various determinants, actors, and contextual and political influences of oral policy development and implementation.

Various policy analysis models provide insight into the policy processes and analytical tools that are available. Whilst these models have their particular strengths and weaknesses, they are not broad-based enough to allow for analyses to occur in environments where change

occurs at a rapid and continual basis. Therefore, this study will develop its own conceptual framework that will be used to answer the research questions, and be broad-based enough to be applied to other policy contexts. This chapter therefore lays down the theoretical foundation for the next chapter, which consists of a series of manuscripts that aim to understand the complex field of comparative oral health policy analysis between Australia and South Africa.

CHAPTER 2

Manuscripts

Manuscript One

The development of a proposed conceptual framework for conducting cross-national comparative policy analysis of oral health policy development and implementation

The development of a proposed conceptual framework for conducting cross-national comparative policy analysis of oral health policy development and implementation

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ABSTRACT

Introduction: Health policy analysis aims to explain the interaction between institutions, interests and ideas in the policy process in order to ensure the best possible health outcomes. Cross-national policy analysis of oral health policies can be undertaken using a conceptual framework that allows for lessons to be learnt so as to improve policy processes and result in improved population oral health outcomes.

Aim: This study sought to develop and present a proposed conceptual framework that could be applied to cross-national policy analysis. This developed conceptual framework would need to allow policy analysts to undertake a comprehensive policy analysis that could lead to an understanding and contextualisation of the complex policy environments found in developed and developing countries such as Australia and South Africa.

Methods: A cross-national oral health policy framework was developed and is being proposed for use as a basis to undertake oral health policy analysis of developed and developing countries. Additionally, the use of a computer forecasting simulation tool was proposed in order to determine the applicability of such a tool in policy analysis, resource planning and policy processes.

Results: The results of the study revealed that the proposed policy analysis conceptual framework could be modified and used in the analysis of policy processes, intentions and policy implementation as the policy intentions and the policy implementation processes differ across countries.

Discussion: The proposed conceptual framework could be applied to and across developed and developing countries with suitable context-specific modifications. Oral health policies are subjected to multi-factorial influences and each of these influences has the potential to affect the policy environment. The proposed conceptual framework is broad-based and allows for an in-depth analysis of oral health policies.

Conclusion: Undertaking cross-national policy analysis using the developed conceptual framework and modelling tool could result in an improved understanding of the complex policy processes and environments across developed and developing countries.

Keywords: conceptual framework, comparative analysis, policy development, policy implementation, oral health policy, oral health policy analysis, Australia, South Africa

Introduction

Health policy analysis is central to health policy development and reforms (Walt and Gilson; 1994:15-28) and aims to explain the interaction between institutions, interests and ideas in the policy process (Walt *et al.*, 2008:308; Walt and Gilson, 1994:56; Chen *et al.*, 1997: 8). It is useful, both retrospectively and prospectively, to understand past policy failures and successes, and to plan for future policy implementation (Walt *et al.*, 2008:308). By comparing their own oral healthcare systems with those of other countries, practises that need to be changed or retained can be identified (Chen *et al.*, 1997: 8) and appropriate goals and programmes can be established so that future oral health needs can be satisfied (Chen *et al.*, 1997: 8). Thus oral health policy analysis can then be projected to a wider range of applications that aim to improve and enhance health delivery in other sectors of the national healthcare system's policy milieu (Walt *et al.*, 2008:308; Chen *et al.*, 1997: 8; Walt and Gilson, 1994:56).

The field of scholarship of comparative policy analysis is "somewhat under-theorized," and whilst there are many empirical observations and frequent claims regarding lessons learnt from cross-national policy analysis, there are few studies on how to – or how not to – undertake cross-national policy analysis (Marmor, 2012:19). Policy analysis can improve cross-national understanding in both obvious and less-obvious ways (Marmor, 2012:19). One less-obvious way is to more clearly define what is on the policy agenda by referring to similar or different policies elsewhere, wherein the "*more similar the problems or policy responses the more likely one can portray the nuanced formulations of any particular country*" (Marmor, 2012:19-20).

Cross-national comparative policy studies can provide a basis for identifying the variety of policy options that exist within oral health policy, as comparison holds the possibility of learning from other countries and their oral health policy successes, failures, strengths, weaknesses, opportunities and threats (Marmor, 2012:19-20; Chen *et al.*, 1997: 3). Cross-national comparative studies also provide policymakers (actors) with the opportunity to identify which oral health policy 'works best,' that is, using evidence-based policy-making and policy-innovation material in a structured manner that leads to successful policy implementation and outcomes (Blank and Barau, 2010:244).

Lupton, 1994 and Poland *et al*, 1998 as concurring that policy-making is a social process and that “*the analysis and promotion of certain policy options require the facilitation of conversations and dialogue between the different participants in the policy process*”. Rispeli and Moormanii (2010: 7-9) argue that whilst an understanding of the rules, regulations and policy guidelines may be viewed as being the “end-points” of policy development, these factors are actually the starting points. They base this argument on the premise that policy is “brought alive” by the manner in which the various stakeholders (*actors*), such as interest and advocacy groups, the public, and the civil service, translate and implement these policies.

In both developed and developing countries, the state plays a central role in healthcare policy development and healthcare provision (Walt, 1994:13). Oral health policy development differs significantly from country to country, and is the result of a complex range of factors such as historical, political, economic and social factors (Lee, Buse and Fustukian, 2002: 7). However health decision-making is much more complex and requires that other structural (oral health policy-makers); cultural factors (specific oral health and hygiene cultural beliefs and practices are brought into play) are among other factors that need to be considered (Chen *et al.*, 1987:56).

Policymakers do not embark on entirely new courses of action when faced with challenges to policy development or implementation, but rather tend to borrow from an apparently finite, existing set of solutions (Leichter, 1979:66). This is termed ‘policy borrowing’ (Syed *et al.*, 2012:11). Amongst the strengths of policy borrowing is that the successes of tried and tested policies may be harnessed, whilst a weakness in policy borrowing is that the success of the policy may not be repeatable or even appropriate in changed circumstances (Leichter, 1979:67) . This is especially relevant for countries such as South Africa, where the country has undergone great change since 1994 and where the landscape of healthcare delivery has changed considerably, and for Australia where there have been are continuous changes of government following state parliamentary elections (Van Rensburg, 2010:315-336; Palmer and Short, 2007:14-24).

There is a tendency for policymakers when faced with a particular problem to look for a similar or comparative situation in another system or country and to try to emulate the solutions used by others as a solution to the challenges that they face (Blank and Barau, 2010:244). Benefits of comparative policy analysis include improved academic knowledge about, and insight into, oral health policy development and implementation (scientific,

descriptive, explanatory and predictive objectives) (Lee, Buse and Fustukian, 2002:7). Comparative studies can lead to improvements in oral health policy processes, contents and outcomes; and can influence or control policy processes and content in order to ensure the desired outcomes (Lee, Buse and Fustukian, 2002:7).

Purpose of the study

This study sought to understand policy-making, implementation and reform processes by developing a policy analysis conceptual framework that could be applied cross-nationally to both developed and developing countries, as no research has been conducted to date in this area, and because there is no existing conceptual framework specifically developed for cross-national comparative oral health policy analysis. This understanding could through the use of the proposed conceptual framework and by undertaking a comparative cross-national policy analysis ascertain what lessons and general theories could be learnt and developed from cross-national oral health policy analysis for, and from, a developed and a developing country, so that these lessons could possibly be applied cross-nationally in order to improve health outcomes.

The critical question in this study is, can the proposed conceptual framework be used in oral health policy analysis between a developed and a developing country to offer lessons and theories that could be learnt and applied cross-nationally to oral healthcare policy processes?

Assumptions made in this study

A number of assumptions have been made in this study, including that:

- 1) Oral health policy development and implementation are not limited to the select few (“policy elites”), and multiple and varied stakeholders play, and are allowed to play, a role and provide input into policy development.
- 2) Oral health policies do not remain policy statements but become implementable programmes that are feasible, equitable, effective and have little or no negative unintended effects.
- 3) Effective and efficient evaluation of oral health policy development and implementation (service delivery) analysis occurs at both a macro (national) and a micro (policy-in-practice) level through the use of the proposed conceptual framework, and that there is sufficient epidemiological and statistical data available to conduct such an analysis by using the proposed conceptual framework.

Aim and objectives

This study developed a conceptual framework that could be used to comparatively analyse the processes and agendas of oral health policy stakeholders in oral health policy development, implementation and reform cross-nationally.

Literature Review

Theoretical basis of conceptual framework

Walt et al., (2008:308) notes the absence of explicit conceptual frameworks in healthcare policy analysis. Whilst a number of different frameworks have been developed to bring structure to the highly complex phenomenon that is health policy analysis, these frameworks address healthcare reform more generally, or focus on evaluating specific health policies (Walt *et al.*, 2008:308; Veenstra, 2007:14). Broadly speaking, health policy analysis may be descriptive or analytical, and can incorporate or link different dimensions or policy concepts (Veenstra, 2007:14). Sabatier (2007:14-54) identifies a number of policy conceptual frameworks, and these are presented in the table that follows. These policy frameworks have been criticised by Sabatier (2007) because the primary focus of these conceptual frameworks was the collection of evidence and the translation of evidence into meaningful and useful data.

Table 1: Policy analysis conceptual frameworks

Conceptual framework	Description
Stages Heuristic Framework	Policy process divided into a series of “stages”. Describes and studies each stage of the policy process.
Institutional Analysis Development Framework	Focus is on how the institutional “rules” influence policy. The impact of agency rules on individual behaviour is outlined in this model.
Multiple Streams Framework	How policies are made when there are many ways of thinking about the same processes. Seeks to explain major policy changes.
Punctuated Equilibrium Framework	Policy-making where there are long periods of incremental change, then brief periods of major policy changes.
Advocacy Coalition Framework	Addresses the highly challenging problems in which there are substantial “goal conflicts and multiple levels of government”. Describes the influences that policy advocates exert on the policy-making process, and that shared beliefs (rather than self-interests) become the basis for advocacy coalition.

Source: Sabatier, 2007: 1-36; Ostrom, 1986:10-17).

Sabatier (2007) also found that these frameworks viewed policies and policy analysis as a “black box” and provided minimal insight and understanding of how and why certain policies are developed or not developed (Sabatier, 2007:14-54). An alternate framework was developed by Walt and Gilson (1994) and was based on a health-specific policy analysis triangle framework that focused largely on the content of policy but included policy actors, as well as the context and processes of policy development (Walt, 2008:308-311). This researcher concurs with Sabatier (2007) and postulates that the complexities and dynamics of cross-sectional multi-level policy development and reform could have implications for policy analysis and understanding.

Strengths of using conceptual frameworks in health policy analysis

Conceptual frameworks can serve to guide policy analysis through identifying the elements and relationships that need to be considered in order to formulate theories regarding policy processes generation (Ostrom, 2007). One of the strengths of using conceptual frameworks in health policy analysis is that they can enable the researcher to gain a more focussed and contextualised understanding of the processes of health policy analysis (Marmor and Wendt, 2012:12-14).

Weaknesses of using conceptual frameworks in health policy analysis

Conceptual frameworks do not, on their own, explain or predict policy responses, behaviours and outcomes (Schlager, 2007). A critique of current frameworks is that they do not use the evidence gathered, or the lessons learnt from using the conceptual framework, to provide forecasts that could inform policy processes, implementation and reform. This researcher provides a further critique of these policy frameworks in that the use of forecasting software technology, such as the systems dynamic modelling methodology, which could provide simulations of policy intentions and outcomes, are not considered in the policy analysis conceptual frameworks.

Methods

This study utilised a combination of elements from the five policy analysis conceptual frameworks (Stages Heuristic Framework, Institutional Analysis Development Framework, Multiple Streams Framework, Punctuated Equilibrium Framework and the Advocacy Coalition Framework) as well as the framework of Walt and Gilson (1994:354) and Cloete and de Coning (2011:viii) to develop the proposed conceptual framework. Elements that were

supported by the literature and deemed as being essential in the construction of a conceptual framework were identified following a review of the literature. Five conceptual frameworks were analysed by the researcher using key-word thematic content analysis methods in order to ascertain current and emergent oral healthcare policy constructs and themes. Five constructs were identified: context, content, process, implementation and forecasting. These five constructs were further sub-divided into further thematic divisions that could provide the data and information required to comparatively analyse oral health policies. The five constructs of the conceptual framework will be discussed further in the study.

This study proposes the use of a multilevel conceptual framework for data collection and the analysis of a combination of quantitative data and qualitative information that would be collected via various methods. The proposed conceptual framework suggests the use of an empirical design using hybrid data wherein both an inductive and deductive approach are utilised (Mouton, 2001:154). The proposed conceptual framework takes a policy-to-practice approach, that requires the examination of oral health policy from development through to service delivery implementation in order to compare the perspectives and practices of stakeholders (policymakers, researchers and other experts) in the field. The proposed conceptual framework further proposes that a second literature review be conducted to obtain further information and provide a theoretical basis for the practices and gaps identified in the data collection and data analysis phases.

The research in the study towards the development of the proposed conceptual framework was carried out in four phases, as illustrated diagrammatically below:

Figure 1: Phases of research in this study

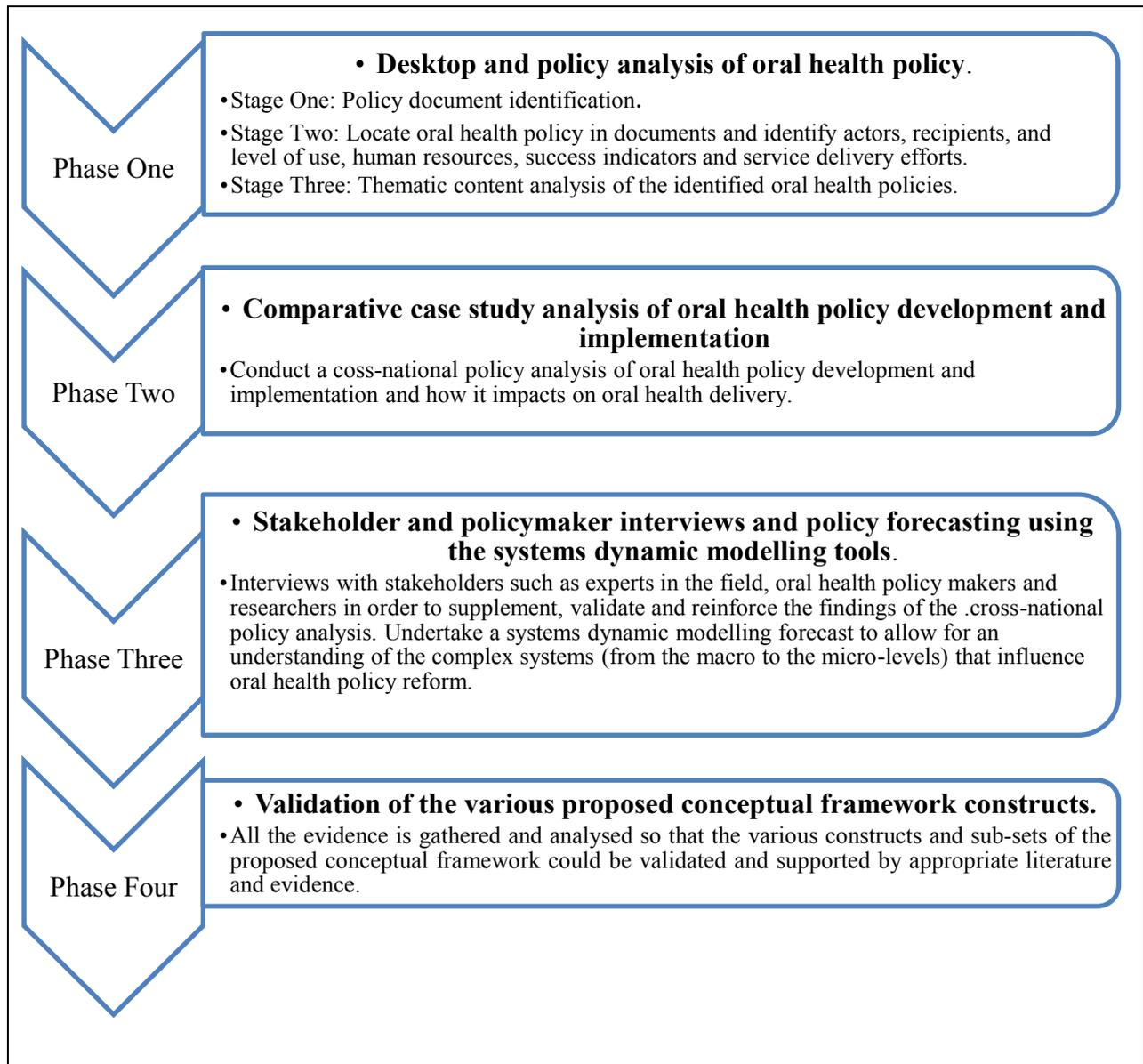


Table 2: Overview of data management.

An overview of the various methods of data management that should be used when using the proposed conceptual framework is presented in the table below.

Task	Phase One	Phase Two	Phase Three
Type of Data	Secondary data (data that has been generated by other researchers, was used in this study). Examples include research report, policies and position papers.	Secondary data.	Primary data (data that has been created as a result of research conducted in this study). Examples would be the data gathered from the stakeholder interviews.
Data Collection Method	Oral health policy documents were gathered using a desktop literature and policy search.	Thematic content analysis, using the nVivo 10 (QRS International) software programme was undertaken of data collected from documentary and other policy sources, and case studies.	Structured non-disguised, standardised in-depth questionnaires were used as the basis for conducting face-to-face and telephonic interviews.
Validity and Reliability	Reliability was measured using face value , which is the extent to which, on the surface, an instrument looks like it measures a certain characteristic; validity was ensured by using the concepts of triangulation , and internal consistency , wherein all the policy documents were reviewed twice in order to yield similar results. Reliability was ensured by the use of peer examination of data and accuracy checks.	Reliability and validity was ensured by using the concept of triangulation . (the use of multiple research methods, data sources and theoretical concepts to answer a critical research question) (Baum 1998; Singh 2005). The identified policies were analysed twice, and the data identified was verified and cross-checked with data extracted from other secondary sources.	Validity was done using construct validity . All participants must be asked the same questions in the interviews. Reliability can be further ensured by utilising internal consistency , thus ensuring that the same clear, relevant and unambiguous questions will be administered to the research participants in a similar manner, with the intention of yielding similar results.

Task	Phase One	Phase Two	Phase Three
Data Sources	<p>Primary data sources: academic books and journals; evaluations; think-tanks; government and intergovernmental Agencies (e.g. World Health Organisation) reports and documents; unpublished reports: minutes of meetings; White and Green papers: and the media.</p> <p>Secondary data: written and other sources of information that is relevant to the policy analysis framework.</p>	<p>Statistical records, oral health annual reports and policy documents.</p> <p>Inclusion Criteria All policy documents that have direct or indirect relevance to oral health.</p> <p>Exclusion Criteria Documents that do not have relevance to oral health.</p>	<p>Questionnaires to, and telephonic and face-to-face interviews with, stakeholders.</p>
Data Analysis Method	<p>Simple descriptive statistics and coalitions were used to analyse the data. Quantitative data will be assembled in a suitable form (graphs, tables, charts), so that results could be presented. The data collected was of both an inferential and descriptive nature, and an in-depth analysis is to undertaken.</p> <p>Thematic content analysis methods. This is a data analysis process where the data was classified into themes, and then used to identify various constructs of the conceptual framework.</p>	<p>Thematic content analysis methods This is a data analysis process wherein the data is to be classified into themes and then analysed used to develop the conceptual framework.</p> <p>In the development of this proposed conceptual framework various policies were examined, grouped together according to key themes (the identified constructs and sub-sets, as outlined in the conceptual framework).</p>	<p>Interpretive analytical strategies, based on the results of the thematic content analysis of the interviews, are to be used in the case of the qualitative (textual) data.</p>

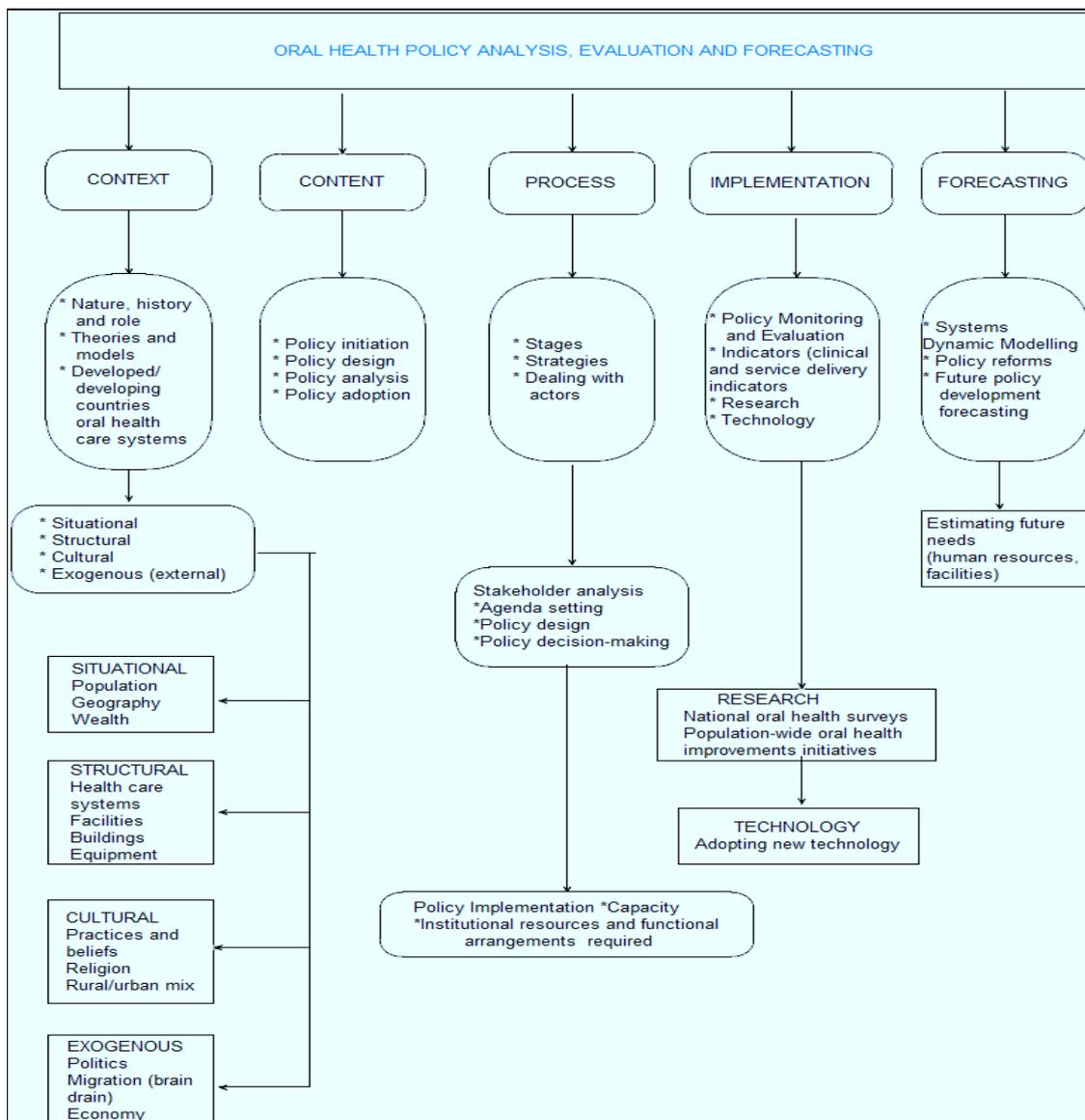
Source: Hofstee, 2010; Singh, 2005; Mouton, 2001; Baum, 1998.

Results

The results of this paper is the presentation of a developed conceptual framework (see Figure 2) that could be used (with appropriate modification) to conduct cross-national comparative oral healthcare policy analysis. The proposed conceptual framework that is being presented is

an integration of the various constructs and sub-sets that were identified as being necessary for effective and reliable cross-national comparative oral healthcare policy analysis studies to occur.

Figure 2: Proposed Conceptual Framework



Source: Adapted and modified from: Cloete and de Coning, 2011; Blank and Barau, 2010; Lyle and Perkins, 2010; Singh, Myburgh and Lalloo, 2010; Hobdell, 2007; Singh, 2005; Lee, Buse and Fustukian, 2002; Walt, 1994.

Conceptual framework development

The development of the conceptual framework was based on an analysis of oral health policies and the identification and evaluation of four major retrospective constructs (context, content, process and implementation), as well as a fifth prospective construct (systems

dynamic modelling), which aims to provide oral health policy development and implementation forecasting. The four major constructs are divided into a number of sub-sets, which are instrumental in policy development and implementation evaluation. Data relating to each of the constructs needs to be gathered and analysed, and then used to undertake cross-national comparative oral healthcare policy analysis studies. These major constructs and minor sub-sets are outline in the table below.

Table 3: Description of the major constructs and minor sub-sets identified in the proposed policy analysis conceptual framework

CATEGORY	DESCRIPTION
CONTEXT	The nature and history of policies should be reviewed in terms of the context (political, geographic and economic), theories and models that contributed to the development of these policies. Further analysis consists of a review of the oral health policies used in both developing and developed countries in order to contextualise financing, service delivery and workforce issues. The areas of analysis include situational (population, geography, wealth), cultural (religious, cultural beliefs and practices), structural (healthcare systems, equipment, buildings) and exogenous factors such as the economy, the effects of immigration and people movement.
CONTENT	The policy content of the two countries should be analysed by reviewing oral health policies in the documents and assessing how these policies were initiated, designed, analysed and finally adopted. These policy setting and agenda influences should be used to identify good practices and gaps cross-nationally.
PROCESSES	A cross-national comparative analysis of the processes through which ideas, knowledge, power, interests, and institutions influence oral health policies should be undertaken. A stakeholder analysis of the actors, the manner in which the problems are defined, how the agenda is set, and how policies are designed and implemented must also be undertaken.
IMPLEMENTATION	A time-period review of the implementation of oral health service delivery at a bureaucratic level should occur, and from this analysis, current issues need to be identified. This analysis must be conducted using primary and secondary data that would have been obtained from numerous sources, including national oral health surveys and research into population oral health improvement initiatives, and from key stakeholder interviews. Further analysis of the resources, institutional capacity and policy implementation strategies should be undertaken to identify current issues.

Discussion

This study proposes an oral healthcare policy analysis conceptual framework that could be modified and used to conduct cross-national comparative oral healthcare policy development, implementation and reform studies in order to ascertain what lessons could be learnt, and applied cross-nationally, from such an analysis. These lessons could be applied to both developed and developing countries in order to improve the oral healthcare policy development, implementation and reform processes, with the ultimate aim of ensuring improved oral healthcare policy outcomes for the population of these countries. The conceptual framework that has been proposed in this study is broad-based and can be adapted to different policy settings and environments. Whilst the proposed conceptual framework is context-specific it should be noted that any changes in the policy environment could affect the policy outcomes. Oral health policies are subjected to multi-factorial influences and each of these influences has the potential to affect the policy environment (Blank and Barau, 2010:11-14). Even a single change in these influences can affect the complex policy environment. A change in government, for example, can change the entire policy environment. However, for this study, the applicability of the information used in the proposed conceptual framework in the five constructs is its strength.

Strengths of the proposed conceptual framework

A strength of the proposed conceptual framework is that it seeks to obtain as comprehensive a view of the situation as possible, and uses the combined strengths of various different frameworks to do so. A further strength of this proposed conceptual framework is that it is broad-based and could be adapted to suit different health policy contexts and environments.

This proposed conceptual framework that has been developed in this study relied largely on policy papers, academic policy analysis, media statements and other literature in the public domain, and these have not always captured the desired detail. In other instances, health policy documents have not been made publicly accessible. A strength of this study is that by using the proposed conceptual framework, and by using multiple sources of data, sufficient information may be elicited from these policy documents and this assists with gaining a comprehensive understanding of the complex policy environment. The constructs of the conceptual framework were validated from intensive literature reviews and policy analysis.

A further strength of cross-national comparative oral healthcare policy analysis studies is that whilst national/federal/state/provincial and territorial government policy efforts and accomplishments are studied and analysed, alternate private sources of healthcare delivery and policies are factored into the broad-based conceptual framework. Policy formulation does not occur within a vacuum and is influenced by policy limitations. A strength of this proposed conceptual framework is that it is broad-based and takes into account the various health and non-health influences in the policy environment.

Limitations and Delimitations

The quality of policy analysis depends on a number of factors such as the accuracy of the data and the comprehensiveness and relevance of the information collected. Therefore, the value of the proposed conceptual framework could be limited by the availability of the data used, and because the quality of the data used cannot be guaranteed. Some difficulties were encountered in accessing policy documents and in achieving a complete understanding of the processes involved in developing and implementing health policies, and this may be a shortfall of the proposed conceptual framework. These limitations reveal the inherent complexity of policy analysis and the complex nature of using conceptual frameworks when undertaking cross-national comparative oral health policy studies.

The delimitations in this study are that the proposed conceptual frameworks functionality and usefulness is limited only to an analysis of oral health policy development and implementation, although the impacts of other policy developments can and do affect oral and general health. This study recognizes these impacts, and recommends that further research be conducted that will take cognisance of them in the application of the proposed conceptual framework when conducting data collection and analysis, formulating results and arriving at conclusions and making recommendations. More research also needs to be conducted to understand the external and internal policy-making influences on policy developments and on undertaking cross-national comparative policy analysis.

Other delimitations of this study are that political and economic changes that have occurred within the study countries, as well as internationally, and which may account for unexplained, hidden or unjustified policy developments and implementation effects are not factored into the proposed conceptual framework.

Policy developments and reforms must be developed in a step-wise approach using available evidence that recognises the resource constraints, harnesses the private sector, and pays due cognisance to key stakeholder inputs (Beaglehole and Yach, 2003:903-908).

Conclusion

The knowledge gained from using the broad-based conceptual framework could be extrapolated, with the necessary country-specific modification, into comparative policy analysis, policy formulation, implementation and reform initiatives in other countries (Rwashana and Williams, 2008:85-98). Additionally, the lessons learnt from cross-national policy analysis could be used to formulate a general theory that could be applied to oral health policy analysis and development in other countries.

Recommendations

Key recommendations that arise out of this review:

- The proposed conceptual framework could be modified to suit local contexts, and that lessons that could be learned from using the proposed conceptual framework could lead to policymakers developing strategies that would allow for careful attention to be paid to processes and actors when developing or implementing legislation or policies.
- There is a need for inclusive stakeholder involvement in the actual policy analysis process, and policy processes should include the actual service providers when they are being analysed using the proposed conceptual framework;
- There is a need for high-quality, valid and reliable data so that appropriate policy analysis and forecasting could be undertaken. This could result in the analytical process using the proposed conceptual framework yielding results that are contextually relevant and appropriate to oral healthcare policy development, implementation and reform.

Conflict of interests: The authors declare that there are no conflicts of interest.

Ethical approval: Ethical approval was received from the Humanities and Social Sciences Research Ethics Committee of the University of KwaZulu-Natal (HSS/0010/013D).

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Manuscript Two

A cross-national oral health policy comparative analysis of access to oral healthcare between a developed (Australia) and a developing country (South Africa)

A cross-national oral health policy comparative analysis of access to oral healthcare between a developed (Australia) and a developing country (South Africa)

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ABSTRACT

Background: Oral healthcare forms part of a complex healthcare system. Access to oral healthcare may be restricted or enhanced by the availability of oral healthcare human and structural resources.

Aim: The aim of this paper was to undertake a comparative oral health policy analysis in order to understand the current debates around access to oral health services between a developed country (Australia) and a developing country (South Africa).

Methods: A conceptual framework, based on the four major policy analysis constructs (context, content, process and implementation), was used to comparatively analyse Australian and South African oral health policies pertaining to access to oral healthcare. Data relating to each of the constructs was gathered and thematically analysed. A comparative oral health policy analysis was then undertaken.

Results: The results reveal that there are highly complex and multifactorial opportunities and barriers in access to oral healthcare. In both Australia and South Africa, common themes that emerged from this study include difficulties in geographical and physical access, inappropriate oral healthcare service provision, and the unequal distribution of oral healthcare human resources (in both urban/rural and public/private sector distribution).

Discussion: There are numerous influences that affect oral healthcare service delivery, such as political will, religious and cultural practices and socio-economic conditions, and policy interventions need to be directed towards facilitating access to, and oral healthcare for, the population that requires access to this care.

Conclusion: Access to oral healthcare has multiple and varied influences. There is a need for the revitalisation and reorientation of the oral healthcare system towards rendering primary, preventive and promotive oral healthcare. Policy developments and reforms that are aimed at ensuring an equitable and feasible distribution of oral healthcare human and infrastructural resources need to occur.

Keywords: access, comparative analysis, policy development, oral health policy, oral health policy analysis, Australia, South Africa

Introduction

Access to basic oral healthcare is a natural human right (Catalanotto, 2006:1120). An optimal and well-functioning healthcare system requires a comprehensive and cohesive set of policies, processes, policy-actors and policy-implementers, and adequate infrastructure and funding with healthcare systems that facilitate easy access for the end-user (Ruiters and van Niekerk, 2012: 5). Oral healthcare forms part of a complex healthcare system (Catalanotto, 2006:1127; Chambers, 2006:1149), and there are historical and social disparities in accessing this healthcare (van Rensburg, 2010:315-336; Palmer and Short, 2007:14-24). Thus, oral health care should be accessible to all members of the population, and therefore social and economic organisations and institutions should be managed to maximally benefit those underprivileged and worst off in society (Catalanotto, 2006:1126). Oral disease is linked to access in three areas: availability, ability to access care, and the type and comprehensiveness of care (Spencer and Harford, 2007: 4). The management of oral diseases are affected by factors such as the lack of oral healthcare workers, the stage of disease progression at which the patient presents for treatment, and the rationing of the type of treatment that the patient receives (Spencer and Harford, 2007: 1). Catalanotto (2006:1126) identifies four guiding principles with respect to access to oral health care: (1) access to basic oral health care is a human right; (2) the oral health care system must serve the common good; (3) the oral health of vulnerable populations has a unique priority; and (4) a diverse and culturally-competent workforce is necessary to address oral health disparities and improve access to oral health care.

This paper reports on one component of a larger study pertaining to oral health policy development and reform between Australia and South Africa. Health policy analysis, for the purpose of this study, is about analysing and contextualising how various factors affect access to oral healthcare services in oral health policies (Buse and Gilson, 2007: 1). This study focused on a comparative cross-national policy analysis of two areas of access in oral healthcare policy: financial factors, and the structural factors that influence access, as these were identified, during a perusal of the literature, as being the two areas of access that are most influential in oral healthcare in both Australia and south Africa (van Rensburg, 2010:315-336; Palmer and Short, 2007:14-24). This paper reports on a cross-national comparative analysis study of oral healthcare access in oral health policy development and implementation between a developed country (Australia) and a developing country (South Africa).

Choice of countries

The choice of countries is based on a number of factors. The primary factor is that both countries have a number of similar socio-economic, political, funding and healthcare systems. Both Australia and South Africa have historical and social disparities in oral healthcare provision, and access, and this has led to unequal and inequitable general and oral healthcare provisioning to certain sections of the population Africa (van Rensburg, 2010:315-336; Palmer and Short, 2007:14-24). Both countries are neoliberal democracies that were previously colonised by the British and sections of their people were subjected to various atrocities and disparities (Durey, 2010:S87; Rudd, 2009: 2). In Australia, the Indigenous people were subjected to numerous oppressive processes such as mass murder, denial of appropriate healthcare and forced land removals (Rudd, 2009: 2). Racially discriminative oral healthcare funding was also evident, and in 2004–2005, state expenditure on oral health services was substantially less *per capita* for Indigenous people than the Australian average (Pulver *et al.*, 2010: 4).

A similar situation existed in South Africa, with legislation enforcing the Apartheid system, thus denying the non-white groups various rights and disenfranchising them (Okorafor *et al.*, 2007: 6). A by-product of these policies was that these groups were relegated to the outskirts/remote areas/regional areas, and received minimal healthcare services (van Rensburg, 2010:315-336).

Australia and South Africa both have persistent unmet oral health needs in marginalised communities as reflected by the epidemiological profile and the burden of oral disease, as well as having many similarities and differences in their political and healthcare systems, and these researchers suggest that this makes them suitable for cross-national policy analysis.

Aim and Objectives

The aim of this paper was to undertake a comparative oral health policy analysis in order to understand the current debates around access to oral healthcare services between a developed country (Australia) and a developing country (South Africa).

The objectives of the study are:

- To gain an understanding of the various factors that influence access to oral healthcare.

- To understand and contextualise the policy provisions that promote and/or restrict access to oral healthcare.
- To understand and contextualise the policy responses, developments and reforms that have been directed at addressing the factors that enhance or restrict access to oral healthcare.

Literature Review

Access

Access is defined as not just the physical access of oral healthcare but as the ability to obtain health services when needed. In dentistry, access is not just obtaining care for true dental needs, as suggested by Ozar (2006:1141-2), but could have various definitions based on one of the four traditional types of treatment, which are: 1) traditional oral healthcare such as restorations, extractions and prosthetics, 2) oral healthcare that has minimal or no health component (such as cosmetic dentistry), 3) episodic oral healthcare (mainly for the relief of pain or the treatment of disease), and 4) oral healthcare outcomes not resulting from oral healthcare worker intervention, an example being water fluoridation (Chambers, 2006:1146). Without access to timely and adequate healthcare acute health problems can become exacerbated (Goldsteen *et al.*, 2011:184-185). Access to general and oral healthcare has two major influences, according to Bodenheimer and Grumbach (2002:14). These are: a) the ability to pay (*affordability*), and b) the *availability* of healthcare workers and facilities that are *available*, *acceptable* and *accessible* in terms of proximity, transport, culture, provision of appropriate and quality care in a timely manner, and in the language spoken by the healthcare recipient. Other factors play a role in accessing healthcare, including religion, political beliefs, race, gender and mind-set (willingness to accept medical care) (Ruiters and van Niekerk, 2012: 5-11; Goldsteen *et al.*, 2011:184-185; Bodenheimer and Grumbach, 2002:14).

Models of Access

There are a few models that can be used to guide researchers in understanding access to healthcare, with two common models being the Institute of Medicine (IOM) model of access monitoring, and the Penchansky and Thomas model (Molette, 2013:16-19). Penchansky and Thomas's model (1981) uses five dimensional aspects (availability, affordability, accessibility, accommodation and acceptability) to measure the relationship between patients and the healthcare system (Penchasky and Thomas, 1981). This model is broad-based and can be applied to the analysis of access in oral health policies. In this study, the five areas of

access (*availability, affordability, accessibility, accommodation and acceptability*) will be analysed using a conceptual framework that has been developed by the researchers. For the purpose of this study, these five areas are defined as follows: availability refers to the care that is available to meet the needs of a community; accessibility refers to the physical distance of a health facility to the community; affordability refers to the cost of healthcare and the patient's ability to pay travel and treatment costs; acceptability refers to whether healthcare facilities are appropriate to meet the needs of the community; and accommodation refers to the ability of people to fit into operational and time arrangements of the healthcare facility.

Barriers and opportunities in accessing oral healthcare

The basic equity principle states that all persons and groups are equal and are entitled to access equitable healthcare (Sanders, 2007:12). There are two types of equity: horizontal equity which refers to the equal treatment of equals and occurs when those who have equal need have equal access to healthcare, and vertical equity is defined as the 'giving of unequal treatment to unequals,' and occurs when those who have unequal need have unequal access to healthcare (Sanders, 2007:112). There are certain groups of people that represent vulnerable populations, such as the aged and the disabled, who are least able to afford oral healthcare and who are most in need of this care. They are often the most disadvantaged in accessing oral healthcare and yet should be a unique priority in accessing healthcare. Thus, policymakers should pay special attention to removing barriers and enhancing access for these vulnerable populations (Sanders, 2007:12; Catalanotto, 2006:1120).

Two types of barriers and opportunities exist in accessing oral healthcare: financial and structural. These are discussed in the following sections.

Financial barriers and opportunities in accessing oral healthcare

Australia uses a federal fiscal system, with the Commonwealth government maintaining overall control of the health policy implementation decisions and activities, whilst the states and territories are tasked with the operational implementation of these Commonwealth government policy decisions (Okorafor, 2007:37).

South Africa also has a federal fiscal system based on a revenue-sharing system where provinces receive funds from the national government, and where operational decision-making is decentralised to provincial governments (Okorafor, 2007:9-32). These funds are

then distributed by the provincial governments to the districts, as part of the district healthcare system. The provinces therefore assume the bulk of the responsibility to implement services, based on national policy developments and reforms (Okorafor, 2007: 9). However, the autonomy granted to the lower levels of government leads to intra- and inter-provincial funding and implementation inequalities in oral healthcare service delivery (Okorafor, 2007: 9). Different provincial governments have different capacities to generate and utilise these resources, which, when coupled with different local resources, may result in different levels of oral healthcare policy implementation and oral healthcare provision (Okorafor, 2007:32).

There is an explicit link between income and health, as income plays an important role in accessing oral healthcare (Spencer and Harford, 2007: 3). The poorer a person is, the less opportunity and chance they have of obtaining or accessing physical things: such as healthy food, education and transport, and healthcare services that could contribute to health and well-being (MacDonald, 2010:37). This is termed the social gradient.

The nature of private health insurance, which is linked to employment, is a major factor that decides whether people can, or whether they choose not to, access healthcare (Bodenheimer and Grumbach, 2002:14). Some employers choose not to fund, or may partly fund health insurance, and this may lead to employees not being able to access or qualify for certain services (as they earn over the thresholds), and thus these employees fall through the gaps, and even more so if they are unable to afford the purchase of unsubsidised private health insurance.

Structural barriers and opportunities in accessing oral healthcare

Structural barriers include barriers such as large geographical distances, cultural and language incompatibilities, gender, race, lack of healthcare human resources and facilities (Bodenheimer and Grumbach, 2002:25). Race and ethnic groupings play a distinct role in limiting access to healthcare. Even the type of treatment received by the various races and ethnic groups differ. For example, Bodenheimer and Grumbach (2002:26) cite studies by Weinic *et al.*, (2000) and Mayberry *et al.*, (2000) who reported that studies conducted in the United States of America revealed that both African-Americans and Latinos received fewer services than whites, even though they had comparable levels of income and health insurance. They also found that neighbourhoods with non-whites had fewer healthcare

practitioners and facilities. In South Africa the link between race, income and the skewed redistribution of oral healthcare workers that favoured urban areas and the private sector over rural areas and the urban sector, was demonstrated in a nation-wide study (Ayo-Yusuf, Ayo-Yusuf and Olutola, 2004:187-188).

Methods

The study followed a series of three phases, which are outlined as follows:

Phase One

Initially the conceptual framework used in this study was developed and modified by the researchers to comparatively analyse access to oral healthcare in oral health policies, and was based on five major policy analysis constructs (context, content, process, implementation and forecasting). In this study four of these constructs (context, content, process and implementation) were utilised. These four major policy analysis constructs were used to analyse oral health policies in the five areas of access (availability, affordability, accessibility, accommodation and acceptability). Oral healthcare policies were sourced by undertaking a comprehensive and exhaustive documentary desktop search and literature review. These policy documents were initially reviewed in order to locate policies that were relevant to access to oral health by using the developed cross-national comparative policy analysis conceptual framework (see figure 1).

Phase two

Phase two of the study was the analysis of the selected policies using thematic content analysis, by using the nVivo version 10 software analytical tool (QSR international). Data relating to each of these constructs was gathered and analysed, and then used to undertake a comparative oral health policy analysis. In analysing the construct “context”, policy analysis pertaining to the history, structure (facilities, equipment), situation (population, socio-economic situation), culture (including the rural-urban mix), and other exogenous factors were analysed. The analysis of the construct “content”, involved an analysis of how the policy was initiated, designed and implemented. In analysing the construct “process”, the various factors that influenced access to oral healthcare, such as policy decision-making and policy implementation were analysed. Analysis of the construct “implementation” involved the analysis of the influences related to oral healthcare policy implementation, monitoring and service delivery.

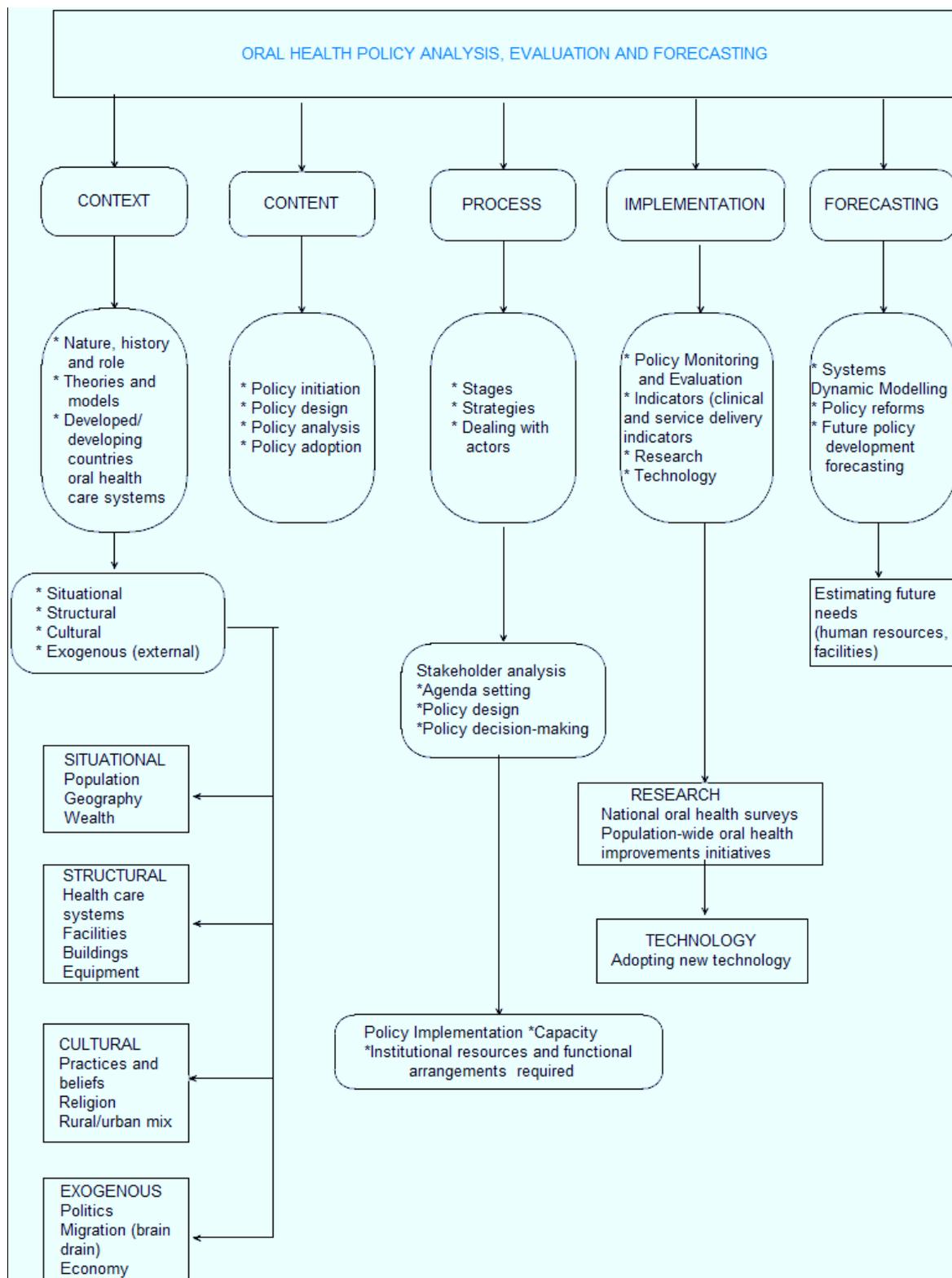
Phase three

Interviews were conducted with ten policy key stakeholders, of whom five were South African and five Australian. These stakeholders were selected based on their current/past roles in oral health policy development and/or implementation, and research. These individuals are representative of the national oral health departments (a Director of Oral Health in Australia and The Chief Dental Officer, National Oral Health Directorate in South Africa), the private sector associations (leadership from the South African Dental Association and the Australian Dental Association) the private healthcare funders (leadership from the Australian Private Healthcare funders and the Board of Healthcare Funders (BHF) in South Africa, researchers from community dentistry departments at universities in Australia and South Africa, and dental health lobby and advocacy groups such as the Oral health Special Group of the Public Health Association of Australia (PHAA) and the Public Health Association of South Africa (PHASA). The purpose of these interviews was to elicit the key stakeholders' perceptions and views, and to ascertain what are the current policy debates related to access in oral health policies. Whilst acknowledging that oral health policy analysis is a complex processes that has multiple and varied confounders, and that the ideal would be to have had a much larger and more representative sample to interview this study concentrated on the 'policy-elites'. These policy-elites are a small representative group that have a powerful influence on policy development, implementation and reform.

The study concludes with the reporting of the results of phases 1-3, and by making some conclusions and recommendations that could be adopted towards improving oral health access to oral healthcare.

The conceptual framework that was modified and used in this study is presented in the figure that follows.

Figure 1: Conceptual framework



Source: Adapted and modified from: Cloete and de Coning, 2011; Blank and Barau, 2010; Lyle and Perkins, 2010; Singh, Myburgh and Lalloo, 2010; Hobdell, 2007; Singh, 2005; Lee, Buse and Fustukian, 2002; Walt, 1994.

Data management

An overview of the data management of this study is presented in the table that follows.

Table 1: Overview of data management in this study

Task	Phase One	Phase Two	Phase Three
Type of Data	Secondary data (data generated by other researchers, was used in this study). Examples include research papers and oral health surveys	Secondary data	Primary data (data created as a result of research conducted in this study) was used. Examples are the policy documents and research reports
Data Collection Method	A desktop search and literature review was undertaken. Policies that were collected were reviewed and those that were relevant to access in oral healthcare were subjected for further analysis	The policies that were identified in phase one were utilised	Structured non-disguised, standardised in-depth key-stakeholder interviews (face-to-face and telephonic) were conducted
Data Sources	Primary data sources: academic books and journals; evaluations from intergovernmental agencies reports and documents; unpublished reports, minutes of meetings; White and Green papers related at access in oral health policies Secondary data: written sources of information relevant to the policy analysis framework of this study	Statistical records, oral health annual reports and policy documents Inclusion Criteria All policy documents that had direct or indirect relevance to access in oral health Exclusion Criteria Documents that did not have relevance to access in oral health	Data was obtained from the interviews that were conducted with key identified stakeholders
Data Analysis Method	Thematic content analysis methods. Policies were reviewed in order to identify policies that were related to access in oral health	Thematic content analysis methods. The identified policies were analysed using nVivo 10 (QSR International). This is a data analysis process using a software programme wherein the data pertaining to access in oral healthcare was classified into themes based on content	Thematic content analysis methods. The transcripts of the interviews were analysed using nVivo 10 (QSR International).
Validity and Reliability	Reliability was measured using face value , which is the extent to which an instrument appears to measure certain characteristics. All data related to access in oral healthcare policies was subjected to triangulation , and internal consistency in order to ensure validity. Reliability was further ensured by the use of peer examination of data and accuracy checks. (Baum 1998)	Reliability and validity were ensured by using triangulation . Triangulation refers to the use of multiple research methods, data sources and theoretical concepts to answer a critical research question (Baum, 1998; Singh, 2005)	Validity was ensured using construct validity , and reliability was ensured by using internal consistency . All participants were asked the same questions in the interview, regardless of whether the interviews were face-to-face or telephonic. The interview transcripts were also verified by the research participants, to ensure accuracy

Source: Hofstee, 2010; Singh, 2005; Mouton, 2001; Baum, 1998.

Results

Following an exhaustive literature and desktop search of electronic databases using key medical subject heading (MeSH) words related to access in oral healthcare policies a total of 115 policies were identified, obtained and analysed (Australia - 64, South Africa - 42, general - 9). A total of 59 policies were excluded as they did not contain any content relevant to access. The remaining 56 documents containing data from Australia (32 documents) and South Africa (24 documents) were analysed using content analysis and the developed cross-national policy analysis conceptual framework. Of these, the primary documents from Australia are: Australia's National Oral Health Plan 2004-2011; the Child Dental Health Surveys Australia (2005 and 2006); the National Dental Telephone Interview Survey 2010 (adults and children); and the Report on Improving Oral Health and Dental Care for Australians (2008). South African policy documents that were analysed included the National Oral Health Surveys of 1988/89 (which is still in operation) and the National Oral Health Strategy (National Department of Health, 2010). A more comprehensive list of policies that were analysed is contained in the appendix at the end of this paper.

Following the thematic content analysis of these 56 policy documents two themes related to access emerged. The results of the thematic analysis are reported according to two emerging themes related to access in oral healthcare availability, affordability, accessibility, accommodation and acceptability. These themes are: the financial opportunities and barriers, and structural opportunities and barriers. Financial opportunities and barriers refer to affordability and accessibility, and relate to the (subsidised) cost of treatment, the ability to pay for treatment, and other costs, such as transport, that are related to accessing treatment. Structure refers to opportunities and barriers related to accessibility, and acceptability, such as dental practice operating hours, human resources availability and distribution, equipment and materials availability, geographic distances in accessing oral healthcare and/or the ability/inability to obtain time off from work to access treatment.

Financial opportunities and barriers

In both Australia and South Africa, the results infer that there are affordability and accommodation issues related to accessing oral healthcare, as indicated in the tables and figures below. The Australian Institute of Health and Welfare (AIHW) reported that 86% of participants in a nationwide dental health survey that was conducted in 2008 stated that they would experience difficulty in paying a AU\$100 oral healthcare bill (see figure below) and that 47.4% of urban residents had dental insurance coverage compared to only 39% of rural

residents (AIHW, 2007: 5). People from households with a higher annual income were more likely to have visited a private practice at their last dental visit than those from lower income households, with the prevalence of visiting a public practice being the highest for persons from households with an annual income of less than AU\$20,000 (31.3%), and from households with AU\$20,000–30,000 (16.7%), although the majority still visited a private clinic (National Dental Telephone Interview Survey 2008, 2012: 1-4).

In an interview with the Australian oral health researcher, it was pointed out that in some states and territories there are measures to improve access to oral healthcare. This included initiatives such as the Teen Dental Voucher (in which eligible teenagers were supplied with a voucher by the government that entitled them to limited dental services). This stakeholder commented that there are also

“specific programmes for the poor, the aged, people who live in special residential programmes, and those who often have mental problems. Also we are currently working on a disability project. We also running a programme for newly arrived refugees where they get a priority care appointment”.

(interview with Australian university oral health policy researcher).

The Australian advocacy group policy stakeholder commented that although the Teen Dental Voucher scheme will be discontinued by 2014, and replaced with the Grow Up smiling (GUS) programme,

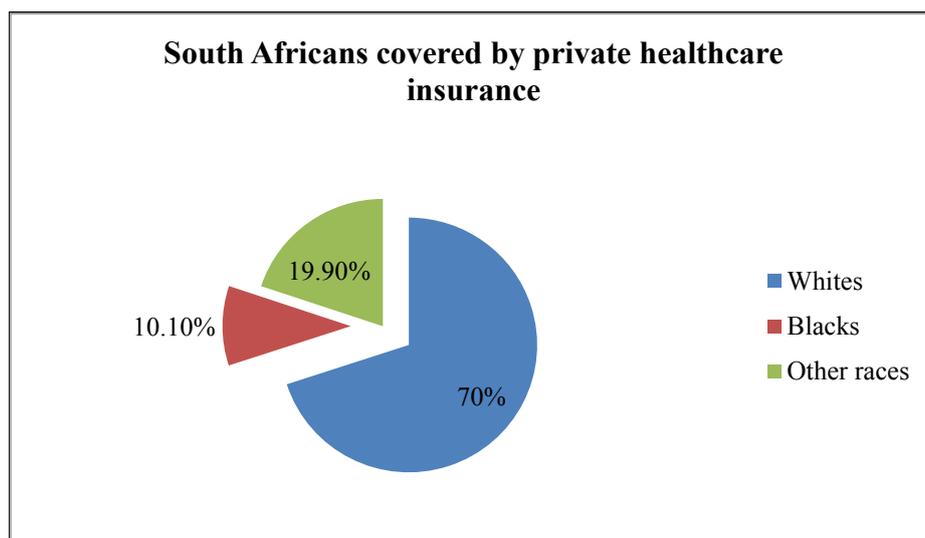
“We will also have the “Far-Key” oral health programme which categorises people based on socio-economic measures, such as age, number of children below a certain age group, people who have an acute medical condition and those with severe symptomology will be given a higher priority”.

and that this may also lead to improved access to oral healthcare (interview with Australian oral health advocacy group policy stakeholder).

In South Africa, it has been reported from a study conducted by Ayo-Yusuf, Ayo-Yusuf and Olutola (2013:180-182) that 27.87% of whites and 3.1% of blacks had preventive dental visits. The study also ascertained private healthcare insurance coverage rates, as indicated in the figure below. This is indicative of the situation in South Africa, where a large portion of the population relies on the public sector for their basic oral healthcare. The policy analysis revealed that in 2008, the South African public sector spent around R33 billion servicing 38

million people (84% of the population). In contrast, the private sector spent R43 billion on servicing only seven million people (16% of the population) (South African Human Rights Commission, 2009). Thus, R6 142 was spent per person in the private sector whilst public sector per-capita healthcare expenditure was R868, which is over seven times less the private sector per capita spending.

Figure 2: South Africans covered by private healthcare insurance



Source: Ayo-Yusuf, Ayo-Yusuf and Olutola; 2013:180-182

South African policy-makers intend to reduce financial barriers and improve access to oral and general health through the introduction of the National Health Insurance Scheme, which is in its pilot roll-out phase. The National Health Insurance Scheme and the National Department of Health Strategic Plan 2010/11-2012/13 set out a 10-point plan for 2009-2014, of which eight points are relevant to oral health. Those points relevant to this study are:

- Improving human resource planning - with the Framework for Human Resources Planning being completed, and the production of a revised and updated Human Resources Plan) (related to availability, accessibility, acceptability and accommodation);
- Overhauling the healthcare system (availability, accessibility, affordability, acceptability and accommodation) - the department will focus on three areas of infrastructure revitalisation. These are: (1) accelerating the delivery of health infrastructure through Public Private Partnerships (PPPs); (2) Revitalising primary

level healthcare facilities; and (3) accelerating the delivery of Health Technology and Information Communication Technology (ICT) infrastructure;

- The introduction of the National Health Insurance scheme, which is in its pilot roll-out phase, and is intended to improve both the supply and the quality of healthcare services (related to availability, accessibility, acceptability, affordability and accommodation).

There was consensus amongst the key oral health policy stakeholders who, during the interviews, agreed that in South Africa, there were no policy initiatives that enhanced access for oral healthcare services, except the provision of free primary healthcare to certain groups, such as children under the age of six years, the aged, the disabled, pregnant and lactating women, the aged and the chronically ill (interviews with South African policy stakeholders).

Structural opportunities and barriers

The results of a comparison of the dental visitation patterns and oral health status of Australian adults (that can be inferred to reflect availability, affordability, accessibility, acceptability and accommodation issues) are presented in the table below. It has been reported, for example, that in the 55–64 years age group, there was a large difference between the lower and higher income groups, with a higher proportion (22.7%) of people in the lowest income group being edentulous, than in the five highest income groups combined (National Dental Telephone Interview Survey 2008, 2012: 1-3). It was also found that, with the exception of the 18–24 year age group, the mean number of missing teeth generally increased as income decreased, and that among dentate persons in the age group 45–64 years, those from households with an annual income of over \$110 000, had a mean of 4.3 missing teeth, compared with 11.1 for those with an annual income of less than \$20,000 (National Dental Telephone Interview Survey 2008, 2012: 1-6).

The results of the comparative policy analysis reveal that in South Africa, reported utilisation of oral healthcare services (availability and accommodation) was found to be generally low, with, for example, 0.10 mean number of dental visits/year amongst the coloured race group, and 0.86 mean number of dental visits/year amongst the whites (National Oral Health Survey - South Africa 1988/89). Whilst data on dental visits according to income quartile in South Africa was not located, it can be inferred from the Ayo-Yusuf, Ayo-Yusuf and Olutola

(2013:180-182) study that people who had private healthcare insurance were more likely to present themselves for preventive dental visits (27.8% of the 70% of whites who possessed private health insurance) and thus could have fewer extractions and better oral healthcare.

Table 2: Australian dental visitation patterns and oral health status

Dimension of access	Area of access/income quartile	Affordability	
		Highest income quartile	Lowest income quartile
Availability, accessibility, acceptability and accommodation	Dental visit in the last 12 months	76.9% of adults	55.1% of adults
Availability, accessibility	Likelihood of having an extraction in the last 12 months	3.7%	13.5%
Availability, accessibility, acceptability and accommodation	Mean of untreated decayed teeth	0.1 untreated decayed teeth	0.8 untreated decayed teeth
Availability, accessibility, acceptability and accommodation	Adults with missing teeth Adults with filled teeth	4.02 missing 11.48-11.23 filled teeth	6.57 missing teeth 9.77 filled teeth

Source: Spencer and Harford, 2007: 5

A prominent finding of the comparative policy analysis was that children had limited access to oral healthcare services in both Australia and South Africa. Australia was found to have a free or subsidised school or community dental-clinic-based primary oral healthcare service that provided care to meet the needs of most children (Australia’s National Oral Health Plan 2004-2013). In contrast, South Africa does not have a dedicated school-based primary oral healthcare service but instead relies on the general public oral healthcare system to render services to children, and this could impact on children gaining access to oral healthcare.

The Australian Dental Association (ADA) argued that more resources need to be added to the oral healthcare of disadvantaged Australian, in order to ensure enhanced and equitable access (availability, affordability and accommodation), and in its “Dental access” proposal of November 2009 to the Australian government, called for a scheme to assist disadvantaged Australians obtain improved access to dental care (Australian Dental Association, 2009:2). However, the results of the comparative policy analysis revealed that the ADA opposed the proposed manner in which the government planned to address access to oral healthcare

services, and argued that the present private/public sector model of oral healthcare service provision is sufficient to meet Australia's oral healthcare needs (Australian Dental Association, 2009:2). The ADA argued that 65-70% of Australians can readily and easily access oral healthcare in the private sector, and that the problem lay with the 30-35% of the population that utilised the public sector (Australian Dental Association, 2009:2). The ADA further argued that because the public sector is poorly resourced, it is unable to offer quality and necessary (acceptable, affordable and available) oral healthcare (Australian Dental Association, 2009:2).

The Australian Institute of Health and Welfare (AIHW, 2005) reported that urban residents (58.2%) were more likely to have visited a dentist in the last year (availability, accessibility, affordability, acceptability) than rural residents (53.1%) and remote dwellers (50.5%) (AIHW, 2005: 2). It was also found that there was an inverse relationship between annual household income and edentulism (affordability), with the lower the income, the greater the prevalence of edentulism.

In Australia, most oral healthcare is provided by dentists working in private practices, whilst there is a separate healthcare system for children and adolescents that is delivered by mainly school-based dental therapists, and is funded by state and territorial governments (Stewart and Ellershaw, 2012: 10-24). These school dental services provide 50% of the dental visits of 5- to 11-year-olds, but only a fifth of the visits of 12- to 17-year-olds. However, due to increasing staff shortages and an aging workforce, these services have been targeting children at higher risk of dental disease. The results of the comparative policy analysis inferred that human resources shortages and misdistribution was present in both Australia and South Africa. In Australia, the shortage of oral healthcare workers in rural, regional and remote areas of Australia was, and remains, a policy concern (Australia's National Oral Health Plan 2004 – 2013, 2003:1-33). Whilst there was an excess of dentists in Australia, there was a shortage in remote, regional and rural areas. Research undertaken in 2008 found that there were 57.6 dentists per 100 000 population in major city locations and 18.1 dentists per 100 000 population in the remote areas of Australia (AIHW Research Report No. 40, 2008:1-3).

The Australian advocacy group participant reported that there was a need to review the oral healthcare workers skills-mix structure in order to meet the countries oral healthcare needs, and further stated that

“in certain instances where care could be provided by oral health professional such as an oral health therapist or hygienist... it (the treatment plan) has to go through a dentist working within that practice. So this is an infrastructural inefficiency in the system, and this introduced inefficiencies in the care of patients...and this acts as a barrier to the most efficient care provided by the most appropriate member of the dental team ”

(interview with Australian advocacy group stakeholder).

In South Africa the *“urban-based, curative-driven, individual-focused delivery of oral health care suggest that oral health services in South Africa are still based on the principles of the bio-medical model”* and this restricts access to appropriate oral healthcare (Thema and Singh, 2013:413-14). Oral healthcare services in South Africa are provided at various levels of care (primary, secondary, tertiary and quaternary), with 90% of the care being provided at primary health care levels (Molete, 2013:16). These services are free for all citizens in clinics and community health care centres as part of a comprehensive package of primary health care services (Molete, 2013:17; Bhayat and Cleaton-Jones, 2003:106-109). At this level, oral health services are provided by dentists, dental therapists and oral hygienists, and treatment modalities offered include emergency relief of pain, treatment of sepsis, extractions and restorations (Molete, 2013:17-19; Bhayat and Cleaton-Jones, 2003:106-109). Restorative procedures such as dental restorations and dentures may be provided at primary health care level according to the availability of resources, but usually has long waiting-lists (Molete, 2013:17-21). Patients with more complicated oral conditions are referred to the nearest appropriate hospital. Eight percent of oral healthcare services in the public sector are provided at secondary level, with the remaining 20% being provided at tertiary and quaternary care institutions (DoH, 2010). It has been argued that there is

“an urgent need for capacity building in oral health clinical service provision, with a greater commitment to implementing the basic minimum package for oral health. This includes emergency relief of pain and sepsis, scaling and polishing, simple restorations, and periapical radiographs in response to local oral health need (Singh, 2011:260).

Discussion

Access to oral healthcare is an influential factor in oral health policy development and implementation. It is argued that the reasons underlying the differences in the management of oral diseases are access and availability of oral healthcare (Spencer and Harford, 2007: 5). Enhancing access and removing social barriers (such as income disparities and education) is a complex process that requires the buy-in of various public and private sector stakeholders.

It was also been found that the inverse care law operates in both Australia and South Africa. The inverse care law has been defined by Tudor Hart (1971:405-409) as being

"The availability of good medical care tends to vary inversely with the need for it in the population served. This ... operates more completely where medical care is most exposed to market forces, and less so where such exposure is reduced."

This law is based on the principle that the "availability of good medical or social care tends to vary inversely with the need of the population served" (Watt, 2002:252-254; Tudor Hart, 1971:405-409). The results of this study revealed that wealthier Australians and South Africans had greater access to, and received more, oral healthcare than the less wealthy.

Financial opportunities and barriers to accessing oral healthcare

Australia

Access to health in Australia is regarded as a right that should not be affected by a person's ability to pay for this healthcare (Roberts-Thomas, Luzzi and Brennan, 2008:444). However, fair access to oral health is an unfulfilled right that is not afforded to many Australians because of their inability to pay for oral healthcare (Roberts-Thomas, Luzzi and Brennan, 2008:444).

One of the debates that has emerged from this comparative oral health policy study is the call for dental services to be included in Australia's Medicare National Health Insurance Scheme, in a funding scheme known as Denticare (Australian Dental Association, 2009: 2). Whilst Denticare has been piloted as being the solution to Australia's oral health access problems, there has been opposition to the proposed scheme, related to costs and the dental professions' lack of willingness to participate in the programme (Australian Dental Association, 2009: 2). One dental professional organisation in Australia opposes Denticare, and it has been suggested that this professional organisation fears that universal coverage can act as a price

control system affecting their professional autonomy (Australian Dental Association, 2009: 2).

In Australia, dentate adults from remote locations were less likely to have made a dental visit in the past twelve months, and even in the past five years, than persons from rural or urban locations (Roberts-Thomson, Brennan, and Spencer, 1995:80-82). Australia has responded to the need to reduce the impact of geographic barriers by subsidising travel costs for the poor, by having oral healthcare teams visit rural and remote areas (often through the Flying Doctor aeronautical service) and by using private-public partnerships via the use of treatment vouchers) (Stewart, Carter, and Brennan, 1998: 1-24).

South Africa

It has been demonstrated that income is “almost linearly related” to a person having an extraction and that socio-economic factors feature highly in patients’ ability to receive preventive care rather than curative care related to the relief of pain (Roberts-Thomas, Luzzi and Brennan, 2008:444).

South Africa, like Australia, offers tax-incentives for the purchase of private healthcare insurance. In Australia, this subsidy occurs in the form of a 30% tax rebate (Spencer, 2006:36) and in South Africa, as part of income tax rebates (McIntyre, 2010: 1-5). This is intended to act as an opportunity to facilitate enhanced access to private healthcare, and thus to reduce the burden on public healthcare services. However this is seen as counter-productive, as it benefits those who can afford private healthcare insurance, and effectively leads to the poor cross-subsidising the wealthy (McIntyre, 2010: 1-5; Spencer, 2006:36). South African policy-makers intend to reduce financial barriers and improve access to oral and general health through the introduction of the National Health Insurance Scheme, through the introduction of the National Health Insurance Programme that is targets improving human resources, oral healthcare service delivery and oral healthcare funding and financing (availability, accessibility, acceptability and accommodation).

Structural opportunities and barriers to accessing oral healthcare

Opportunities and barriers to accessing oral healthcare exist in a number of structural areas such as geographic access (*accessibility, affordability, accommodation*), human resources (*accessibility, affordability, accommodation, availability, acceptability*), and the type of oral

healthcare services provided (*accommodation, availability, acceptability*). Each of these three areas will be discussed in the following sections.

Human resources

There are often geographical imbalances in the distribution of health workers within countries, which affect healthcare services, and a diverse and culturally competent workforce is necessary to address oral health disparities and improve access to oral healthcare (Catalanotto, 2006:1120). The shortage of oral healthcare workers in rural, regional and remote areas and in the public sectors in both Australia and South Africa is a policy concern that has been highlighted by the National Advisory Council on Dental Health in the Healthy Mouths, Healthy Lives: Australia's National Oral Health Plan 2004 – 2013 (2003:1-33) and in the Department of Health Strategic Plan 2010/11-2012/13 (2012). The need for increasing the human resource capacity of the public sector in urban, rural and remote areas to deliver services aimed at improving oral healthcare to children and adults by targeting the most disadvantaged groups is highlighted and being addressed through a number of policy initiatives, such as in Australia where there is an incentive scheme to encourage recent graduates to serve in rural areas (the Graduate Incentive Scheme) and in South Africa where compulsory community service, and the Occupation Specific Determination scheme coerces recent graduates to serve in rural and underserved areas (HW2025, 2013:1-3).

In the South African public sector, there is a shortage of human resources to meet the oral health needs of communities, but a surplus of human resources in the private sector. Thema and Singh (2013:413-414) suggest that the current number of oral health professionals in South Africa is not adequate to meet the population's oral health needs in the public sector. This lack of oral health professionals and facilities may also contribute to unmet oral health needs. Thema and Singh (2013:413-414) further argue that inadequate employment opportunities in the public sector, amongst other challenges, has resulted in persistent oral healthcare worker staff shortages. Basic oral health needs in some rural areas of South Africa are often not met, because of a lack of primary oral healthcare workers, such as oral hygienists, who provide preventive and/or promotive community oral health services (availability, acceptability and accommodation) (Thema and Singh, 2013:413-415).

Policy reforms and strategies programmes that may improve oral healthcare worker provisioning, skills-mix and equitable distribution need to be developed. However, an increase in the number of oral health care workers does not necessarily lead to an

improvement in oral health status, and therefore the aim of policy reforms should be to ensure an adequate and appropriate oral health care workforce to meet the needs of the nation.

Geographic access

Whilst geographic access also refers to physical access (such as in the case of wheelchair-bound patients), for the purpose of this study, geographic access refers to physical distances that patients would need to travel in order to gain access to oral healthcare. The issue of geographic access is particularly relevant in Australia where there are large distances between population centres, and a high percentage of the population living in capital cities. These large distances, and sparsely populated rural and remote areas play a significant role in influencing healthcare in Australia, through the “*association of remoteness and distributional inequity in health services*” (Brownlea and Taylor, 1984:901-903).

In remote and rural areas, where distances to access clinical facilities are great, it was found that people are less likely to demand care (Harris *et al.*, 2011). Whilst there is a paucity of data on the oral healthcare usage patterns of rural and urban South Africans, it can be inferred from the results of the Ayo-Yusuf, Ayo-Yusuf and Olutola study which showed that there was significant interaction between location (urban/rural) and education in preventive dental visits (Ayo-Yusuf, Ayo-Yusuf and Olutola, 2013:180-182) that rural South African also experiences difficulties in accessing oral healthcare.

Harris *et al.*, (2011) reported on the results of a survey that the average time to travel to a health facility in South Africa was 30,7 minutes, and that this time was longest for the poorest (38.2min) and for people in rural areas (Harris *et al.*, 2011). People from some rural communities took a whole day travelling to a health facility, and this impacted on their motivation to access healthcare (Van der Hoeven, 2012). There was also concern that some elderly people and those with physical disabilities might have difficulty accessing public healthcare facilities (South African Human Rights Commission, 2009). South Africa, as part of the NHI scheme, is increasing the number of healthcare facilities and using interventions such as the *Phelophepha* Healthcare Train, which travels to rural areas and provides oral and other healthcare, to these areas (National Department of Health Strategic Plan 2010/11-2012/13; Medical Chronicle, 2012). An imbalance in availability of general healthcare services between urban, remote and rural locations exists in both Australia and South Africa, with non-urban locations having fewer facilities and shortages of healthcare workers (van Rensburg, 2010:31-44; Brownlea and Taylor, 1984:901-903).

Service Delivery

In Australia, a community health policy advocacy group (the Brotherhood of St. Laurence) argues that despite having a school dental service, almost 50% of children have untreated caries, and that current oral health policies deny access to many, as the services that they offered were inappropriate to the demands and needs of the patient (Richardson and Richardson, 2011:16). This has led to high costs being borne by individuals and communities from the consequences on untreated dental diseases (Olive *et al.*, 2012: 1; Richardson and Richardson, 2011:16). A barrier to accessing school-based oral healthcare services is that there are strict processes for gaining positive parental consent to examine and treat these children, and thus those children who hail from poorer and non-English-speaking backgrounds are less likely to receive oral healthcare (despite Australia having a telephonic translation service that could be used) (Stewart and Ellershaw, 2012: 10-24; Kruger, Dyson, and Tennant, 2005:262).

State-funded dental care which is available for certain groups of adults (elderly, disabled, single parents, veterans, the armed forces, aboriginal populations, and the unemployed), is provided in community or hospital-based dental clinics. However, the majority of adults, who do not fall into one of these groups, seek services from private dentists and pay out-of-pocket or through private insurance (Stewart and Ellershaw, 2012:10-24). Satur (2002:343) states that by using dental auxiliaries (such as hygienists and dental therapists), oral health care can be provided at a lower cost to the majority of these adults.

In attempting to address these social inequalities, there should not be the mere reallocation of resources, but appropriate needs-based and equitable reallocation to ensure that the oral healthcare system can sustain such reallocation in terms of the feasibility and practicality (effectiveness and efficiency in terms of costs and demand). In order to understand how to distribute resources equitably in redressing these inequalities, good epidemiological information is required. Whilst there is a paucity of data at a national level, with few large-scale national oral health epidemiological studies having been conducted, numerous small-scale local and regional surveillance studies have been completed. The results of these local and regional studies could inform local epidemiological burden of disease profiles, and may lead to oral health policy decisions that will address local oral healthcare needs, as the distribution of the burden of disease in this study was found to be not equal. Policy reforms, strategies and programmes that aim at improving access to, and providing appropriate oral health services, need to be addressed by policy stakeholders.

Conclusion and Recommendations

This study argues that in order to contribute to improving access to oral healthcare, an understanding of the opportunities and barriers to accessing oral healthcare, and of the ways of enhancing or reducing these opportunities is required. The results have revealed that both countries have policies in place that aim at facilitating access to oral healthcare, either through increasing physical access by, for example, having the Grow Up Smiling (GUS) programme that facilitates oral healthcare access for children and the Graduate Incentive Scheme that aims to increase the availability of human resources in rural, regional and remote areas of Australia. South African policies that are aimed at facilitating access to oral healthcare include the Community Service for dentists programme that coerces recently graduated dentists to serve a period of time in rural and underserved urban areas, and the provision of free oral healthcare to certain sectors of the population, such as the aged and children under six years of age. Oral health policies should therefore be aimed at enhancing access to oral healthcare by providing opportunities, and/or removing or reducing access barriers.

The following recommendations arise out of this study:

- There is a need for the revitalisation and reorientation of the oral healthcare system towards rendering primary, preventive and promotive oral healthcare.
- Policy developments and reforms that are aimed at ensuring an equitable and feasible distribution of oral healthcare and human and infrastructural resources, need to occur.

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Appendix A:

List of major policies reviewed

The following major policies were reviewed in this study.

Australia

- A Healthier future for all Australians – Final Report 2009
- ARCPOH 2008 Report Improving Oral Health and Dental Care for Australians
- ARCPOH National survey of Adult Oral Health 2004-2006
- Australia's National Oral Health Plan 2004-2013 – developed by the National Advisory Committee on Oral Health, National Advisory Council on Dental Health
- Building a 21st Century Primary Health Care System – Australia's First National Primary Health Care Strategy
- Case study: Why am I still on the waiting list? A study about people waiting for dental public care – 2001
- Child Dental Health Plan 2009
- Closing the Gap and associated annual reports
- Commissioned Paper: Narrowing the inequity gap in oral health and dental care in Australia – Australian Health Policy Institute - 2004
- Dental and Oral Health Policy Paper – Menzies Centre for Health Promotion – 2007
- Dental Benefits Act, 2008
- Dental Training Expanding Rural Placements (DTERP) Programme
- Improving Oral Health and Dental Care for Australians - National Health and Hospital Reform Commission – 2008
- Medicare chronic Disease Dental Scheme – 2012
- National Advisory Council on Dental Health – Final report 2012
- National Oral Health Plan, 2004-2013
- National Partnership Agreement of Hospital and Health Workforce Reform 2009 (Health Workforce Australia)
- Oral Health of Aboriginals and Torres Strait Islander Children – Research report (2007)
- Public Dental fees Policy
- The Health and Welfare of Australians Aboriginal and Torres Strait Islanders People – 2005
- Water Fluoridation and Child Health Policy

South Africa

- 1997 White Paper on the Transformation of the Health System in South Africa
- Department of Health. A Strategic Framework for Human Resources for Health Plan: draft for discussion. Pretoria: Department of Health; 2005
- Eastern Cape DoH Oral Health Policy – 3rd draft
- Green Paper on NHI - August 2011
- Health Sector Strategic Framework 1999-2004
- Human Resource Development Strategy for South Africa
- Human Resources for Health South Africa – HRH Strategy for the Health Sector: 2012/13 – 2016/17
- Human Resources for Health South Africa: A National Health Strategy (2001)
- Integrated School Health Policy – 2010
- KwaZulu-Natal National health System Priorities – 10 point plan for 2010-2014
- National Department of Health Strategic Plan 2010/11-2012/13
- National Development Plan
- National Health Act 61 of 2003
- National Health Insurance in South Africa – 2011
- National Human Resources for Health Plan
- National Oral Health Strategy – National Department of Health (2010)
- Policy on Community Service by Health Professionals 1996
- Scarce Skills & Rural Allowance Policy Framework
- South Africa's Integrated School Health Programme
- Strategic Framework for Human Resources for Health Plan on 3rd August 2005
- Strategic Priorities for the National Health System 2004 – 2009
- 1997 White Paper for the Transformation of the Health System in South Africa

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Manuscript Three

Human resources in transition:

A comparative policy analysis of oral health human resources in developed country (Australia) and a developing country (South Africa)

Human resources in transition: A comparative policy analysis of oral health human resources in developed country (Australia) and a developing country (South Africa)

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ABSTRACT

Introduction: Oral healthcare service delivery critically depends on the size and skills-mix of the health workforce. There are a number of policy concerns relating to the size, distribution, and skills-mix of oral healthcare workers that need to be understood and addressed by policy-stakeholders.

Aim: The study aimed to understand how the ongoing debates related to oral healthcare workers provision, distribution, and skills-mix influenced oral healthcare service delivery. This study also sought to understand how the on-going interaction between and amongst the policy-actors influence oral health human resources provision in a developed (Australia) and developing country (South Africa).

Methods: A cross-national cross-sectional time series comparative analysis using extended literature reviews, documentary and policy analysis, and interviews was used to ascertain the existing practices and reality (ontic nature) of oral health human resources policies in Australia and South Africa.

Results: The results reveal that there are stark imbalances in the availability, skills-mix and geographic distribution of oral healthcare workers in both Australia and South Africa. There are debates around human resources such as scopes of practice and professional autonomy that need to be addressed by policy-actors.

Discussion: Oral healthcare worker shortages in underserved areas may be addressed through the effective and efficient use of oral healthcare workers, as well as by changing the scope of mid-level oral healthcare workers so that they may be able to better serve the needs of the population in areas where there are shortfalls. However, there is resistance to these policy initiatives and reforms.

Conclusion: Careful consideration has to be given to the current debates around distribution, development of appropriate skills-mix and scopes of practice, and the primary oral healthcare needs of the populace so that the oral healthcare workforce policy developments and reforms meet the requirements of the country.

Recommendations: Inclusive stakeholder involvement in human resources planning needs to occur so that human resources planning may be aligned to national and local oral health goals and priorities.

Keywords: human resources, oral health policy, oral healthcare workers, South Africa, Australia

Introduction

Healthcare systems are only as good as the people who work in them and thus the most valuable resource in healthcare provision is not technology or facilities but the human resources within the healthcare system (Bodenheimer and Grumbach, 2002:195). It has been argued that health systems all over the world are suffering from years of neglect, with one of the greatest manifestations of this neglect being the crippling shortages and imbalances of oral healthcare workers (Poz *et al.*, 2009: 2). Health systems and oral health delivery services depend critically on the size and skills of the health workforce (Poz *et al.*, 2009: 3). There are a number of policy concerns relating to oral healthcare workers such as the size, distribution, and skills-mix (Wadee and Khan, 2007:146).

Aims and Objectives

This paper aims to undertake a comparative analysis of oral healthcare human resources policies in order to understand the topical debates around the issues of human resources provision, distribution and skills-mix. This may contribute to an understanding of how the on-going interaction between and amongst policy-actors (policy developers and policy-implementers) influence oral health human resources provision in a developed country (Australia) and developing country (South Africa).

Literature Review

An analysis of the literature related to oral healthcare workforce reveals major similarities in terms of the skills-mix and stark contrasts in terms of workforce numbers in Australia and South Africa, and that both countries have oral healthcare workforce challenges that are historically embedded within the countries' unique social contexts (Hugo, 2007:153; Palmer and Short, 2007:14-24).

The supply of human resources for health affects policy development and implementation as the availability of human resources to meet the objectives of the policy is crucial to the success or failure of the policy and its implementation (Leichter, 1979:50). Human resources for health also have to be equitably-allocated and distributed in order to address the imbalances that exist in the urban/rural distribution, and to ensure that a suitable public/private sector distribution-ratio exists in the wider arena of health service provision (Leichter, 1979:59). All of these factors impact on the health system and are critical in ensuring successful policy programme implementation outcomes (Leichter, 1979:59).

Oral healthcare worker skills-mix influences

The World Health Organisation (WHO), in its World Health Report 2000 (WHO, 2000:1-14), noted that determining and achieving the correct mix of health workers poses a major challenge for most countries. This skills-mix is made up of different cadres and types of healthcare workers that may be needed to fulfil the country-specific needs of different countries (Black and Gruen, 2005:191). Resource availability, regulatory practices, environments, culture, customs and societal practices are all influential in determining the type, quantity and availability of the skills-mix of oral health human resources in different countries (Black and Gruen, 2005:191: WHO, 2000:1-14).

Distribution of oral healthcare workers

There may be sufficient, and even an abundance of, health professionals but they may be over-concentrated in certain areas – such as the inner city or in metropolitan areas, whilst shortages exist in rural or less-attractive areas (Bodenheimer and Grumbach, 2002:149). These underserved areas have been categorised as follows:

Table 1: Categories of underserved health areas

Area of shortage	Description
Medically underserved areas	Areas that have few primary care providers.
Medically underserved populations	Populations that have few primary care providers.
Health professional shortage areas	Shortages of primary oral healthcare which may be geographic (rural, regional areas), demographic (low income populations), or institutional (facilities).

Source: Goldsteen, Goldsteen and Graham, (2011: 9).

In the World Health Report (2000), the World Health Organisation emphasises the need for the equitable distribution of all types of healthcare workers across the urban/rural and the public/private sector divides in order to ensure that optimal healthcare service delivery occurs (WHO, 2001: 1-12).

Methods

Study design

This study utilised a cross-national cross-sectional time series (2001-2011) comparative analysis using extended literature review and documentary and policy statements analysis, and key stakeholder interviews. A combination of research tools, including literature reviews, policy analysis using a researcher-developed conceptual framework and key stakeholder interviews were utilised to ascertain the existing practices and reality (ontic nature) of oral health human resources policies in Australia and South Africa. The extended literature review enabled the researcher to contextualise the current state of oral healthcare workforce issues within Australia and South Africa. The second tool, which was the stakeholder interviews, was utilised in order to elicit pertinent information and to ascertain the current trends and debates from a limited number of key stakeholders (Hofstee, 2006:127).

Site selection - choice of countries

The choice of countries was based on a number of factors. The primary factor was that the researcher practised as an oral health practitioner in both countries, and thus has a good knowledge and understanding of both countries' oral healthcare systems. A second factor is that both countries have similar socio-economic, political, funding, oral health workforce and healthcare systems. Australia and South Africa have cadres of oral healthcare workers in common (such as dentists, dental therapists, oral/dental hygienists) and cadres of healthcare workers that differ (for example, oral health therapists and denturists/dental prosthetists are unique to Australia) (Balasubramanian and Teusner, 2011:11-34). Both countries are neoliberal democracies and were previously colonised by the British, and certain sections of their populations were subjected to various atrocities and disparities that included healthcare violations (Durey, 2010:S87; Rudd, 2009: 2).

In Australia, the indigenous people (Aboriginals and Torres Strait Islanders) were subjected to numerous oppressive processes such as mass murder, denial of appropriate healthcare and forced land removals (Rudd, 2009:2). Racially discriminative oral healthcare funding was also evident such as in the years 2004–2005 when state expenditure on oral health services was substantially less *per capita* for Indigenous people than the Australian average (Pulver *et al.*, 2010: 4). A similar situation existed in South Africa, with legislation enforcing the Apartheid system that disenfranchised the majority of the population (Okorafor *et al.*, 2007: 6). A by-product of these oppressive policies was that the majority non-white population was

relegated to the outskirts/remote areas/regional areas, and received few healthcare services (Okorafor *et al.*, 2007: 6).

Sampling technique and sample size

Ten policy stakeholders (five Australian and five South African) who were likely to generate appropriate and useful data that could contribute to the development of the theory and knowledge required for this study, were purposively selected to be interviewed based on current/past roles in oral health policy development and/or implementation. These individuals are representative of the national oral health departments; the private sector associations; private healthcare funders; researchers and dental health lobby and advocacy groups. The inclusion criteria was that the stakeholder had to have played a senior/policy elite role in oral health policy of their respective countries, and the exclusion criteria was those stakeholders who did not play a senior/policy-elite role in oral health policy.

Phases of the study

The study occurred in three phases, which are outlined as follows:

Phase One

Oral healthcare policies related to oral health human resources were sourced by undertaking a comprehensive and exhaustive documentary desktop search and literature review. These policy documents were initially reviewed in order to locate policies that were relevant to human resources in health

Phase two

Phase two of the study was the analysis of the selected policies using thematic content analysis, by using the nVivo version 10 software analytical tool (QSR international). Data relating to oral health human resources was gathered and analysed, and then used to undertake a comparative oral health policy analysis. In analysing the data factors such as the history, structure (oral healthcare workers deployment levels, employment sector – public versus private sector), situation (population, socio-economic situation,), culture (including the skills mix), and other exogenous factors were analysed.

Phase three

Interviews were conducted with ten policy key stakeholders, of whom five were South African and five Australian. These stakeholders were selected based on their current/past roles in oral health policy development and/or implementation, and research. These

individuals are representative of the national oral health departments (a Director of Oral Health in Australia and The Chief Dental Officer, National Oral Health Directorate in South Africa), the private sector associations (leadership from the South African Dental Association and the Australian Dental Association) the private healthcare funders (leadership from the Australian Private Healthcare funders and the Board of Healthcare Funders (BHF) in South Africa), researchers from community dentistry departments at universities in Australia and South Africa, and dental health lobby and advocacy groups such as the Oral health Special Group of the Public Health Association of Australia (PHAA) and the Public Health Association of South Africa (PHASA). The purpose of these interviews was to elicit the key stakeholders' perceptions and views, and to ascertain what are the current policy debates related to oral health human resources in oral health policies. Whilst acknowledging that oral health policy analysis is a complex processes that has multiple and varied confounders, and that the ideal would be to have had a much larger and more representative sample to interview this study concentrated on the 'policy-elites'. These policy-elites are a small representative group that have a powerful influence on oral health human resources policy development, implementation and reform.

The study concludes with the reporting of the results of phases 1-3, and by making some conclusions and recommendations that could be adopted towards improving oral health human resource provision, allocation and utilisation.

Data collection

Data that was collected from numerous documents (policies, census, statistical reports, indexed articles that appeared in academic research databases, government reports, professional body reports, health and professional body statistics and reports, and research reports) until data saturation was reached. These documents included information on regulatory aspects, policy developments and reforms, health indicators, stakeholders' opinions and submissions, policy briefs, government white and green papers and oral health policy development and trends analysis. The selection criteria were not restricted and were extended to include any policy that contained references to oral health relevant to Australia and South Africa. All policy documents and policy statements that contained references to oral health human resources were included in the study. Any policy document and policy statement that had no reference to oral health human resources was excluded from the policy analysis process.

Data analysis

Systematisation and analysis of the data collected occurred via a process of three phases that are illustrated in the table below:

Table 2: Phases of data collection, analysis, reliability and validity

Description	Phase One	Phase Two	Phase Three
Data collection and data analysis	Content analysis of oral health policies using a developed conceptual framework that considered the four elements of context, content, actors and processes in order to gain an understanding of oral health human resources management and policies.	An analysis of these primary and secondary data source documents to obtain and review data.	A series of interviews (telephonic and face-to-face) with key policy stakeholders.
Reliability and validity	Reliability was ensured by the use of peer examination of data, accuracy checks and constant comparative analysis.	Reliability and validity was further ensured by using the concept of triangulation (using multiple research methods, data sources and theoretical concepts to answer a critical research question.	Validity was ensured by using construct validity - all participants were asked the same questions in the interview. Internal consistency was utilised to ensure reliability thus ensuring that the same clear, relevant and unambiguous interview questions were administered to the research participants in a similar manner, with the intention of yielding similar results.

Results

The results presented are an integration of the oral health policy comparative analysis and the stakeholder interviews. The results will report on the current debates in the areas of oral health human resources provisioning, skills-mix and the equitable distribution of these human resources. The results will be presented for each country. A total of 34 documents containing data from Australia (23 documents) and South Africa (11 documents) were analysed.

Provision and equitable distribution of oral healthcare workers: Australia

A country analysis of workforce numbers revealed that Australia had policy concerns around the shortage of oral healthcare workers in rural, regional and remote areas and in the public sector. The shortage of oral healthcare workers in these areas of Australia is a policy concern that has also been highlighted by the National Advisory Council on Dental Health and in the Healthy mouths, healthy lives: Australia's national oral health plan 2004 – 2013 (AHMC,

2004: 1-33). The policy response to this concern was the establishment of the National Health and Hospitals Reform Commission in 2009 (HW2025, 2013:foreward). This Commission highlighted the need for increasing the human resource capacity of the public sector to deliver services aimed at improving oral healthcare to children and adults by targeting the most disadvantaged groups (HW2025, 2013: 1-3).

The National Oral Health Plan (AHMC, 2004-2013) estimated that by 2010, Australia would need 10 239 dentists (AHMC, 2004:1-33). However the Australian Dental Association (ADA) indicated that by 2009, any shortages in the numbers of oral healthcare workers had disappeared as there were now over 13 830 registered dentists (HW2025, 2013: 1-3). The ADA also reported an increase of 19% or 3032 dentists between 2006 and 2012 compared to a national population increase of 9.3% over the same period (HW2025, 2013: 1-3). The ADA reported that in 2009 nearly 59 dentists were unemployed, and as a result, a policy intervention was initiated by the Australian Government Department of Immigration and Citizenship that led to the occupation of dentist being placed onto the ‘flagged’ list, indicating that continued monitoring of the market conditions, due to increase in the supply of dentists from overseas, was required when considering visa numbers allocations (HW2025, 2013: 6).

A review of the number of dentists in Australia reveals that there are more dentists (13 830) than the estimated need (10 491). However, this supply of dentists is considered to be inadequate to meet the demand as this supply shortage is experienced more in the rural and remote areas of Australia and in the public sector. Research undertaken in 2008 by the Dental Statistics and Research Unit (DSRU) of the University of Adelaide found that there were 57.6 dentists per 100 000 population in major city locations and 18.1 dentists per 100 000 population in the remote areas of Australia (AIHW Research Report No. 40, 2008:1-3). The inability of dentists and other oral healthcare workers in rural and remote areas to meet population demands and needs is further evidenced by the fact that the oral health status of children living in rural and remote areas is poorer than the status of those living in metropolitan areas, due to a lack of available oral preventive and curative healthcare (AIHW Research Report No. 40, 2008:1-3).

Children in rural and remote areas of Australia have approximately 25% to 30% more dental caries experience than capital city dwellers (AIHW Research Report No. 20, 2005:3). A similar situation exists with adults resident in rural and remote areas who have 10% more

dental caries experience, and twice the rate of untreated coronal tooth decay than city-dwellers. Additionally, remote and rural dwellers were most likely not to have visited oral healthcare workers in the last two years (AIHW Research Report No. 20, 2005:3). Australia has attempted to reduce this regional and rural shortage through initiatives such as the Public Sector Workforce Scheme, which encourages migrant dentists from certain countries to relocate to rural and remote areas as indicated in Australia's National Oral Health Plan 2004-2013 (AHMC, 2004:41).

In 2007, the Australian government, as part of a human resources for health programme, established the "Health Workforce Australia" programme and provided AU\$78 million over four years (2012-2015) to support the relocation of dentists to regional, rural and remote areas which are unattractive because these areas are often isolated, resource-poor and lacking in lifestyle features (for example, entertainment, housing) and educational facilities (Spencer *et al.*, 2003: 1-3; AHMC, 2004-2013,39). Another measure that was planned is the Health Workforce Australia Clinical Funding Program, which has rolled out AU\$50.9 million in funding for capital, infrastructure and the costs of dentists, oral health therapists and oral hygienists as indicated in Australia's National Oral Health Plan 2004-2013 (AHMC, 2004:41).

Provision and equitable distribution of oral healthcare workers: South Africa

An analysis of the current dentist, dental therapist and oral hygienist ratios, as reflected in the table below, reflects a gross shortage of dental therapists in South Africa. A review of the other cadres of oral healthcare workers, such as dental technicians, reflects high population to oral healthcare worker ratios as is reflected in the table below. A critique of this data is that whilst the practitioner-to-population ratios appear to be close to the recommended norm, there are still shortages in the public sector and in the different cadres of oral healthcare workers that are required to meet the primary unmet oral healthcare needs of South Africans. The table below reflects the different cadres of oral healthcare workers, as well as workforce numbers.

In the South African public sector there is a shortage of human resources to meet the oral health needs of communities, but a surplus of human resources in the private sector. A review of the table below reveals that South Africa has practitioner-to-population ratios that are close to the nationally recommended norms in most categories of oral health workers (for example the recommended norms for dentist is 1:15 000; actual ratio is 1:14 707. However, this is a

‘helicopter view’ and does not reflect the oversupply in the private sector and the chronic shortage in the public sector. The ratios also do not consider that an unknown number of oral healthcare workers who maintain their registration status in South Africa, practice in foreign countries. Another critique of the National Policy for Oral Health in South Africa personnel norms projections is that the effects of HIV/AIDS are not taken into account. South Africa has one of the world’s highest HIV infection prevalence rates at 26.8% in 2012. The increase in the rollout and uptake of anti-retro viral drugs means that a reduced number of patients are presenting with oral diseases related to HIV/AIDS, thus resulting in a reduced demand for oral health human resources.

Table 3: Oral healthcare workers in Australia and South Africa (2010 and 2014)

Category	Australia		South Africa	
	2010 Total / Population per oral healthcare worker	June 2014 Total / Population per oral healthcare worker	2010 Total / Population per oral healthcare worker	2014 Total / Population per oral healthcare worker
Dental specialists	384 (58 192:1)	1 667 (14 187:1)	Not available	470 (114 897:1)
Dentist	13830 (1615:1)	15 638 (1 512:1)	3 399 (14 707:1)	5 824 (9 272:1)
Dental therapist	1206 (18 525:1)	1 093 (21 637:1)	356 (140 425:1)	610 (88 527:1)
Oral health therapist	362 (61718:1)	963 (24 558:1)	Not available	Not applicable
Oral hygienist	1148 (19 461:1)	1 298 (18 220:1)	955 (52 346:1)	1101 (49 048:1)
Denturist/ Dental prosthodontist	Not available	1 209 (19 561:1)	Not applicable	Not applicable
Dental technician	790 (28 281:1)	Not available	476 (105 023:1)	Not available
Dental laboratory assistant	Not applicable	Not applicable	272 (183 791:1)	240 (222 230:1)

Sources: Balasubramanian and Teusner (2011); Australian Health Practitioner Regulation Agency, 2014; Health Professions Council of South Africa, (2014).

Following a comparative analysis of the number and cost of unfilled posts and gaps in these posts in the public sector for 2010/2011 (as reflected in the Table 4), it is postulated that the existing shortages in the public sector may not be because of numerical healthcare worker shortages, but rather shortages in the availability of posts and funding within the public sector.

Table 4: Analysis of filled versus unfilled posts – selected posts (South African public sector, 2010)

Cadre of worker	Number of unfilled posts	Cost of unfilled posts
Dental specialist	155	R163 million
Dentist	921	R496 million
Dental therapist	287	R81 million

Source: Human Resources for Health strategy for the health sector: 2012/13-2016/17; 2012:35-36

Table 5: Gaps in required numbers of oral healthcare workers (South Africa, 2011)

Cadre of worker	Gaps in required numbers
Dental specialist	24
Dentist	168
Dental therapist	8
Oral hygienist	5
Dental technician	3
Dental assistants	76

Source: Human Resources for Health; 2012/13-2016/17; 2012: 35-36

In order to combat human resources for health shortages, the South African government instituted four policy initiatives in the form of the National Human Resources Plan for Health (2006), Human Resources for Health Plan (2012/13-2016-17), the South African Human Resources for Health Strategy 2030, and the National Health Act (2003). These policies facilitated various recruitment, retention and training initiatives, such as the introduction of compulsory community service for certain categories of health professionals, the payment of scarce skills and rural allowances, which form part of the occupations-specific dispensation.

Health delivery resources were unequally distributed with most resources being channelled to urbanites whilst rural areas were acutely under-resourced and subjected to chronic neglect. Despite South Africa transitioning into democracy in 1994 and policy reforms to address and remedy this situation, these deep divides and inequities continue to persist. Similar situations exist in both Australia and South Africa, with the oral health system mirroring the division between the private and the public sector, with approximately 20% of the population being

treated in the private sector by about 70% of oral healthcare workers, while the remaining 80% of the population is treated in the public sector by about 30% of oral healthcare workers. In 2005 the National Department of Health developed a Strategic Framework for the Human Resources Plan which spans the entire spectrum of healthcare, and proposed national norms and standards that were linked to packages of care. This plan established four (4) focus areas, namely securing supply; human resources management; human resource demand determination; and human resources retention. This plan used the oral health policy as guidance for human resources for health planning. The National Policy for Oral Health in South Africa, formulated in terms of the National Policy for Health Act, 1990 (Act 116 of 1990), provides the following guidelines with regards to personnel norms (National Department of Health, 2005: 1-5) with the internationally accepted norms for developed countries being reflected in parenthesis:-

- Dentist/dental therapist to population ratio 1:15 000, (1:2 000); and
- Oral hygienist to population ratio 1:50 000, (1:15 000).

It must be noted that these recommended healthcare-to-population ratios are merely guidelines based on population numbers, and do not take into account various influences and factors such as morbidity, the fiscal environment and employment sector (public versus private sector) considerations.

Skills-mix – Australia and South Africa

Both Australia and South Africa face challenges to adequate oral health human resource provision, and have responded to these challenges in different ways, developing cadres of workers (such as denturists/dental prosthetists and oral health therapists) to face these challenges, and as a solution to their oral healthcare problems.

In an interview with an Australian researcher, the participant spoke of how, prior to the introduction of the national health professions regulatory body (the Australian Health Professions Regulatory Authority - AHPRA). dental therapists in some states and territories had more flexible scopes of practice. She mentioned that

“The public dental sector has also been trying to leverage the best use of the dental team. So, allowing a dental therapist, for instance in South Australia, before we became a national board, our therapists were able to treat adults, we are still in negotiation in a national environment regarding that. So, allowing a therapist to treat adults with a

scope of practice framework” (Interview with Australian health department stakeholder).

The stakeholder further stated that by using dental hygienists, oral health therapists and dental therapists across the population, and making better use of the skills of the advanced skills of the dentist where appropriate, improved human resources utilization and improved health outcomes could be realised.

The Pick Report of 2001 is a policy document that served as the official health planning document for South Africa. This report recommended that the scope of practices for each of the professional groups be clearly defined, so that workers at the lower levels have a focused narrow scope of practice with limited skills that could be used to deliver primary healthcare to South Africans. The Pick Report also recommended that a single (dual-qualified) dental auxiliary be trained (similar to Australia’s oral health therapist).

However, in key stakeholder interviews, a South African oral health academic reflected that there was resistance to dental therapy and stated that

“Dental therapy was created to fill the gaps in the public sector. The fact that the HPCSA (Health Professional Council of South Africa) then regulated the profession, and allowed dental therapists into private practice, which was contrary to the original intentions of introducing dental therapy....as part of policy development, the HPCSA should have understood its role” (interview with South African oral health academic).

This stakeholder also commented that there *“is an oversupply of primary care dentists in the private sector who are concentrated in the urban and suburban areas, and not rural areas. In the public sector there is a deficiency”*. He also expressed that

“the ‘Certificate of Need’ policy needs to kick in and that this type of initiative will address where the need is, and how this policy can see that people are put into the places where they are needed” (interview with South African oral health academic).

The resistance to using a range of skills-mix, with other oral healthcare workers besides dentists, is also voiced by a Australian professional body stakeholder who stated that

“The government has put a lot into health workforce research at the moment. Groups like ADOHTA are trying to change their scopes of practice so that they can treat more of the public. However, dentists are saying “no, no, no” and are blocking us, and

also making disparaging comments - saying how the public's safety will be affected, scare-mongering, saying terrible things about us and scaring the public. So we have got try for us to treat more people by a dentist substitute, but the ADA (Australian Dental Association) is fighting us with every breath. So it is very difficult when you have a powerful dental group like the ADA when you have small dental groups like ADOETHA. Also, at the moment, the Australian Dental Board is looking at the scope of practice and is trying to change that from just treating children to treating adults of all ages, especially in rural and remote areas. But all these changes are resisted every step of the way the ADA” (interview with Australian professional body stakeholder).

A different perspective was gained from the South African advocacy group representative who was of the opinion that mid-level workers may not be required as oral healthcare worker shortages did not actually exist and that

“at present our efficiency is less than 50%, and it is unacceptable to get reports from throughout the country of dentists working for half the day. So we are our own worst enemy in terms of efficiency and effectiveness. We have sufficient capacity at present, if our man power is used properly, to double outputs. So I'm not saying that there is a crises in terms of manpower, I'm saying that the crisis is in how we use our staff” (interview with South African oral health advocacy stakeholder).

The South African professional association stakeholder participant reported that the opposition to the use of dental therapists was not against the profession per se, but against the current promulgated scope of practice for dental therapists that has encroached on the scope of practice of the dentist.

Discussion

The results of this study reveal that there are stark imbalances in the availability and geographic distribution of health workers in both developed and developing countries and this is evident in both Australia and South Africa. Health workers willingness to serve in rural and remote areas is a well-recognised challenge to achieving equitable access to healthcare (Huicho *et al.*, 2010:357), and human resource supply has been a long-standing constraint to the improvement of oral health (Serneels *et al.*, 2006:128).

Australia has an ageing population and more aged people are retaining their teeth (dentate), resulting in them having a much higher demand for services than those who are edentulous (HWA, 2013: 1-3). With this comes the need for oral healthcare workers who possess a skill-set that could meet these patients' needs (Lyle and Perkins, 2010:179). Despite an increase in preventive services and a reduction in the number of extractions (due the effects of fluoridation on population oral health) there continues to be pressure placed on the oral health workforce to meet the demand for services (HWA, 2013: 1-11). The demand for both low-level interventions such as x-rays and preventive services, and high-level services such as endodontic treatment and periodontal surgery, has increased (Lyle and Perkins, 2010:179). This increasing demand will require more oral hygienists, dentists and specialists, whilst the reducing youth population will see a decrease in the demand for the number of dental therapists who, in keeping with their scope of practice, only treat younger patients in Australia (HWA, 2013: 1-11).

Another option offered for consideration, in efforts to alleviate oral healthcare worker shortages, is increasing the scope of practice of dental therapists, oral/dental hygienists and oral health therapists so that they can render a more flexible service to patients in rural, regional and remote Australia (Cormack, 2001:1-20). This concept of task-shifting was proposed in South Africa by the Human Resources for Health Task Team that proposed that the scopes of practice of upper-level and mid-level workers be redesigned to allow some tasks that were assigned to upper-level workers be shifted (task-shifting) to mid-level workers (Pick *et al.*, 2000:322). This may address healthcare worker shortages and mal-distribution, render healthcare more affordable, and relieve higher-trained professional healthcare workers from routine menial tasks so that they could render more complex care (Pick *et al.*, 2000:323). However, this option is faced with numerous challenges from sectors within the dental fraternity. In both Australia and South Africa, these challenges arise out of the need for professional dominance that certain cadres of oral health workers tend to exhibit (van Rensburg, 2010:319; Cormack, 2001:1-20). It is postulated that this is because of de-professionalism, a concept alluded to by van Rensburg (2010:319) who described this as occurring when oral healthcare workers face losing the prestige of the profession, and having the status gap between the professions reduced. It has been suggested that this conflict may be related to overlaps or similarities in scopes of practice (Buch, 2001:49; Pick *et al.*, 2000:iv).

This conflict can affect the provision of primary healthcare services, as the limitations that exist within and across scopes of practices and professions can create barriers in meeting oral healthcare needs (Pick *et al*, 2000:iv). In order to illustrate how this conflict is unfolding in the ambit of oral healthcare worker resources, this study will consider the current debates around a single cadre (the dental therapist) as an illustrative example. Both Australia and South Africa employ dental therapists and they have different scopes of practices (Balasubramanian and Teusner, 2011; Hugo, 2007:149-150). The oral health policy comparative analysis and key stakeholder interviews revealed that there are policy issues around the scopes of practice of this profession in both countries and that these issues are multi-factorial, and centre around three issues. The first issue is around the scope of practice. The second issue is around the increasing scope of practice that is encroaching on the scopes of practice of other professions. The third identified issue pertains to whether, given the changing scope of practices and the demands for autonomy and the right to engage in private practice, do these mid-level workers still meet the conditions under which they were established, that of rendering a primary healthcare service.

About 30 years ago, there was an oversupply of dentists in Australia, and the intake of dental students was reduced (Spencer *et al.*, 2003: 4). However, the improved general health and oral health status of Australians in the last 30 years led to an increase in demand for dentists as the population lived for longer and had more retained teeth (HWA, 2013: 1-3; Lyle and Perkins, 2010:179; Spencer *et al.*, 2003: 4). Although there is an excess of dentists to estimated need (excess of 3339 dentist) is there still a shortage of dentists in Australia (HWA, 2013: 1-3). This researcher postulates that this under-estimation could be the result of the dynamics of a changing patient dental needs profile, with a shift to more complex needs and demands by patients. This shortage of dentists makes it difficult for many communities to receive the dental care that they require, especially in the public sector where only basic and emergency treatment modalities may be rendered (relief of pain, extractions) instead of labour-intensive treatment modalities such as restorations and endodontic treatment (Spencer *et al.*, 2003:1-3). Pulver (2010: 3) gives the example of the Wuchopperen Health Service, serving more than 20 000 Aboriginal and Torres Strait Islander people in the Cairns region, Far North Queensland, who could not recruit a permanent dentist for close to a decade (1995-2005) despite having two state of the art clinics and offering higher than average salaries. Even as late as July 2010. the unit was manned by short-term volunteers.

The National Policy for Oral Health in South Africa (2006) has called for a reduction in the number of dentists graduating (from 200 to 120) and an increase in the number of graduating dental therapists (from 25 to 600) by the year 2008. To date these recommendations have not been followed through, possibly due to the lack of training facilities to train dental therapists as well as a massive swell of resistance to, and litigation against, the dental therapy profession by the South African Dental Association (SADA) (Kissoon-Singh and Combrinck, 2011:267). There is also debate around oral hygienists who were granted the right to engage in independent private practice in South Africa. The debate surrounds the misdistribution of oral hygienists who are mostly urban-based and in private practice. These oral hygienists render clinical services to individual patients rather than engaging in mass public health screening and oral hygiene education. Another topical issue surrounds the distribution and availability of dental specialists to meet oral healthcare needs. In 2008 in Australia, there are 142 maxillo-facial surgeons serving a population of 23,6 million whilst 118 South African maxilla-facial surgeons service a population of 54 million people. Of these 33 are employed in the public sector whilst 85 are in the private sector (Human Resources for Health Strategy for the Health Sector: 2012/13-2016/17; 2012:161). In 2008 there were 21 public sector maxilla-facial surgeons in the Gauteng province (where there are three dental schools), but not a single maxilla-facial surgeon employed on a full-time basis in three provinces (KwaZulu-Natal, Mpumalanga and Eastern Cape) (Human Resources for Health Strategy for the Health Sector: 2012/13-2016/17; 2012:161). This lack of specialised oral healthcare acts as a barrier to accessing this oral healthcare in rural and remote areas.

In South Africa, the original intention of introducing dental therapists was for a mid-level oral healthcare worker that they would provide essential primary healthcare in the public sector, and as such they were limited to public sector practice. However, in the last two decades, South African dental therapists (and very recently oral hygienists), were afforded the right to independent practice. A large number of dental therapist (of the 418 dental therapists registered with the Health Professions Council of South Africa (HPCSA) in 2001, only 137 were employed in the public service, and there were 314 posts in the public service) now practice in the private sector as independent for-profit practices (Hugo, 2007:131). A critique of this is that the question arises dental therapists now no longer serving the preventive and primary health objectives that were the very basis of the creation of this cadre of oral healthcare worker? Another area of concern that needs to be critiqued concerns the impact of the changing scope of practice and the right to private practice on the rest of the dental

profession, and on the encroachment of the working and referral arrangements that exist within the dental fraternity.

Another critique that has been highlighted regards the concern around the standards of care and patient management that the mid-level worker possesses and the impact of this on the patients' well-being and management. This study highlights a situation of opposition to some categories of mid-level workers in South Africa (with changing population demographics and healthcare needs; and reducing student intakes) that is similar to that in Australia, and which may have similar consequences, and these debates should be noted in policy development and planning.

This resistance to the changing and increasing scope of dental therapy was also evident in Australia, where a research participant and key stakeholder in the health professional bodies spoke of a “*threats being made to ADOHTA*” (interview with Australian professional body stakeholder).

The shortages in the supply of appropriate oral healthcare workers has several potential consequences, such as a diminishing contribution to improving oral and general health as a result of an increase in the number of patients who suffer from poor nutrition, inability to eat certain foods, and a move towards a curative rather than preventive-based focus and a reduction in oral health related quality of life (Marmot and Bell, 2011:202; Petersen *et al.*, 2005:663). Policy reforms, strategies and programmes that could improve oral healthcare worker provisioning, skills-mix and equitable distribution need to be developed. It should be noted that an increase in the number of oral healthcare workers does not necessarily lead to an improvement in oral health status, and that the aim of policy provisioning should be to ensure an adequate and appropriate oral healthcare workforce to meet the needs of the nation.

Conclusion and Recommendations

Thus, it is evident that even developed countries face health human resources shortages and misdistribution, and policy reforms that address these shortages in a sustainable manner are required. It is anticipated that policy reforms could address these inherent challenges in human resource for health provision (Buse, Mays and Walt, 2005:52-54). Careful consideration has to be given to the development of appropriate skills-mix and scopes of practice, appropriate distribution, and the provisioning of adequate numbers of oral

healthcare workers so that the oral healthcare workforce policy developments and reforms meet the requirements of the country.

Three key recommendations arise out of this review:

- The need for a review of the various models, frameworks and human resources strategies so that focused and prioritised human resources planning occurs.
- The need for inclusive stakeholder involvement in human resources planning occurs.
- The need for human resources planning that is aligned to oral health goals and priorities.

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Manuscript Four

Can systems dynamic modelling be an analytical and simulation tool in predicting oral health human resources policy development, implementation and reform outcomes?

Can systems dynamic modelling be an analytical and simulation tool in predicting oral health human resources policy development, implementation and reform outcomes?

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ABSTRACT

Introduction: Human resources for health workforce forecasting is a highly complex logistical task. Accurate forecasts that reflect policy reforms are expensive to produce, and the various variables that affect policy development, implementation, and reform need to be considered in this forecasting.

Objectives: This study sought to expound the application of systems dynamic (SD) modelling as a forecasting tool in cross-national oral healthcare worker (OHCW) forecasting.

Methods: A SD modelling tool (Vensim® PLE Version 6.2) was used to conduct retrospective (2001-2011) and prospective (2011-2021) cross-national comparative analysis of OHCW forecasting for the period between a developed country (Australia) and a developing country (South Africa).

Results: Simulation run results, constructed using the SD model, revealed gaps in the accuracy of OHCW planning when compared with actual workforce numbers. In 2011 Australia had a 21.7% over-supply of dentists whilst South Africa had a 17.4% under-supply.

Discussion: SD modelling is valuable in that it encompasses a broad variety of realistic causal factors in forecasting HRH numbers, and in its ability to accurately determine required oral HRH numbers. It is also useful in identifying current and future trends that would require a policy response. SD modelling could serve as an effective tool that could provide policy-makers with valuable data on which to base policy decisions.

Conclusions: SD modelling could be a forecasting tool that can guide oral health planning and in providing optimal oral healthcare service delivery in developed and developing countries.

Keywords: human resources, oral health policy, oral healthcare workers, systems dynamic modelling, Australia, South Africa

Introduction

The provision of human resources for health (HRH) is a costly, highly complex logistical and managerial brief that requires long-term management and planning in the context of healthcare systems which pose uncertainty and are in a state of constant change (Nigenda *et al.*, 2011:27; Barber and López-Valcárcel, 2010:24). Many developed and developing countries experience shortages in oral healthcare workers (OHCWs) which could be attributed to a number of factors such as poor planning, and professional barriers created by the professions' associations and statutory bodies which restrict the number of students that could be trained and thus gain entry into the profession (Barber and López-Valcárcel, 2010:24). A lack of critical data contributes to the shortage of healthcare workers (O'Brien-Pallas *et al.*, 2001:120).

The task of planning HRH consists of identifying and adjusting correct numbers of the right type of practitioners at the right time and in the right location (Roberfroid, Leonard and Stordeur, 2009:17). This would ensure that adequate numbers are trained and retained whilst ensuring that migration numbers are controlled, and that an appropriate skills mix of practitioners is maintained (Roberfroid, Leonard and Stordeur, 2009:17). Additional planning tasks include the need to maintain balanced geographical distributions of HRH, ensuring working environment standards, and conducting workforce retirement and succession planning (Roberfroid, Leonard and Stordeur 2009:17). This equilibrium in ensuring that appropriate HRH workforce numbers are available is brought about by a combination of push (market forces) and pull factors (government and professional bodies regulation of the profession) (van Greuningen *et al.*, 2012:21; Barber and López-Valcárcel, 2010:24).

Thus, OHCWs planning is based on “push” and “pull” demand and supply factors in a dynamic system (van Greuningen *et al.*, 2012:21; Barber and López-Valcárcel, 2010:24). In a dynamic system there is usually disequilibrium in obtaining the appropriate and necessary HRH numbers (Barber and López-Valcárcel, 2010:25). Stakeholders who attempt to push their own agendas exert pressures on the process of reaching equilibrium between demand and supply (Barber and López-Valcárcel, 2010:25). Careful review is required to ensure that proposed solutions are not regressive, or too short-term, or inappropriate by providing inappropriate numbers of OHCWs (Barber and López-Valcárcel, 2010:25). Additionally the risk of miscalculations and the impact of unforeseen events are inherent parts of HRH

forecasting. Whilst risk cannot be eliminated it can be minimised through using realistic SD modelling simulation models (Dierks *et al.*, 2008: 1-2).

SD modelling is a forecasting tool that has been in use in the areas of business and science since the 1960's, but it has only since 2000 been used increasingly in the field of healthcare (Brailford, 2008:1478). Even as late as the year 2008 efforts were still being made by the proponents of SD modelling to get healthcare simulation modellers to move away from the traditional "Discrete-Event Simulation (DES) models towards using SD modelling. To date there is no known use of SD modelling application in cross-national comparative oral healthcare policy studies SD modelling makes use of computer software programmes to generate forecasts and simulations which are based on a range of data variables and input which could be manipulated to portray changing conditions and variables, such as changes in population numbers or demand for dental services. These software programmes could be purchased or obtained as freeware (Dierks *et al.*, 2008: 1-2). SD modelling involves the development of causal loop diagrams (CLDs) and computer simulation models that portray processes of accumulation (stock) and feedback (flow) that are unique to each problem setting (Dierks *et al.*, 2008: 1-2). These models could provide solutions to ensuring that effective health policy initiatives and reforms are constructed, analysed and then implemented. Simultaneously policy resistance from the various policy-actors could be overcome (Dierks *et al.*, 2008: 1-2).

Aim of the study

The aim of the study was to determine the applicability of SD modelling as a HRH forecasting model tool that could be used for health policy development, reform, and cross-national OHCW forecasting.

Literature review

Use of systems dynamic modelling in health

It has been argued that many policy initiatives and reforms fail or are ineffective because they are formulated in isolation from the reality of a whole-system perspective (Australian Dental Association, 2010-2011: 3; van Rensburg, 2004: 3-39). This compartmentalised approach is found in many healthcare systems, including those of Australia and South Africa (Australian Dental Association, 2011: 3; van Rensburg, 2004: 3-39). Traditional policy initiatives and

reforms use analytic methods that are “*generally unable to satisfactorily address situations in which population needs change over time*” (Lich and Morrissey, 2011: 6). These situations are often in response to the policy interventions or reforms themselves, and are often influenced (directly and/or indirectly) by the availability, or lack of, public resources (human resources, service delivery infrastructure, finance and funding) and are in a continuous (dynamic) state of interaction and change (Lich and Morrissey, 2011: 6; Homer and Hirsch, 2006:452).

There has always been a mismatch between supply (of dental services and the human resources required to meet such demand) and demand (for oral healthcare) within the public service sectors of many countries (Rwashana, 2008:86; Wolstenholme, 1999:257). Demand for oral healthcare varies in populations and therefore careful choices have to be made in the planning and allocation of resources, so as to ensure that maximum and optimal use is made of limited available financial and other resources (Barber and López-Valcárcel, 2010:25-27; Dierks *et al.*, 2008;1-10). SD simulations allows for policy-implementers and policy-makers (including governments) to undertake evidence-based risk-free testing and forecasting of the magnitude of the potential impact of policy initiatives on healthcare system components and future resource needs forecasting and provisioning to meet the healthcare services demand (Rwashana, 2008:86; Wolstenholme, 1999:257).

Policy-makers are also afforded the opportunity of simulating possible trajectories and trends, and contextualising the effects of potential policy reforms which could allow for more realistic and explanatory cross-national comparisons based on the results of the SD modelling simulation-runs (Rwashana and Williams, 2008:85-91; Homer and Hirsch, 2006:451-456). SD model simulations are essentially time-step simulations as the model makes a number of simulation steps along the time axis (Barber and López-Valcárcel, 2010:25-27). The model could be affected by a myriad of factors, such as the development and implementation of oral health and lifestyle health promotion programmes targeting individual behavioural and lifestyle risk factors (Nigenda *et al.*, 2011:25; McDonnell, Heffeman and Faulker, 2004:27; O’Brien-Pallas *et al.*, 2001, 120). Adjustments may need to be made to policies to respond to health systems changes such as epidemiological and population profile dynamics and equitable geographic distribution of health workers (Rwashana, 2008:85; McDonnell, Heffeman and Faulker, 2004:27; Fone *et al.*, 2003:27).

Policy-makers could evaluate the practical application of these policy initiatives and reforms in the form of computerised environmental simulation models in which alternative policies and scenarios can be tested in a systematic way, without any costly or unnecessary implementation. The results of the simulation run could provide an evidence-base for policy-actors that could allow for the best policy initiative or reform to be selected (Rwashana and Williams, 2008:85-91; Homer and Hirsch, 2006:451-456).

Process of SD model construction

SD models are constructed using “*interlocking sets of differential and algebraic equations*” that have been sourced from a wide range of measured and experiential data (Homer and Hirsch, 2006:452-454). SD model construction is an iterative process and occurs as follows: scope selection; hypothesis generation; causal diagramming; quantification; reliability testing; and policy analysis (Homer and Hirsch, 2006:452). This will ensure the reliability of the computer simulation model in terms of its realism, robustness, flexibility and ability to generate useful insights (Homer and Hirsch, 2006:452). Finally, the model needs to undergo a series of reflective analysis and adjustments until suitable SD models are generated (Homer and Hirsch, 2006:452).

Limitations of using SD models in health policy analysis

A limitation of using SD modelling is that the model responds to the input data. Inaccurate or poor quality data and/or incorrect manipulation of the SD modelling tool could lead to inaccurate and/or unreliable forecasts (Nigenda *et al.*, 2011:25-27). To ensure the validity and reliability of the simulation-runs the input data needs to be validated and trusted (Nigenda *et al.*, 2011:25; McDonnell, Heffeman and Faulker, 2004:27; O’Brien-Pallas *et al.*, 2001, 120). A further limitation is that current data and/or policy reforms need to be timeously incorporated into the SD model construction, and a failure to do so could lead to inaccurate, unreliable and invalid HRH forecasts (Nigenda *et al.*, 2011:25; McDonnell, Heffeman, and Faulker, 2004:27; O’Brien-Pallas *et al.*, 2001:120).

Methods

Site selection

A developed country (Australia) and a developing country (South Africa) were selected for this study as they both have similar historical, political, legal, socio-economic and healthcare backgrounds (Palmer and Short, 2007:41-58; van Rensburg, 2004:64-72). Both countries have a history of political and legislative oppression of certain groups of people which resulted in less-than-optimal healthcare delivery (Palmer and Short, 2007:41-58; van Rensburg, 2004:64-72). Both countries have undergone political reform to remedy the situation and have democratically elected governments (Palmer and Short, 2007:41-58; van Rensburg, 2004:64-72). Universal healthcare funding policy reforms have occurred in both countries, and these reforms could have a profound effect on their populations' oral health status (Palmer and Short, 2007:41-58; van Rensburg, 2004:64-72). Both countries are resource-rich with key industries being mining and agriculture (Hillness and Healy, 2001:1-70; Burger, 2011:16).

However, there are also numerous differences that exist between these two countries. Australia is a first-world (developed) country with a low unemployment rate of 5.2% in 2012 whilst South Africa is a developing third-world country with a high unemployment rate of 25% in 2012 (World Bank, 2014: 1-3). In 2012, Australia had a life expectancy rate of 82 years whilst South Africa's life expectancy rate was 56 years (World Bank, 2014: 1-3). In 2013, Australia had a per capita gross national income (GNI) of US\$65,520 and South Africa's GNI was US\$7,190 (World Bank, 2014: 1-3). In 2012, the prevalence of the human immune-deficiency virus infection (HIV) in Australia was 0.2% and in South Africa 18.9% (World Bank, 2014:1-3). There are also differences in healthcare funding in these two countries, with the Australian government contributing 66.9% of the total health expenditure in 2012. During the same year, the South African government contributed 47.9% of the total health expenditure (World Bank, 2014: 1-3). Australia and South Africa have many similarities and differences, and the researchers argue that this makes them suitable countries in which to undertake cross-national policy analysis.

Study instrument

The study employed the SD modelling tool (Vensim® PLE Version 6.2, Ventana Systems Inc. www.vensim.com) to conduct a retrospective cross-national comparative analysis of OHCW forecasting for the period 2001 to 2011. This paper sought to determine the applicability of using the SD methodology as a forecasting tool to assist policy-makers in planning, policy development and policy reform.

In this study SD modelling will be used as a tool to forecast the required numbers of dentists in Australia and South Africa over a defined time period. For the purpose of this study, the SD model simulation was limited to the workforce category of dentist. However, it is imperative to assess the human resource needs for the other cadres of OHCWs because the contextual influences on each cadre varies considerably. These influences include the differing scopes of practice, and the regulatory practice and registration requirements of different countries (Australian Dental Association, 2011: 1-10; HPCSA, 2011). It must be noted that the quality and the reliability of the input data could not be validated. This is especially so in the case of South Africa where the professional regulatory authority (the HPCSA) has incomplete and/or inaccurate records. This critique is based on the fact that the HPCSA maintains records of registered and paid-up professionals but unlike Australia does not conduct annual workforce surveys to ascertain if the healthcare practitioner is in active practice, or is in the country. The HPCSA maintains records of practitioners who had paid their annual dues, but may be practising out the country. The HPCSA removes people from the register for non-payment of annual fees and whilst these practitioners may still be practising, albeit illegally, they are not reflected on the register until such time that they pay their annual fee.

The inclusion criteria for this study included all dentists that were deemed to be registered with the professional registration authorities and who were in actual practice in the country in Australia (Australian Health Practitioner Regulation Agency - AHPRA) and South Africa (Health Professions Council of South Africa - HPCSA). Exclusion criteria included dentists not registered with the professional registration authorities during the period of the study.

Data collection and analysis

Data was collected from numerous documents (policies, census, statistical reports, indexed articles, government reports, professional body reports, statutory body statistics and reports,

HRH planning reports and research reports) and included information on population changes, regulatory aspects, metrics for HRH, situational analysis of HRH, profiles for HRH, health labour force trends analysis, and HRH indicators. Reliability was assured through the use of peer examination of data, accuracy checks, constant comparative analysis and by keeping a detailed audit trail (systematic record of data collection, maintenance and analysis) (Baum 1998:43-47). Reliability and validity were ensured by using the concept of triangulation. Triangulation refers to the use of multiple research methods, data sources and theoretical concepts to answer a critical research question (Baum, 1998:43-47; Singh and Naidoo, 2010: 1-12). Data analysis occurred on three phases, which are indicated in the table below.

Table 1: Phases of data collection and analysis

Phase	Description
Phase One	An initial situational analysis of HRH metrics using already published and validated data was conducted. Using a developed cross-national policy analysis framework a thematic content analysis using the various constructs, as found in the conceptual framework was undertaken. In order to identify the factors that may exercise an influence on workforce numbers. A number of factors such as the demand for dentists, deaths, emigration and retirement were outlined, and these are depicted in Figure 1.
Phase Two	Training in the use of the SD modelling software was undertaken by completing free on-line tutorials that are hosted by the software maker. A SD model using the analysed data was constructed. Data was entered into the SD model construction tool interface and cross-checked by two research assistants to ensure the validity and reliability of the data entry. Thereafter “simulation runs” or forecasts were constructed by populating a data-base on the SD model interface with information such as the present number of dentists and the actual and estimated annual growth rate increases or decreases in general population and dentist population rates, as well as the actual growth rates.

Phase	Description
<p>Phase Three</p>	<p>The SD model analysed the data and produced reports (systems models and dynamics models – See figures 2 and 4). In order to demonstrate the applicability of the SD modelling tool two simulation runs were conducted. One simulation run depicted the effects that an increase in demand for dentists would have on the ability to meet demand for oral healthcare (based on simple percentage increases in demand for dental care and in the supply of dentists). No weighting was ascribed to the different variables (such as the number of retirements, new entrants into the profession or deaths, and these variables and the effects (weightings) must be considered when conducting a comprehensive SD model simulation run.</p> <p>The SD model was completed and simulation-runs developed. This was followed by a comparative analysis of the SD model simulation run results, which included identifying possible trends and responses to variables that could affect oral health human resources supply and demand.</p>

Results

The SD model demonstrates the relationships between the different variables and reveals simulations of the dynamic behaviour patterns of these variables over the defined time-period (2001-2011). The simulation-runs of population growth linked to dentist demand at 1%, 1.5% and 2% indicate the various numbers of dentists that would be required at the various time-periods. Additionally a simulation run of the actual retrospective supply of dentists (at 1.3%) has been constructed and is reflected in the simulation run models. The SD models used to forecast the supply of, and demand for (in terms of annual visits to the dentist), dentists was forecast using the SD modelling tool. The tool calculated supply by analysing baseline dentist workforce numbers and then adjusting them to reflect various supply growth increments. The demand for dentists visits was calculated using baseline populated-based figures and then

forecast at various demand levels of 1, 1,5 and two annual dental visits per person. These figures do not reflect unexpected changes, for example changes in population, unexpected changes in demand and supply. The advantage of using SD modelling tools is that changes in the policy environment, such as changes in policy following a change of government or a change in demand as a result of extra-ordinary circumstances such as the global financial crises of 2008 and the resultant effects on disposable income (and possible effects on the ability to purchase oral health care) can easily be factored into the forecasting model, thus improving the accuracy of the forecasts.

SD models of the effects of supply, and for the supply of dentists for Australia and south Africa are presented below:

Figure 1: SD model depicting the effects of supply of dentists

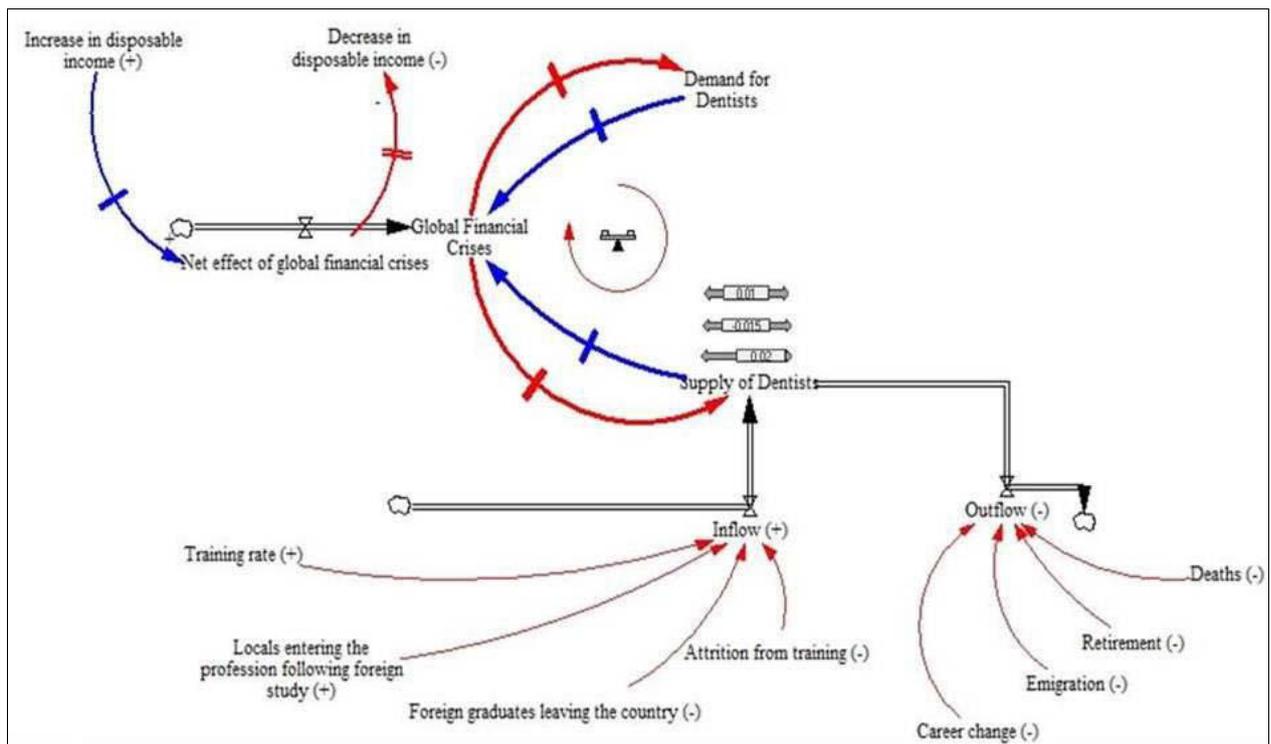
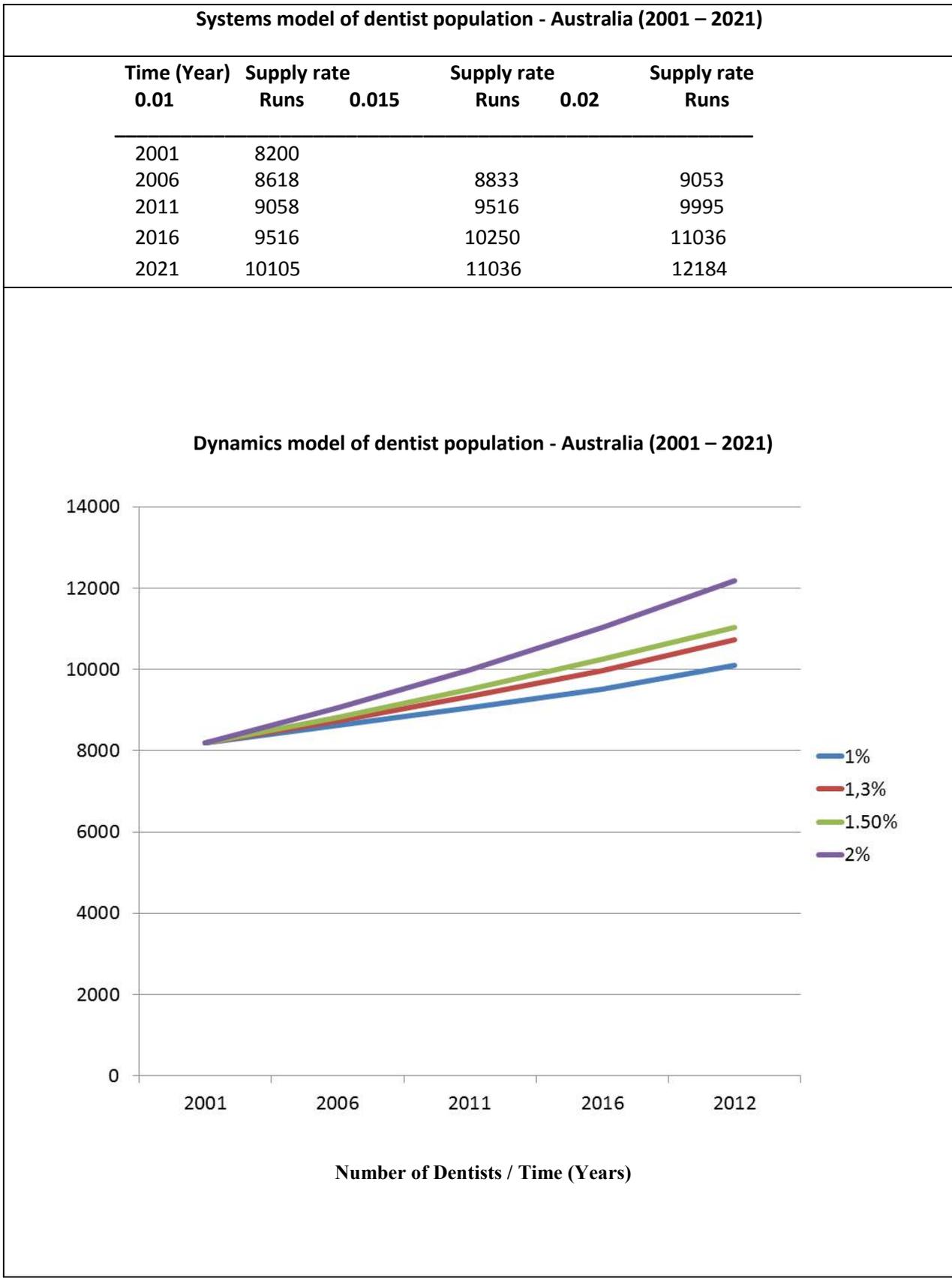


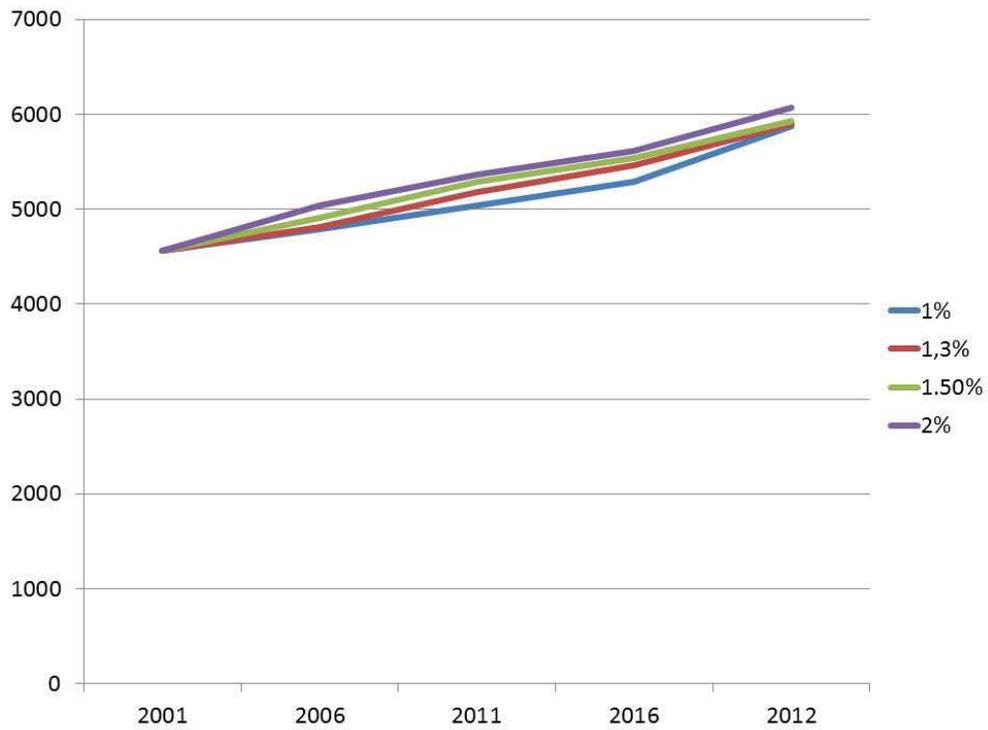
Figure 2: Systems models and dynamics models of supply



Systems model of dentist population - South Africa (2001 – 2021)

Time (Year)	Supply rate		Supply rate		Supply rate	
	0.01	Runs	0.015	Runs	0.02	Runs
2001		4563				
2006		4795		4915		5039
2011		5039		5299		5562
2016		5295		5537		5614
2021		5873		5935		6870

Dynamics model of dentist population – South Africa (2001 – 2021)



Number of dentists / Time (Years)

Demand modelling

The initial stages of modelling were included in the analysis of current demand based on previously ascertained demand ratios made by the Australian Dental Association of one, one and a half, and two annual dental visits per person (Australian Dental Association, 2011: 1-9).

The sub-model of demand/need

The demand/need sub-model was based on normative standards of need for dentists in the baseline year and over the next ten years. The need for dentists in the baseline year was estimated from information on deficit (vacancies in the public sector workforce). The simulation forecast was based on population growth rates that were forecast by an actuarial scientist. The baseline status quo of dentist-to-population ratios was maintained, and then demand was adjusted to cater for the following parameter levels of demand: sharply increasing (2%), moderately increasing (1.5%), stable (1%), and decreasing (<1%).

Figure 3: SD model depicting the demand for dentists

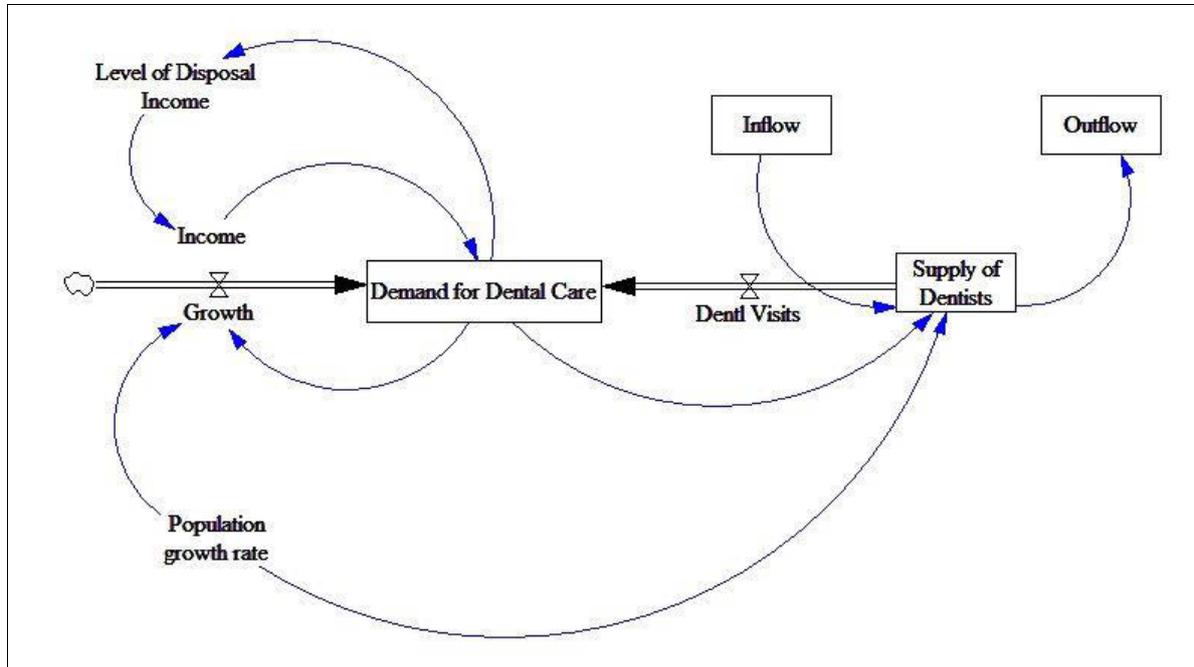
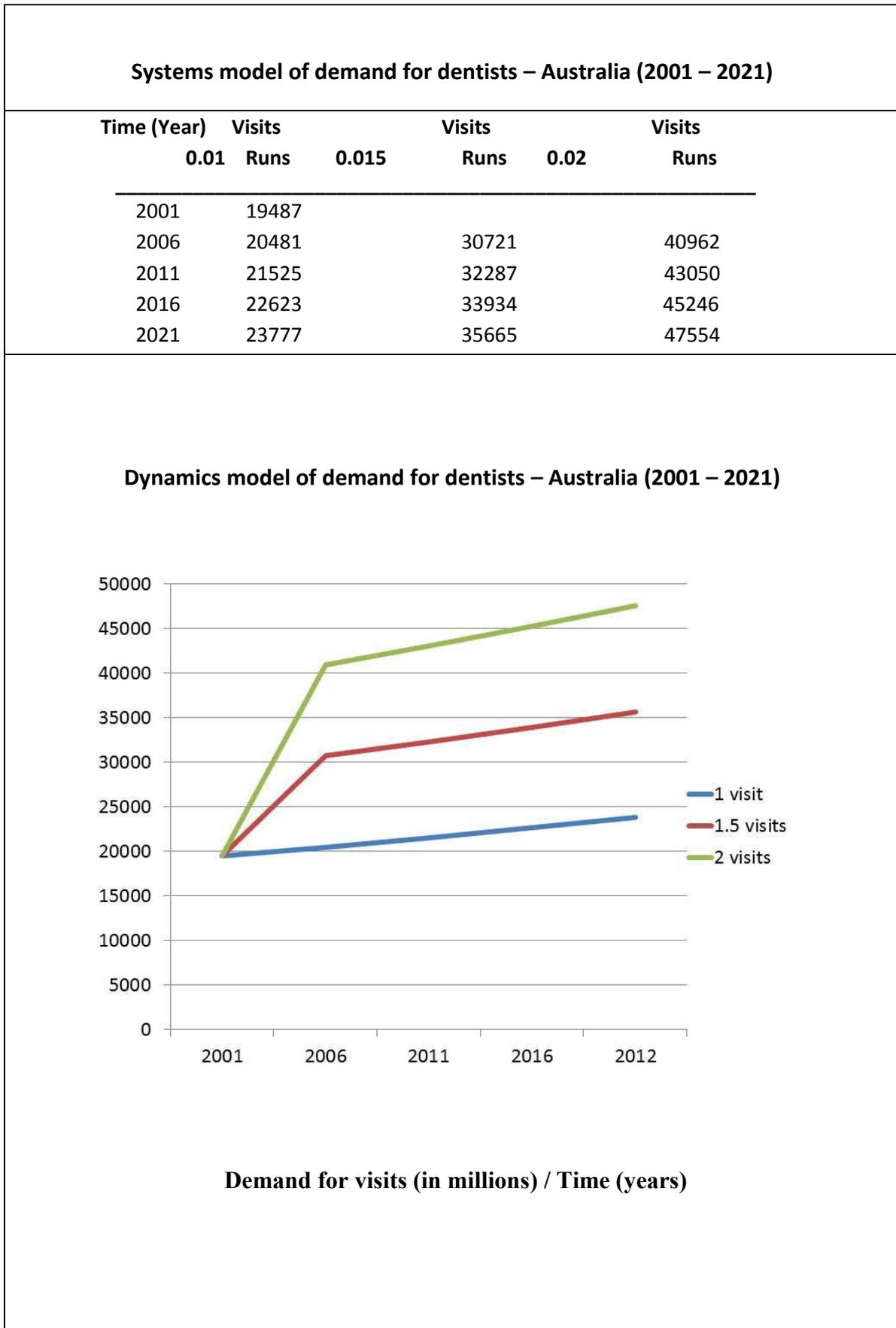


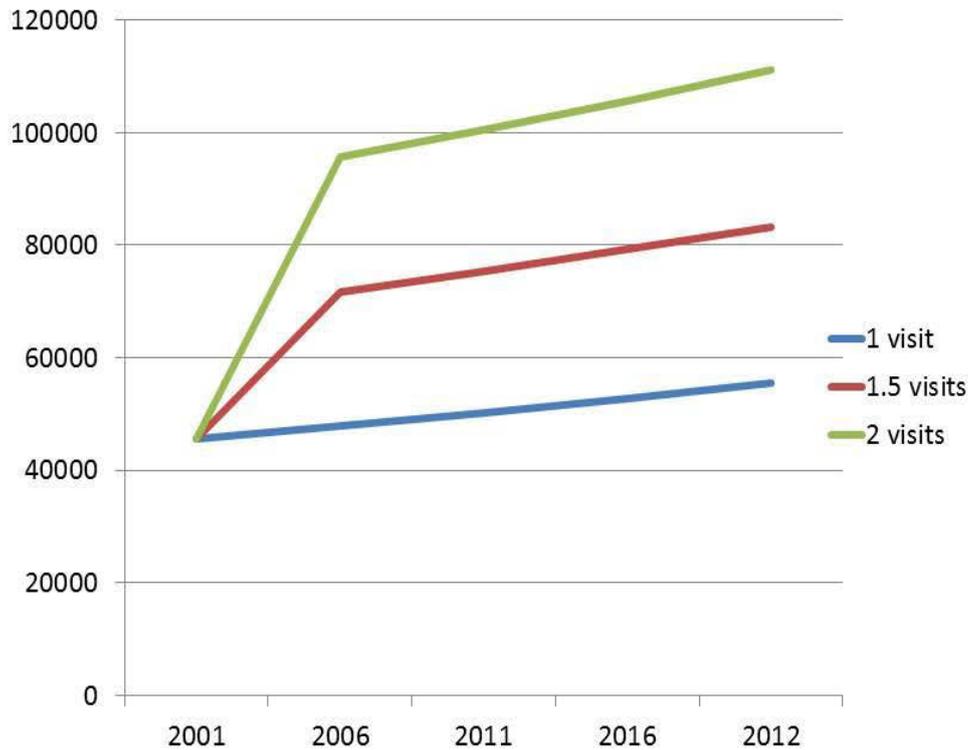
Figure 4: Systems models and dynamics models of demand



Systems model of demand for dentists - South Africa (2001 – 2021)

Time (Year)	Visits		Visits		Visits	
	0.01	Runs	0.015	Runs	0.02	Runs
2001		45531				
2006		47834		71751		95668
2011		50274		75411		100548
2016		52839		79258		105678
2021		55534		83301		111068

Dynamics model of demand for dentists - South Africa (2001 – 2021)

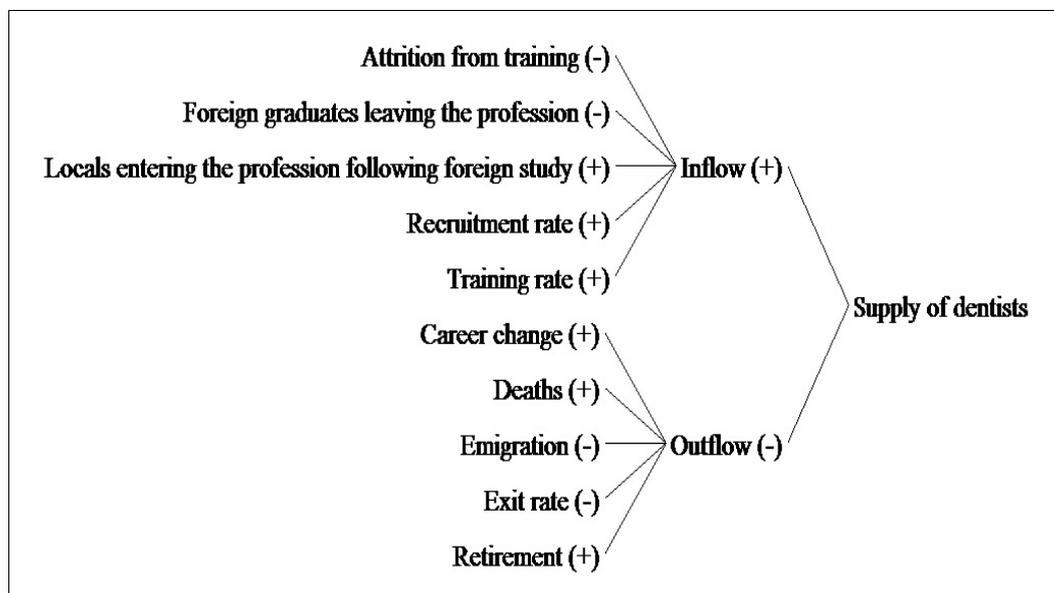


Demand for visits (in millions) / Time (years)

Results of the SD model simulation run

The simulation run estimates are presented in tables and graphs following the SD model. The *causes tree* is a component of the SD model and reflects the variables involved in the calculation of the supply of dentists. The variables are generated by the SD model data capturer in the form of a causes tree (figure 5) and have been identified by undertaking an oral health policy documentary content analysis and using a developed conceptual framework.

Figure 5: Causes tree for the supply of dentists



The three simulation-runs reveal that the mid-level population growth scenario (1.5%) is closest to what was experienced (1.3-1.4%) in 2001-2011. By using these rates as parameters, the simulation model may be manipulated to provide scenarios that will respond to the degree of sensitivity of the parameters that are most uncertain: population growth (with scenarios for high, medium and low), and the growth rate for the demand for oral healthcare rendered by dentists, which may fluctuate as a result of policy interventions.

Results of comparative analysis of actual projections and forecast projections

A comparative analysis of the policymakers and actual projections, as indicated in the SD models for the various variables, is indicated in the table below.

Table 2: Projected and actual headcounts of dentists (Australia and South Africa 2001-2011)

		Country					
		Australia ^[1]			South Africa ^[2]		
Year	Time lag	Projected	Actual	Error margin	Projected	Actual	Error margin
Baseline 2001	0 years		8774			2800	
Midpoint 2006	5 years	10104	12212	20.86%	3800	3114	(-18.8%)
Endpoint 2011	10 years	11301	13750	21.7%	4600	3500	(-17.4%)

Sources: ¹ Australian Dental Association, 2011:1-10; ² HPCSA, 2011

It must be noted that in South Africa the actual numbers of practising dentists is unavailable, and are the estimated figures that have estimated by taking into account estimated emigration attrition rates (Human resources for Health 2012/12-2016/17, 2008:35-36). The reasons for the poor quality of data that is maintained by the HOPCSA is that an unknown number of South African dentists and other oral healthcare workers are working in other countries but maintain their South African registration. In 2006 it was estimated that there were 7642 ‘other health professionals’ (excluding medical doctors and nurses) practising abroad (Human resources for Health 2012/12-2016/17, 2008:35-36). It has also been conservatively estimated that an annual attrition rate of 25% to emigration and a 6% annual attrition rate to death, retirement and career change exists (Human resources for Health 2012/12-2016/17, 2008:35-36).

The analysis revealed that there was a margin of error for the period 2001 to 2011 in the projected population and dentist headcounts for both Australia and South Africa, when actual headcounts were compared to those that were forecast. This error size was found to increase over time. For example, in 2006 there was a 20.86% increase in the difference between projected and actual supply of dentists in Australia. This difference increased in 2011 to 21.7%. The analysis also revealed that South Africa had underestimated their requirements with actual shortages of 18.8% (2006) and 17.84% (2011).

Discussion

The results of the simulation-runs reveal differences between actual and forecast numbers with Australia having an oversupply of dentists and South Africa experiencing a shortage of dentists. However, these simulation-runs focus on national figures and obscure the issue of geographical OHCW maldistribution (remote, regional and rural). The value of SD modelling is that it encompasses a broad variety of realistic causal factors in forecasting HRH numbers, and in its ability to accurately determine required oral HRH numbers and identifying current and future trends that would require a policy response (Australian Dental Association, 2010-2011: 1-10). These trends include political, social and economic influences, as well as policy initiatives and reforms. Thus, policy levers, and feedback loops and SD modelling can serve as an effective tool in the formulation of effective policy solutions to persistent, dynamically complex problems and challenges facing policy-makers. Whilst health systems in different countries can take significantly divergent implementation and resource allocation paths, cross-national comparative analysis allows for learning about successes and failures that occur within these systems (Rwashana and Williams, 2008:85-98).

Another strength of SD modelling for oral health policy stakeholders is that gaps in existing HRH forecasts are identified early, and the need for early and timeous policy intervention is highlighted. The retrospective analysis, which aimed to compare actual headcounts with previously projected headcounts, has revealed that gaps exist between the forecasting model projections and actual headcounts, and that the use of SD modelling could lead to more accurate and adjusted workforce projections in student numbers which could have been factored into forecasts. However more research would be needed in order to identify all the variables that influence oral healthcare workforce numbers and suitable weightings would need to be assigned to these factors when undertaking SD modelling runs so that accurate and reliable forecasts could be constructed.

Australia experienced growth in dentist numbers due to the establishment of four dental schools during the period 2001-2011, and had SD modelling been in use, the effects of this increased supply of dentists could have been placed onto policy-actors agendas.

A major limitation of this type of modelling is that a gap exists between the required levels of oral healthcare workers and actual numbers at the baseline year due to a lack of data collection and availability. Despite data limitations, the SD model simulation-runs reveal results that desired national headcounts are achievable/have been achieved/surpassed.

Policymakers should not be complacent in employing SD modelling in policy initiatives and policy reforms that could seek to address shortcomings in oral health service delivery. Another limitation is that there could be technological and treatment modality changes in oral and general healthcare, which could significantly influence oral healthcare policy and the demand for OHCWs. Changes of governments and the resultant policy changes could also influence model outcomes (Australian Dental Association, 2011: 1-10; Dierks *et al.*, 2008). The SD model simulations of the two countries are relevant in both countries to a large extent, as they take into account the various factors that are unique to the individual country's HRH demand and supply variables and requirements. Responsive policy reforms are also required in view of the changing education spectrum in both countries as well as other changes that affect oral health human resources in terms of regulation, migration trends, entry into and exit from the profession, and industry demand (Australian Dental Association, 2011: 1-10).

In order to improve the accuracy of forecasts it is necessary to ensure that flexibility, relevance, reliability, and validity measures are improved in forecasting models, and this is where the importance of using an SD model becomes evident. Accurate, reliable, valid and timely data is essential in order to create a model that is accurate and appropriate. An additional requirements for accurate forecasting is that the SD modelling tool (software) must be available either free or at a low-cost. The tool must be easily manipulated by skilled operators, and intensive training in the use of the tool should not be required. Further requirements for obtaining accurate simulation-runs and forecasts include the need for tested, reliable and validated input data that should be checked and cross-checked by the SD model constructor. The authors suggest that real-world contextual influences that could affect the accuracy of the model, such as user-bias and political influence, may affect the reliability and validity of the SD model simulation-runs, and care should be exercised in reducing or eliminating these biases. The authors recommend the use of bias reduction and elimination measures such as using validated data, data entry and simulation run verification and validation by at least two independent persons, and triangulation of input data and simulation run results.

Conclusion and recommendations

This paper reports on the human resource forecasting needs of dentists. Further research will be required to include the human resources needs for dental assistants, dental therapists, dental hygienists, oral health therapists, denturists, and dental specialists. The knowledge gained from the SD model analysis could be extrapolated into policy formulation, implementation and reform in other countries (Rwashana and Williams, 2008:85-98). SD modelling has been shown to be a useful tool in HRH forecasting with the potential to rise to the challenge of providing optimal oral healthcare human resources forecasts. However, there is a need for the results of the simulation-runs to be tested and implemented at both policy development (high-level) and policy implementation (grass-roots) levels as this could provide policy stakeholders with a more realistic assessment of the validity, reliability and applicability of SD modelling as a HRH forecasting tool.

The aim of this paper was to demonstrate that applicability of using SD modelling as a policy forecasting tool that could be used in policy forecasting. SD modelling is just one of the tools available to policy actors, and other human resources management tools such as the Workload Indicators of Staffing Need (WISN) could also be used in oral healthcare human resources forecasting and policy-planning. The SD model results have not been validated, and further research would need to be conducted in order to do so.

The following recommendations arise out of this study:

1. SD modelling as a policy-forecasting tool that could be incorporated into policy-development and reform.
2. Policy stakeholders could integrate SD modelling into the human resources for health planning of all the cadres of OHCWs.
3. Additional research is required to gain an understanding of policy-makers' attitudes towards and perceptions of using SD modelling tools as part of the evidence-base to be used in policy development, implementation and planning.

Conflict of interests: The authors declare that there are no conflicts of interest regarding the publication of this paper.

Ethical approval: Ethical approval to conduct this study was received from the Humanities and Social Sciences Research Ethics Committee of the University of KwaZulu-Natal (HSS/0010/013D).

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CHAPTER 3

Conclusions and Recommendations

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3.1. Conclusions

Cross-national oral health policy comparative analysis studies can provide new perspectives and platforms from which to view local policy development, implementations and reforms. Whilst cross-national comparative policy studies focus on the similarities and differences that exist between countries, it is well-recognised that many social science concepts relating to health policy are largely determined by context and cannot be compared because they are unique to each country. Thus, innovative policy analysis tools and conceptual frameworks have to be developed and applied to such policy analysis in order to gain an understanding of the complexities of policy processes. For this study a broad-based conceptual framework was developed in this study that could, with suitable modifications, be utilised in conducting cross-national comparative policy analysis studies.

This study undertook a cross-national comparative policy analysis of oral health policy development and implementation between a developed country and a developed country using a developed conceptual framework. The study met with some success in meeting with the intended aim and objectives, but also encountered a few problems and limitations that will be discussed in the following paragraphs.

The aim of the study was to analyse oral health policy by developing and then using a conceptual framework that could contribute to the theoretical knowledge and scholarship of oral health policy analysis. This aim was achieved through the development and use of a conceptual framework and by using systems dynamic modelling as a forecasting tool.

The first objective of this study was to conduct a comparative oral health policy analysis using different sources of data, and then, to apply a tool to establish lessons that could be learnt and applied to other countries. Extensive use was made of numerous data sources such as policy briefs, documents, speeches and other forms of policies and policy related data in order to obtain the required information. From this cross-national oral health policy, there were a number of lessons that contributed to the general theory of oral health policy analysis.

The second objective was to understand and contextualise access to oral healthcare service delivery and how the on-going interaction between and amongst the policy-actors (policy developers and the policy-implementers) influences oral healthcare access and use in Australia and South Africa. The results of the cross-national comparative oral health policy analysis led to an understanding of the current debates and issues surrounding inequalities and disparities in access to oral healthcare. The analysis further revealed that there were inequalities in access to oral healthcare in the areas of human resources (oral healthcare worker misdistribution and shortages where there are geographic and numerical misdistributions in rural, regional, remote and underserved areas) and service provision, and that policy interventions were required to address these debates. These results have been outlined in the various manuscripts that have been presented in chapter two.

The third objective was to understand and contextualise how the ongoing debates related to how oral healthcare human resources policies, provision, distribution, and skills-mix influence the development and implementation of oral healthcare service delivery in a developed (Australia) and developing country (South Africa). The results of this policy analysis revealed that there were debates around the distribution, training and skills-mix of oral healthcare workers are reported on in manuscript 3 (Human resources in transition: A comparative analysis of oral health human resources in a developed country (Australia) and a developing country (South Africa)). This manuscript deals with the various skills-mix that exists for oral healthcare workers and also reviews some of the current debates related to this skills mix. Whilst these debates are pertinent, they could be addressed through inclusive stakeholder participation in developing oral health human resources policies. Both Australia and South Africa offer policy lessons that are broad-based and could be adapted and utilised by other countries in attempts to improve oral healthcare service delivery and workforce provisioning. Examples include Australia's Graduate Incentive Scheme (GIS) that is aimed at luring oral healthcare workers to serve in rural/regional/remote and underserved areas and the Grow Up Smiling (GUS) programme that serves to improve abscess to oral healthcare for the youth and children, in an attempt to ensure that children grow up with good oral hygiene practices and healthy teeth, and that they continue maintaining good oral health into adulthood. Lessons learnt from South Africa include compulsory community service by new graduates for a defined period provision of free oral healthcare to certain vulnerable populations (such as children under the age of six years and the aged) as well as free/low cost primary oral healthcare.

The final objective of the study was to determine the applicability of systems dynamic modelling, using human resources forecasting as an example, as a forecasting model tool that could be used for health policy development and reform. In the study, a comparative analysis of oral health human resources workforce numbers was conducted both retrospectively (for the years 2001-2011) and prospectively (2011-2012). This forecasting, conducted using a systems dynamic modelling software tool, demonstrated that there were differences between projected workforce numbers and the workforce numbers that were obtained from the forecasting simulation-runs. These results demonstrated the applicability of systems dynamic modelling as a forecasting tool that could be used to improve oral health policy resource demand and needs forecasting.

The study comprised a set of four manuscripts that are interconnected and covered various theoretical and methodological aspects of policy analysis, and reported on the actual comparative analysis in the areas of access to oral healthcare, human resources in oral health, forecasting and the conceptual framework development. The initial manuscript outlines the development and use of a conceptual framework that was required to answer the research questions of this study. This manuscript is followed by the manuscript which presents the results of the comparative policy analysis on access to oral healthcare. Thereafter, a manuscript outlining the current policy debates around oral healthcare human resources and policies is presented. The last manuscript investigates the applicability of using a forecasting tool to undertake simulation runs of intended policies and to provide evidence and data for future resource needs and demands so that appropriate policy initiatives may be developed and implemented.

This research study was conducted on the basis of certain assumptions and they were factored into the study. The first assumption was that multiple and varied stakeholders play, and are allowed to play, a role and provide input into the development and implementation of oral health policy, with this involvement not being limited to the select few (“policy elites”). Another assumption made in this study is that oral health policy documents and statements that have been developed are actually implemented.

The comparative analysis revealed that whilst there is interaction between policy-actors and policy-implementers, this interaction is often insufficient as there are often sources of conflict that exist due to insufficient stakeholder input such as the current debate related to the oral

healthcare workers skills mix in both Australia and South Africa. The need for more inclusive and wider stakeholder input has been highlighted in this study. The results of this study revealed that in Australia, numerous stakeholders, ranging from active consumer and health advocacy groups to influential dental professionals, provided input into the policy process and played an active role in oral health policy formulation. In contrast, South Africa was found to have a few key oral health policy stakeholders, and that there was minimal policy input from consumer and advocacy groups. Opportunities for the public and stakeholders exist to provide input into the policy development process through public participation fora such as public meetings and state-convened meetings.

The study demonstrated that there are lessons to be learnt from one country that could be applied to another country. An example of this is that developing countries often learn to maximise the use of their limited resources, and to maximise the population-wide impact of oral health policy resources. However, developed countries can also offer lessons to developing countries. For example, Australia's school oral health service programme can provide lessons for South Africa in the provision of oral healthcare to children. The Australian school dental service is manned by dental therapists and oral health therapists and are situated in mobile clinics, centralised clinics or based at the school. Free or subsidised primary oral health preventive and curative care is provided to children and teenagers up to a certain age, usually up to the age of 18 years. However, state and territory-specific age restrictions and eligibility criteria apply. South Africans can learn lessons from this model of oral healthcare and apply these lessons to its school-based healthcare services.

The conceptual framework is considered to be sufficiently broad-based enough to allow it to be modified so that it could be applicable to any specific context. Furthermore, the results of the retrospective and prospective policy analysis of human resource numbers using system dynamic modelling demonstrates that forecasting models can with the necessary modifications being made, become useful tools in oral healthcare policy development and reforms.

One critical problem experienced in this study was the lack of quality data that was sufficient, and appropriate. The issues around the lack of quality and reliable data was extensively critiqued in manuscripts 3 (Human resources) and 4 (Systems Dynamics). Data related to oral health epidemiology and service delivery, especially in South Africa, was found to be lacking. This study postulates that these problems may be prevalent in developing countries,

and suggests that a future area for study would be the development of cost-effective, acceptable and appropriate tools and models to address the issue of the lack of data sources.

This study has a number of strengths that have been outlined above, there are also a number of weaknesses. One of the most important strengths of this study is that it allowed for an understanding of the complex and context-specific oral health policy environment. Whilst recognising that oral health policies are developed and unfold in a complex policy environment with many multi-factorial influences, there is a need for inclusive and comprehensive stakeholder participation from the varied stakeholders, such as the community, and other government departments such as the fiscus, social development, safety and security, and the judiciary.

It is hoped that this study would contribute to the field of scholarship and knowledge of oral health policy in two areas. These areas are the use of the developed conceptual framework in conducting cross-national comparative oral health and general health policy analysis, and secondly in the use of a forecasting tool for future needs determination that could assist in policy development and implementation.

3.2. Recommendations

Two related specific avenues for further research that have been highlighted by reflections on the existing limitations pertaining to comparative policy analysis are the areas of education and training of policy analysts, and the development of context-specific and appropriate policy analysis tools and methodological conceptual frameworks.

Whilst recognising the size and complexity of the oral health sector, and that numerous endogenous and exogenous factors influence the oral health policy development, implementation and reform processes, a number of other key recommendations arise out of this policy analysis:

- Countries should undertake ongoing cross-national comparative policy analysis in other policy settings in order to gain an understanding of their own, and other countries', strengths and weaknesses so that they may learn lessons that could be used to improve their own oral health policy processes;

- There should be improved monitoring and evaluation of OHCWs demand and supply to enhance accountability to the public and to achieve health outcome goals. The systems dynamic modelling methodology is a possible tool that could be used in this forecasting;
- There is a need for inclusive stakeholder involvement in the actual policy-making process, and policy processes should include the grassroots/actual service providers;
- There is a need for inclusive planning and flexibility in policy processes so that they may be adapted to accommodate contextually relevant and appropriate oral healthcare needs.

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Appendices

APPENDICES

Appendix 1: Information and consent sheets for participants

Information sheet for participants

The Manager/ researcher/ chairperson.....(STAKEHOLDER / PARTICIPANT)

INSTITUTION

Dear Sir/Madam

Date:

INFORMATION SHEET: A comparative analysis of oral healthcare policy development and implementation between a developed country (Australia) and a developing country (South Africa).

I am currently studying at the University of KwaZulu-Natal (UKZN) towards a PhD in Health Sciences. I am undertaking a research study to comparatively analyse the development and implementation of oral healthcare policy development and implementation between a developed country (Australia) and a developing country (South Africa).

There is potential for cross-national learning to occur in the fields of oral health policy development and implementation, and the results of this study could provide the opportunity for improved oral health policy development and implementation, leading to improved oral health status.

The various socio-economic and environmental factors that influence oral health policy development and its consequent implementation provide fertile grounds for cross-national learning to occur. This study arose out of a need to understand the relationship between oral health policy development and implementation across a developed country and a developed country in this time of fiscal and economic uncertainty, and the challenges faced as a result of the adoption of certain austerity measures that have led to reduced oral healthcare funding,

The aim of the study is to comparatively analyse oral health policy development and implementation that has occurred between 2001 and 2011, in order to identify good practices and gaps that may be adopted to improve oral health well-being for the masses. This study will be conducted in Australia and South Africa, and will seek to elicit information and data

from five role-players in each country who will be chosen based on their current/past roles in oral health policy development and/or implementation, and research. These individuals will be representative of the national oral health departments; the private sector associations; private healthcare funders; researchers and dental health lobby and advocacy groups.

A structured list of questions will be e-mailed to these respondents, and will be followed up with a telephonic interview confined to the list of questions and issues raised as a result of the responses of the research participants. The expected time required to complete the interview will be 45 to 60 minutes. Written consent will be obtained from the participants. All ethical principles will be adhered to. Participation is voluntary and you have the right to withdraw from the study at any time without any penalty. The telephonic interviews will be tape recorded and then transcribed, if permission to do so is granted. If permission is denied then the interview will be written down. Transcripts of the interview will be sent to the participant for their approval, and the data will only be used once full approval of the transcription has been obtained. The tapes will be securely stored at the University of KwaZulu-Natal and accessed by authorised users only. Confidentiality will be maintained at all times, and you may request that your name or role be masked. The results of the research will be made available to you, in form of both the completed study as well as by providing you with copies of any reports, journal articles, policy briefs or publications that may arise from this study. Should you have any queries regarding the study feel free to contact me.

Should you be willing to participant in this research, as you have been identified as a key stakeholder, then kindly sign and return the consent form and suggest a list of suitable dates and times for the interview to be scheduled. You will be contacted at regular intervals to ensure your availability.

Thanking you in advance for your participation. It is highly appreciated.

Mr T A Muslim

Telephone: (+27) 31 - 260 8068, Mobile: (+27) 74 179 5132

E-mail: muslimt@ukzn.ac.za

Supervisor: Dr. S. Singh, Discipline of Dentistry, School of Health Sciences, University of KwaZulu-Natal, South Africa Telephone: (+27) 31- 2426214, Mobile: (+27) 73 8417384, Fax: (+27) 31-260 8069
E-mail: singhshen@ukzn.ac.za

University of KwaZulu- Natal Research office contact details: Ms. Phumelele Ximba : Research Office ,
University of KwaZulu-Natal, Westville Campus , Private bag X54001, Durban, 4000, South Africa
Telephone: (+27) 31 - 260 3587 , Fax No. : (+27) 31 2602384
E-mail: ximbap@ukzn.ac.za

Consent sheet for participants

The Manager/ researcher/ chairperson.....(STAKEHOLDER / PARTICIPANT)

INSTITUTION

Dear Sir/Madam

Date_____

RE: Consent to participate in research project: A comparative analysis of oral healthcare policy development and implementation between a developed country (Australia) and a developing country (South Africa).

I..... (Full name of participant) hereby confirm that I understand the contents of this letter and the study. I consent to participating in the study through the completion of an interview and: *(please place a "X" in the relevant box)*

[YES] Yes, I agree to the recording of the interview

[NO] No, I do not agree to have the interview tape-recorderd

I understand that I am at liberty to withdraw from the study at any stage should I so desire, without any penalty being imposed upon me.

Signature of participant

Date

Mr T A Muslim

Telephone: (+27) 31 - 260 8068, Mobile: (+27) 74 179 5132

E-mail: muslimt@ukzn.ac.za

Supervisor: Dr. S. Singh

Discipline of Dentistry, School of Health Sciences, University of KwaZulu-Natal, South Africa

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Appendix 2

INTERVIEW QUESTIONS SCHEDULE

The Manager/ researcher/ chairperson.....(STAKEHOLDER / PARTICIPANT)

INSTITUTION

Dear Sir/Madam

Date _____

Attached please find a list of questions that will be posed to you during the interview. Whilst the questions are fixed, the researcher may ask further questions, based on the original question, in an attempt of gaining clarity or reaching data saturation.

QUESTION LIST

Respondent Role: _____

Country : _____

Date : _____

Questions

1. Is there alignment between oral health policy and its implementation? If not, how can this alignment be constructed? Please elaborate.
2. Who, in your opinion are the role players/stakeholders that could influence policy decision making, both inside and out of the health system? How can they this influence this process?
3. What strategies and initiatives are in place at a policy level that could enhance oral health policy development and/or implementation? Please elaborate.
4. What limitations and/or barriers are in place at a policy level that could limit/retard oral health policy / development and/or implementation? Please elaborate.

5. There is often a mismatch between policy and implementation (policy execution) which is often the result of insufficient funding. What effect has the current Global Financial Crisis had/has on oral health policy development and/or implementation, and how are these effects (if any) being combatted? Please elaborate.
6. What measures are in place to address the oral health human resources shortages in the public sector in your country?
7. Does your country make use of private sector collaborations in an effort to address oral health delivery inequities? If yes, how can we build on partnership development? Please elaborate.
8. What oral health policy measures are in place to improve access to oral health services for specially identified groups of people (e.g. children under six years of age, the aged, minorities, rural inhabitants, the disabled, the poor, the unemployed, refugees and migrants)? Please elaborate.
9. Has your countries national health insurance (in the case of Australia - Medicare / Denticare) and in the case of South Africa – free primary healthcare dental services, and the proposed NHI) led to improved oral healthcare and improved oral health status for the masses, or do these funding models act as barriers to accessing oral healthcare? Please elaborate.
10. Do the present oral health policies sufficiently address the oral health needs of the population? Are further measures required to meet the oral health needs of the population? How can we ensure that oral health goals are met or the desired oral health outcomes attained (effectiveness)? Please elaborate.

--- END OF INTERVIEW ---

Appendix 3

Using a template (as indicated below, permission was sought and obtained from the following stakeholders:

National Oral Health Departments – Australia / South Africa

Australian Dental Association / South African Dental Association

Australian Healthcare Funders / South Africa Healthcare Funders

The Manager, Australian/South Africa Oral Health Academic

The Head, Advocacy Group Australia / South Africa

Letter Template

Dear Sir/Madam

Date

RE: Permission for research project: A comparative analysis of oral healthcare policy development between a developed country (Australia) and a developing country (South Africa).

My name is TA Muslim (full contact details listed below) and I am a PhD student in Dental Therapy at the University of KwaZulu-Natal, South Africa. In fulfilment of the requirements of the degree I am required to undertake a research project, and to then submit a dissertation based on the research project. My topic is titled “A comparative analysis of oral healthcare policy development between a developed country (Australia) and a developing country (South Africa).”

The study aims to comparatively analyse the processes and agendas of oral health policy stakeholders, and to identify how oral health systems in similar countries differ. This analysis, covering a period of 10 years (2001-2011), seeks to allow for an understanding of, and learning about, the strengths and weaknesses of their own, and other oral healthcare policies and systems.

The study will be conducted in four phases. Phase three of the study requires that an interview (telephonic or via electronic interface) be conducted with key identified stakeholders. The interview should take 45-60 minutes and will be conducted at a date and

time that is suitable to the participant. All established ethical principles relating to beneficence, maleficence and respect for persons will be adhered to. The study will receive ethical clearance from the University of KwaZulu-Natal Humanities And Social Sciences Research Ethics Committee prior to the commencement of the study.

Participants anonymity will be assured at all stages through the use of codes and no direct reference to the participant. If necessary reference will be made to the role or position occupied by the participant, rather than the individual. Reference will be made to the substantive role of the participant and / or the stakeholder. The participant will be allowed to proofread their contribution prior to any information being used in the study.

Stakeholders that have been identified through mention of their roles in the literature related to oral health policy development will be interviewed. The stakeholders involved in the National Oral Health Policy Unit will be asked to participate in the research project. The researcher recognises that this may not be the most appropriate person / stakeholder to answer the interview questions. Therefore any suggestion of who the most relevant person to answer the research questions would be most appreciated.

The findings of the study will be disseminated among relevant policy makers and actors at district, provincial, state, territorial and national levels of oral health planning and policy development and implementation in South Africa and Australia through the following mechanisms: policy briefs; policy report writings for non-governmental organisations such as the Kellogg's Foundation; oral presentations at key conferences; and submission of journal articles to refereed journals both locally and internationally for publication.

I am willing to make my full research protocol available to you if required.

Yours sincerely

Mr T A Muslim

Telephone: (+27) 31 - 260 8068, Mobile: (+27) 74 179 5132 E-mail: muslimt@ukzn.ac.za
Supervisor: Dr. S. Singh, Discipline of Dentistry, School of Health Sciences, University of KwaZulu-Natal, South Africa, Telephone: (+27) 31- 2426214, Mobile: (+27) 73 8417384,
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University of KwaZulu- Natal Research office contact details: Ms. Phumelele Ximba :
Research Office , University of KwaZulu-Natal, Westville Campus Research office, Private bag X54001, Durban, 4000, South Africa, Telephone: (+27) 31 - 260 3587 ,

Fax No. : (+27) 31 2602384 E-mail: ximbap@ukzn.ac.za

Appendix 4

Permission from gatekeepers/key stakeholders

(Note that in many instances the key stakeholder is the gatekeeper). Names have been blacked out to protect the identities of some participants, whilst other participants have expressed the desire not to disclose any identifying information of themselves, or the organisation that they represent. The permission documents are therefore not included.

The individual consent forms of the various key stakeholders are available on request.

[REDACTED]
Tue 22-01-2013 23:25

Inbox

To:

Tufayl Ahmed Muslim;

Dear Mr Muslim I would be happy to participate . I would also like to draw your attention to look forward to hearing more from you regarding this study,

kind regards

[REDACTED] Dental School

Sent from my iPad

Thu 06-02-2014 00:23

Inbox

To:

Tufayl Ahmed Muslim;

Hi Ahmed

We have been thinking about who best for you to speak to and we think it might best if you speak to

[REDACTED]
[REDACTED] all of the population oral health research and are responsible for monitoring the National Oral Health Plan

Good luck with your research

[REDACTED]
Manager, Policy & Regulation

From: [REDACTED] [mailto:[REDACTED]]

Sent: Thursday, April 25, 2013 9:41 AM

To: Tufayl Ahmed Muslim
Subject: RE: Request for assistance - Oral Health Policy Research

Good Day

Many thanks for providing clarity.

The two people that you would need to interview would be [REDACTED] X. We have booked a tele-conference for the 16th of May.

We will send the invitation to you shortly. The conference call details will be made available in due course.

Kind Regards,

[REDACTED]

From:

[REDACTED]

Sent: Wednesday, May 08, 2013 3:46 PM

To: Tufayl Ahmed Muslim

Subject: RE: Request for assistance - Oral Health Policy Research

Hi Dr Muslim

Happy to assist you with this.

Regards, [REDACTED]

[REDACTED].gov.au>

Mon 03-06-2013 09:36

Inbox

To:

Tufayl Ahmed Muslim;
You replied on 03-06-2013 09:40.

Hi

I am willing to participate in your study. I am sorry that I have not replied earlier but we have been under a heavy workload.

[REDACTED]

Director Health Promotion

[REDACTED]

Dental Service

[REDACTED]

From: [REDACTED]
Sent: Monday, April 22, 2013 3:06 PM
To: Tufayl Ahmed Muslim
Cc: [REDACTED]
Subject: RE: Request for assistance - Oral Health Policy Research

Dear Mr Muslim

I would be pleased to speak with you about oral health in Australia. I would ask my colleague, [REDACTED], to join us as he has extensive experience in oral and dental health policy and implementation in tow Australian jurisdictions.
Please nominate a date and time that would suit you.

Regards,

[REDACTED]

Australian Healthcare & Hospitals Association
the voice of public healthcare

Fri 19-04-2013 14:44
Inbox

Dear Tufayl

Thank you for your mail. Your research certainly sounds extremely interesting and I would love to see a copy of your dissertation once complete.

I am presuming that you wish to interview someone from our organisation. If this is the case, the best person would probably be [REDACTED], who is a clinician and head of our [REDACTED] department. If this is the case, please let me know and I will assist in scheduling the interview.

Sincerely

[REDACTED]
Head: Corporate Communications
Tel: [REDACTED]
Cell: [REDACTED]
Fax: [REDACTED]

Appendix 5:

List of policies reviewed

The following policies were reviewed in this study.

Australia

- 2012-13 Federal budget submission of the Australian Dental Association
- 4th National Mental Health Plan
- A Healthier Future for all Australians
- A Healthier future for all Australians – Final Report 2009
- Aboriginal and Torres Strait Islanders Health RTO Network Strategic Plan, 2007-2010
- ARCPOH 2008 Report Improving Oral Health and Dental Care for Australians
- ARCPOH National survey of Adult Oral Health 2004-2006
- Australia: the Healthiest Country by 2020. National Preventive Health Strategy – a roadmap for action.
- Australia’s National Oral Health Plan 2004-2013 – developed by the National Advisory Committee on Oral Health, National Advisory Council on Dental Health
- Australian Dental Association Policy Statement 2.5.2
- Australian Government’s Stronger Futures Package
- Australian Health workforce Ministerial Advisory Council Report – 17 June 2010
- Building a 21st Century Primary Health Care System – Australia’s First National Primary Health Care Strategy
- Case study: why am I still on the waiting list? A study about people waiting for dental public care - 2001
- Child Dental Health Plan 2009
- Closing the Gap and associated annual reports
- Commissioned Paper: Narrowing the inequity gap in oral health and dental care in Australia – Australian Health Policy Institute - 2004
- Dental and Oral health Policy Paper – Menzies centre for Health Promotion – Sept 2007
- Dental Benefits Act 2008
- Dental Health Services Victoria Strategic Plan 2010-2013
- Dental labour Force in Australia: the position and policy directions
- Dental Training Expanding Rural Placements (DTERP) Programme
- Dental Workforce Report to the Federal Government – 2012
- Health Insurance (dental services) Bill, 2012
- Health Policy for Older People
- Health Practitioner National Regulation Law – June 2010
- Health Practitioner Regulation National law regulation No. 42/2010
- Health Workforce 2025 – HW2025 – Oral Health
- Health Workforce 2025 - HW2025 – Oral health background Paper – February 2013
- Improving Oral Health and Dental Care for Australians - National Health and Hospital Reform Commission – 2008
- Improving Victoria’s Oral Health – 2007
- Medicare chronic Disease Dental Scheme – 2012

- National Advisory Council on Dental Health – Final report 2012
- National Alcohol Strategy 2006–2011
- National Chronic Disease Strategy
- National Disability Strategy 2010–2020
- National Drug Strategy 2010–2015
- National Early Childhood Development Strategy
- National Oral Health Plan 2004-2013
- National Partnership Agreement of Hospital and Health Workforce Reform 2009 (organisation – Health Workforce Australia)
- National Partnership Agreement on Preventive Health
- National Survey of Adult Oral Health 2004-2006 – Australian Capital Territory
- National Survey of Adult Oral Health 2004-2006 – New South Wales
- National Survey of Adult Oral Health 2004-2006 – Northern Territory
- National Survey of Adult Oral Health 2004-2006 – Queensland
- National Survey of Adult Oral Health 2004-2006 - Tasmania
- National Survey of Adult Oral Health 2004-2006 – Western Australia
- National Tobacco Strategy
- New South Wales Oral Health Implementation Plan 2005-2010
- New South Wales Oral Health Strategic Directions 2005-2010
- Northern Territory Oral Health Promotion Plan 2011-2015
- NSW Teen Dental Survey 2010
- Obesity in Australia: Technical Report
- Oral Health of Aboriginals and Torres Strait Islander Children – Research report (2007) – AIHW
- Oral Health Queensland, 2007
- Public Dental fees Policy
- Report on the review of the dental Benefits Act 2008
- Schedule of Pharmaceutical Benefits Act, 2008
- South Australia Health Care Plan 2007-2010
- South Australia’s Oral health Plan 2010-2017
- Taking Preventative Action
- The Health and Welfare of Australians Aboriginal and Torres Strait islanders People – 2005
- Water Fluoridation and Child Health Policy
- Western Australia strategic Plan for Safety and Quality in Healthcare 2008-2013

South Africa

- 1997 White Paper on the Transformation of the Health System in South Africa
- 2009 ANC election Manifesto
- ANC Education and Health policy Discussion document – March 2004
- Department of Health. A Strategic Framework for Human Resources for Health Plan: draft for discussion. Pretoria: Department of Health; 2005
- DoH: Draft Charter of the Private and Public Sectors of RSA July 2005
- Dept. of Health Strategic Plan – October 2012
- DoH Annual Performance Plan 2011/2012
- Eastern Cape DoH Oral Health Policy – 3rd draft
- Eastern Cape DoH Policy and Budget Speech 2011/12

- Free State Province Health Act 8 of 1999
- Green Paper on NHI - August 2011
- Health Sector Strategic Framework 1999-2004
- HIV and AIDS and STI Strategic Plan for South Africa 2007-2011
- Human Resource Development Strategy for South Africa
- Human Resources for Health South Africa – HRH Strategy for the Health Sector: 2012/13 – 2016/17
- Human Resources for Health South Africa: A National Health Strategy (2001)
- Integrated School Health Policy – 2010
- KwaZulu-Natal National health System Priorities – 10 point plan for 2010-2014
- Millennium Development goals – County Report 2010
- National Department of Health Strategic Plan 2010/11-2012/13
- National Development Plan
- National Health Act 61 of 2003
- National Health Insurance in South Africa – 2011
- National Health Plan for South Africa, ANC Policy Report
- National Human Resources for Health Plan
- National Oral Health Strategy – National Department of Health (2010)
- National Tobacco Strategy, 2004-2009
- Operational Plan for Comprehensive HIV and AIDS care, management and treatment for South Africa (2007)
- Patients’ Rights Charter
- Policy on Community Service by Health Professionals 1996
- Policy on quality in healthcare for South Africa – April 2007
- Policy on Recruitment, Employment and Support of Foreign Health Professionals
- Quality care for all – The DA’s plan for Health Care in an open opportunity society for all – 2008
- Resolution of the 2011 July ANC NEC Lekgotla
- Scarce Skills & Rural Allowance Policy Framework
- South Africa’s Integrated School Health Programme
- Staffing Norms for PHC in the context of PHC Re-engineering – NDoH (Sept 2012)
- Strategic Framework for Human Resources for Health Plan on 3rd August 2005
- Strategic Priorities for the National Health System 2004 – 2009
- 1997 White Paper for the Transformation of the Health System in South Africa
- Charter of the Health Sector of the Republic of South Africa – October 2001
- Presidents Emergency Plan for AIDS Relief 2008

Other

- Adelaide statement on Health in all Policies, 2010
- Alma Ata (1978)
- Bangkok Health Promotion Charter, 2005
- Berlin Declaration on Oral Health and Oral Health Services
- Birchwood Declaration on Primary Health Care – 2008
- Brazzaville Declaration on NCD Prevention and Control in the WHO African Region
- Health in All Policies, 2006
- Intersectoral Action for Health, 1997
- Ottawa Charter for Health Promotion, 1996

Appendix 6

Ethical approval



24 January 2013

Mr Tufayl Ahmed Muslim 200005322
School of Health Sciences
Westville Campus

Dear Mr Muslim

Protocol reference number: HSS/0010/013D

Project title: A comparative analysis of oral health care policy development between a developed country (Australia and a developing country (South Africa)

EXPEDITED APPROVAL

I wish to inform you that your application has been granted Full Approval through an expedited review process.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Professor Steven Collings (Chair)

/pm

cc Supervisor: Dr Shenuka Singh
cc Academic Leader: Professor J van Heerden
cc School Admin.: Ms P Nene

Professor S Collings (Chair)
Humanities & Social Sc Research Ethics Committee
Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban, 4000, South Africa

Telephone: +27 (0)31 260 3587/8350 Facsimile: +27 (0)31 260 4609 Email: ximbap@ukzn.ac.za / snymanm@ukzn.ac.za

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