
STUDENT NURSES, STIGMA AND
INFECTIOUS DISEASES.
A MIXED METHODS STUDY

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ABSTRACT

Individuals or groups will form impressions of another based upon a series of traits, which may be relied upon when forming behaviour pattern towards others (Asch, 1946; Crocker and Major, 1989; Pinel, 1999; Albon, 2002; Corrigan and Wassel, 2008). These traits will depict the reception individuals receive within healthcare and may depend upon learnt and inherited '*perceived*' ideals affecting the working and personal relationships experienced by positively diagnosed healthcare workers, predisposing stigma responses to others (Asch, 1946)

A mixed method study investigating the potential existence of stigmatising values from student nurses towards positively diagnosed healthcare workers with Pulmonary Tuberculosis (PTB), Human Immunodeficiency Virus (HIV), Methicillin-resistant Staphylococcus Aureus (MRSA), Hepatitis C and Diabetes type 2, was undertaken. Analysis provided exploration of the stigmatising attitudes and values of 482 student nurses undertaking an education programme. Interpretation of the findings explored the participants views at course commencement, midpoint and completion considering variables of education (theoretical and clinical), personal and professional influences. Findings indicated that stigmatising values and attitudes return to those identified pre-course and underpin the need for implementation of a change to nurse education within this area.

The development of a longitudinal education model for healthcare workers considering disease processes and influencing factors psychologically, socially and physically, will provide opportunities to reduce the existence of stigmatisation for positively diagnosed healthcare workers.

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DEDICATION

I dedicate this work to Craig, Ethan and Isaac for their patience, support and love.

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1.0 Background to the Project

1.1 Prologue

Infectious diseases have concerned mankind for generations, as many of the more serious conditions carry the risk of serious disability or death. People known to have infectious diseases have been shunned by society, even in the days before routes of disease transmission were understood (Goffman, 1963; Ryan, 1993; Renè and Dubos, 1996; Thomas, 1999; Sontag, 2001; Sherman, 2007). A classic example is the person with Leprosy who was made to carry a warning bell to indicate their approach. These people presented their condition through distorted limbs, pale with skin lesions and thus the notion of stigma was often associated with infectious disease. Initial definitions of stigma supported this by presenting ideas surrounding the individual as '*marked*', '*disgraced*' or '*deviant*' (Goffman 1959; Jones, *et al.*, 1984).

In the last four hundred years, other diseases were seen as lethal to mankind worldwide. Smallpox, for example, a disease that had a highly visible extensive rash, was rampant until Jenner was able to demonstrate the link with Cowpox and produced a vaccine. Thanks to a coordinated World Health Organisation (WHO) programme this disease has now been eradicated across the globe, but other diseases continue to cause challenges to health workers.

One such disease is Pulmonary Tuberculosis (PTB), a disease that is not as visible to the eye as those cited above, but equally feared as a cause of death in past generations (Ryan, 1993; Renè and Dubos, 1996; Thomas, 1999; Sherman, 2007). Before active treatments were identified, people with disease were isolated from society, because they carried a risk to others. Within the last sixty years, the evolution of the Human Immunodeficiency Virus (HIV) led to fears of a pandemic. This resulted in a parallel public awareness campaign, supported by research into drug development aiming to find a treatment regime that would eradicate, or at least suppress this virus. In the 1980's HIV was linked with transmission through homosexual contact (Baggott, 2000; Singhal and Rodgers, 2003). In the western world, attitudes to homosexuality have changed

in the past two decades, but when HIV first came to public attention stigmatising attitudes were widespread (Baggott, 2000). It soon became apparent that HIV could occur via other modes of transmission such as, heterosexual contact, blood transfusions or mother to child. Despite this, the early association of HIV was linked to what some may see as deviant sexual behaviours. The impact of these perceptions is that it is harder for health professionals to access those with the disease, inhibiting the implementation of public health programmes aimed at reducing the spread of HIV.

Similarly, incidental infection of HIV through other means (bloodborne contact post transfusion or mother to child at birth) carries the '*stigma*' of having HIV. The means of treating this condition are now available, but the stigma mirrors the global perspectives surrounding the escalating disease (Noah, 2006). Even today where treatments are largely successful, to have the HIV virus is a cause for concern to many despite improvements in treatment.

Whilst PTB and HIV do not carry the physical marks of disease seen in Leprosy and Smallpox, they may still cause similar fears of spread of infection (Goffman, 1963; Jones *et al.*, 1984). Even though the '*marks*' of the disease may not be so readily visible to the human eye, known sufferers may be treated as a risk to others and barred from '*normal*' life activities by the society in which they live. For those diseases that carried a physical '*mark*', such behaviours would have been described as a response to a visible sign, the stigma carried by the wasted flesh of the leper or the extensive rash of the Smallpox victim (Goffman, 1959; Goffman, 1963; Jones *et al.*, 1984; Corrigan and Fong, 2014). Fear of contracting the wasting disease of PTB can be traced over centuries (Ryan, 1993; Renè and Dubos, 1996; Thomas, 1999; Sherman, 2007; Lee, *et al.*, 2002), whilst the fears and misconceptions of contracting HIV are played out in the multi-media of the modern world, academic papers and books.

Clearly HIV and PTB required healthcare workers to be involved in caring for people with infectious diseases. Whilst systems of protecting health staff from contracting diseases such PTB have been available and embedded in the

public health programme for many years, they are not 100% reliable and it is known that health workers are at risk of disease contraction (Renè and Dubos, 1996). The advent of the HIV virus in the 1980's exposed a new generation to the idea that they too were at risk of disease transmission, either through their own personal lifestyle or direct contamination (inoculation) with infected body products from their patients (Shilts, 1988). Public awareness of HIV was linked to sexual promiscuity. Those members of the healthcare team who contracted HIV, possibly through clinical exposure, had to cope with the implications of this. Positive diagnosis of PTB or HIV for a health worker meant a need to declare this (to protect those they were caring for) and resulted in removal from clinical practice (Felt, 2012).

There are other conditions that may cause concern for health workers. During the 1980's, as well as the HIV virus, there was much concern about the spread of Hepatitis C. Inoculation has protected health professionals from various strains of this (such as Hepatitis B) since 1969, but others have only recently come under that control (Hepatitis C). Other concerns have arisen with the advance of infections that are associated with healthcare. For example, Methicillin Resistant Staphylococcus Aureus (MRSA) has become a major cause of concern to clinicians and patients alike as it is commonly associated as a hospital acquired infection (Noah, 2006). Healthcare workers found to carry MRSA may be seen as being '*at fault*', risking the infection of patients. The public outcry over the rise of MRSA has provided this disease with a label of fear and those carrying it as a '*risk*' to others. Similar perceptions may be held for Hepatitis (Baggott, 2000; Noah, 2006; Lee, 2009).

These diseases are just a selected snapshot of infectious conditions seen to occur in society and are treated in healthcare environments. However, these conditions may be seen to infect health workers. When such infections occur in healthcare staff the key questions are; '*how they are viewed by colleagues ?*' and '*whether a positive diagnosis supports a view that stigmatises the infected as a result of this diagnosis ?*'

From the perspective of this study, it was suggested that any person suffering from an infectious condition may be 'marked out' by society and be at risk of stigmatisation (Holland and Hogg, 2010; Felt, 2012). There is limited research on stigma and healthcare workers and this raised the question of where do attitudes and values begin? This study investigated a group of student nurses and explored their views towards a range of infectious diseases. They were a group of healthcare individuals who had entered into the profession with limited (if any) healthcare experience, and therefore any established stigmatising values or attitudes could be considered to be from previous beliefs and/or experiences. This raised questions as to whether healthcare workers could develop attitudes which may be considered as stigmatising.

Authors that have studied the phenomenon of 'stigma' have demonstrated that the embedding of stigmatising attitudes into a person's potential reaction to an individual may highlight links between labelling, stereotyping, stigma and prejudice (Asch, 1946; Link and Phelan, 2001; Albon, 2002; Corrigan and Wassel, 2008). Assumptions about an individual's characteristics and their ability to function within society may therefore be expressed in many ways as demonstrated through their beliefs and values.

In summary, this study aims to explore the extent to which student nurses hold stigmatising view towards healthcare workers. However, it was also recognised that people with conditions that may be attributed to poor lifestyle choices can also face stigmatising attitudes. In an attempt to bring a broader perspective to this work, a decision was made to consider student nurses attitudes not only to a range of infectious diseases but to the condition of Diabetes Type 2, that at times, may be judged to occur as a result of poor self care and so carry the risk of being a disease that carries associated stigma (Browne *et al.*, 2013; Cameron and O'Reilly, 2015) (see Chapter 2.7.7)

1.2 Aims and objectives of the research programme

The general aim of this research was to investigate ‘*whether student nurses had stigmatising attitudes towards healthcare workers with a positive diagnosis of a disease?*’ In order to achieve this aim the research programme was divided into two Phases. The first (Phase 1.0), was a longitudinal study over a three year period to examine attitudes related to stigma. The second (Phase 2.0), was an in-depth qualitative study designed to explore the issues raised.

To achieve the general aim, the objectives of the research programme were:-

1. To investigate existing literature to ascertain if student nurses drew upon previously acquired stigmatising values which underpinned their attitudes towards PTB, HIV, Hepatitis C, MRSA and Diabetes type 2.
2. To explore student nurses views of disease and stigma.
3. To reflect upon the findings, providing conclusions drawn for the data, in order to make further recommendations.

These objectives were met by;

1. Undertaking an extensive literature review, critiquing the findings and developing a longitudinal study of a cohort of students at one University, characterised by variation in programme (under and post graduate). (*Objective 1*).
 2. Conducting a descriptive exploratory study through using both quantitative and qualitative approaches to data collection (mixed methods). (*Objective 2*).
 3. Undertaking analysis of quantitative data collected over a three year period in (Phases 1.1, 1.2 and 1.3) from a cohort of student nurses undertaking pre-registration training. (*Objective 3*).
 4. Completing a qualitative data study (Phase 2.0) at the end of the educational programme using a sample of students drawn from Phase 1.0 participants. (*Objective 3*)
 5. Analysing and discussing the results from the two studies, drawing conclusions on the presence of potential stigmatising attitudes and values of student nurses. (*Objective 3*).
-

A flow diagram showing the progression from the quantitative study (Phase 1.0) to the qualitative study (Phase 2.0) of this thesis is presented in *Figure 1.1* and will be discussed further in subsequent chapters.

1.3 Thesis structure

The thesis is structured such that Chapter 2 presents a review of the literature and Chapter 3 introduces the methodological approach. The results of the investigation of Phase 1.0 are given in Chapter 4. Chapter 5 provides an interpretation of the results for Phase 2.0. These findings are discussed further in Chapter 6 and conclusions are presented in Chapter 7, together with the presentation of a model and recommendations for further research.

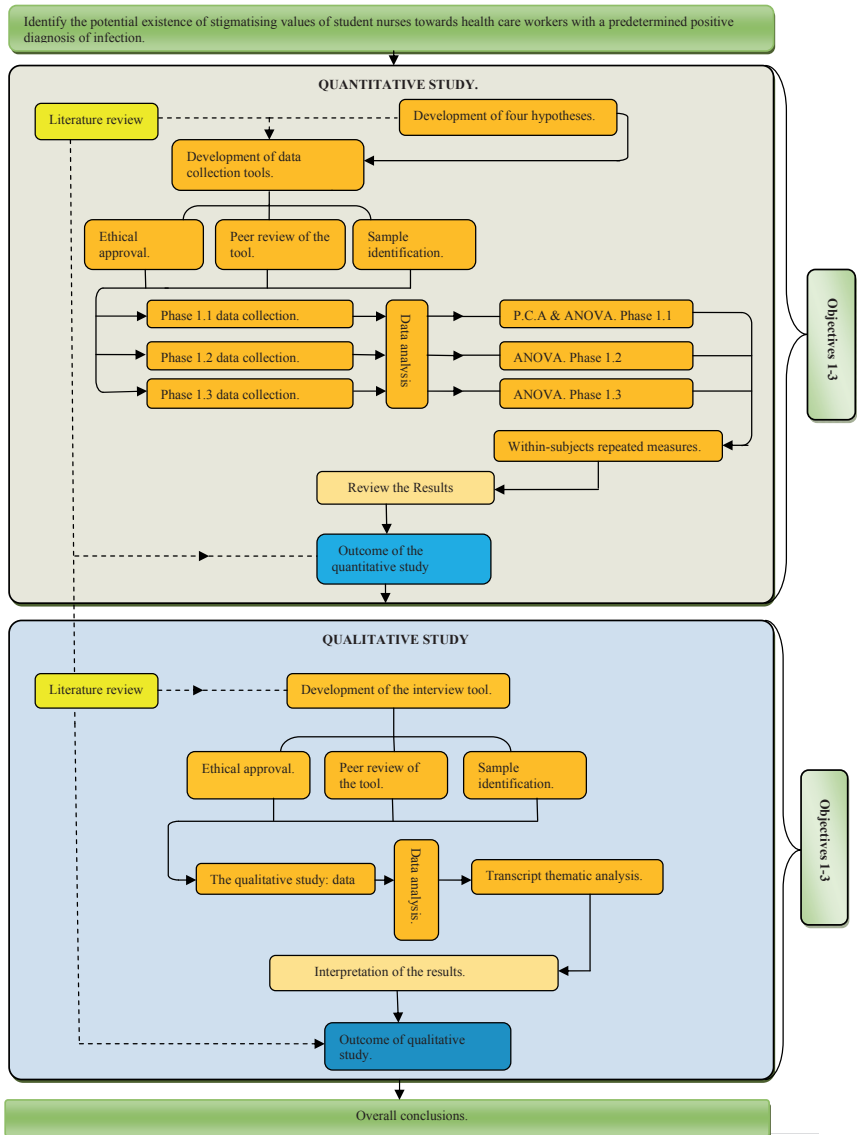


Figure 1.1 - The Research Programme

2.0 Literature review

2.1 Prologue

A literature review was conducted to identify past and current areas of research. The aim of this review was to identify gaps in the research and inform the development of the research study.

- **Section 2.2** covers the literature research strategy.
- **Section 2.3** discusses the development of four themes of stigma within healthcare; healthcare workers attitudes and values; stigma education within healthcare and disease.
- **Section 2.4** explores the literature surrounding the first theme of stigma reviewing enacted, externalised and internalised stigma and reviews the perception of stigma within healthcare.
- **Section 2.5** reviews the relationship between disease stigma and healthcare workers, including fear, education, and transference and coping strategies for healthcare workers and their families
- **Section 2.6** explores related literature of attitudes, values and beliefs. This covers areas such as stereotyping, prejudice, discrimination and labelling.
- **Section 2.7** outlines the five disease groups, identified within the literature review, as being associated with stigmatising attitudes.
- **Section 2.8** summarises the findings of the chapter.

2.2 Literature research strategy

It was important to undertake a substantial review of conventional grey literature resources such as media reviews, books, journals, conference papers and editorial reviews to provide a broader base for the literature search. GOOGLE SCHOLAR was used as access to a wide range of papers and articles and recently published material. Use of GOOGLE SCHOLAR, is debated for its efficacy within academia but it is becoming a primary search tool. It is widely agreed by academics, that it is acceptable when not utilised in isolation (Anders and Evans, 2010; Gehanno, *et al.*, 2013).

A wide literature base was required as a poorly structured review may mislead the study. A systematic literature review would support the identification and focusing of the research question (Bettany-Saltikov, 2012). Only English language articles were accessed due to the limitations of translation. Literature was reviewed from the nineteenth, twentieth and twenty first centuries. No literature was discounted due to the journal's origin of publication, as it became apparent that there was considerable literature from the developing world on the contraction of infectious diseases. However, the literature considered was not limited by the research methods employed and a range of methodologies that could be categorised as quantitative and qualitative research, were explored.

It was noted that the literature reviewed could potentially be open to selective bias since it was completed by a single researcher. This was minimised by the use of inclusion and exclusion criteria.

A preliminary literature review indicated that five disease groups - Human Immunodeficiency Virus (HIV), Pulmonary Tuberculosis, Methicillin-Resistant Staphylococcus Aureus (MRSA) Hepatitis C and Diabetes type 2 as particularly stigmatising stimulating the early work for this study and helped inform review. A framework was used to ensure clarification of the key concepts and then this was utilised in the development of search terms (Bettany-Saltikov, 2012). To manage the research, the key terms were structured into the Population and Exposure Outcome (PEO) methods of searching (*see Table 2.1*), refining the terms as necessary to ensure the finding of relevant literature (*see Table 2.2*). A PEO was undertaken for each disease group (Bettany-Saltikov, 2012).

Table 2.1- P.E.O. structure for the literature search

Do healthcare professionals hold stigmatising attitudes towards infected healthcare workers with 1. HIV, 2. PTB, 3. MRSA, 4. Hepatitis C 5. Diabetes type 2 ?			
Column terms combined with	P Participants/ condition AND	E Exposure AND	O Outcome AND
	1. Healthcare Workers	1. Diagnosis experiences	1. Diabetes type 2 positive.
Or	2. Healthcare Workers	2. Hospital environment	2. Beliefs
Or	3. Nurse	3. Community	3. Beliefs
Or	4. Doctors	4. Interaction	4. Values
Or	5. Healthcare Professionals	5. Physical effects	5. Attitudes
Or	6. Healthcare Professionals	6. Psychological effects	6. Global Implications of Diabetes Type 2
Or	7. Student Nurses	7. Social Effects	7. Stigma healthcare education
Or	8. Family		8. Stigma healthcare employment
Or	9. Diabetes Type 2		9. Externalised stigma
Or	10. Diabetes Type 2		10. Enacted stigma
			11. Internalised stigma
		12. Stereotype	
		13. Prejudice	
		14. Discrimination	
		15. Labelling	

Table (2.1) shows the terms used within the literature search, looking at how healthcare workers are affected and potentially what they may experience as a result of a positive diagnosis. "Healthcare Professionals" was used as a term as well as "Healthcare workers" because of the terminology often used within this area and to address the different professional names.

A comprehensive search of the following medical data bases was undertaken using these P.E.O.s: EBSCO; CINAHL; PSYCHINFO and MEDLINE. A further search was undertaken of the Cochrane data base, TRIP data base, Centre for Reviews and Dissemination, Campbell Collaboration and Cochrane Qualitative Research Methods Group to ensure that no systematic reviews had previously been completed or were in progress (Bettany-Saltikov, 2012).

Table 2.2
The PEO and Inclusion/Exclusion structure for the literature search

	Inclusion	Exclusions
Population 1: Healthcare workers	<ul style="list-style-type: none"> • Adults >18 years of age. • Male/female. • Working as healthcare workers. • Previously worked as a healthcare worker. 	<ul style="list-style-type: none"> • Under the age of 18 years. • Never worked as a healthcare worker.
Population 2: Employers of healthcare workers	<ul style="list-style-type: none"> • Adults >18 years of age. • Male/female. • Previous contact or awareness of PTB/HIV/Diabetes type 2/MRSA/Hepatitis C. • Student healthcare workers. 	<ul style="list-style-type: none"> • Under the age of 18 years. • No previous contact or awareness of PTB/HIV/Diabetes type 2/MRSA/Hepatitis C.
Population 3: Family/friends/ community.	<ul style="list-style-type: none"> • Adults >18 years of age. • Male/female. • Previous contact or awareness of PTB/HIV/Diabetes type 2/MRSA/Hepatitis C. 	<ul style="list-style-type: none"> • Under the age of 18 years. • No previous contact or awareness of PTB/HIV/Diabetes type 2/MRSA/Hepatitis C.
Exposure: Positive diagnosis with PTB/HIV/MRSA/Hepatitis C/Diabetes type 2 Or Meeting a positively diagnosed healthcare worker with PTB/HIV/MRSA/Hepatitis C/Diabetes type 2	<ul style="list-style-type: none"> • Experiences of a positive diagnosis. • Hospital environment. • Community healthcare settings. • Interaction with other healthcare workers. • Physical changes for the positively diagnosed individual. • Psychological effects of positive diagnosis. • Social effects on the positively diagnosed individual. 	<ul style="list-style-type: none"> • Treatments. • Investigations

Table Continues/

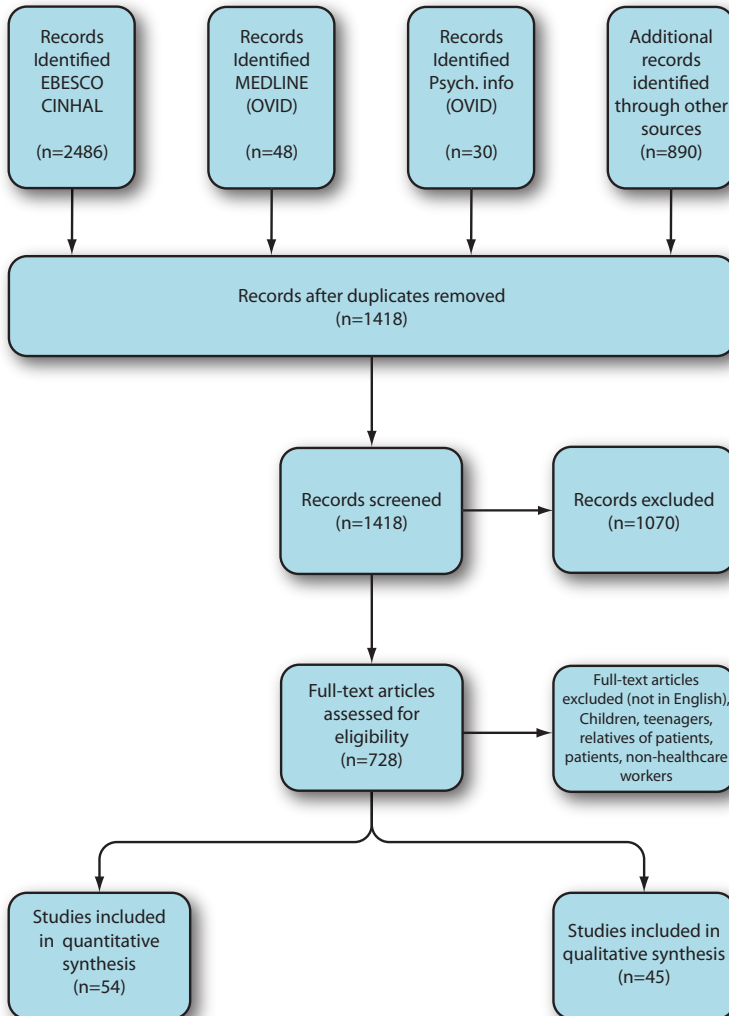
Table 2.2

The PEO and Inclusion/Exclusion structure for the literature search. (Contd.)

	Inclusion	Exclusions
Outcome: Social Psychological Physical	<ul style="list-style-type: none"> • Positive diagnosis of HIV, PTB, MRSA, Hepatitis C and Diabetes type 2. • Views from healthcare workers, patients, family and colleagues towards positive diagnosis. • Beliefs, values and attitudes towards the individual/disease. • Global implications of the disease within healthcare settings. • Stigma and healthcare education. • Stigma and healthcare employment. • Externalised stigma. • Enacted stigma. • Internalised. • Stigma. • Stereotyped. • Prejudice. • Discrimination. • Labelling. 	None.
Type of study: Quantitative	Empirical data/primary studies Mixed methods research.	Secondary studies.
Type of Study: Qualitative	There was no inclusion criteria based on methods in keeping with the mixed methods approach.	There was no exclusion criteria based on methods in keeping with the mixed methods approach.
Type of Evidence: Additional	Reviews/media reports/guidelines/protocols/systematic reviews/literature reviews/editorials.	Anecdotal/inconsistent/letters.

The literature identified a vast amount of evidence which required screening (Bettany-Saltikov, 2012). This required a structured strategy to ensure the data extraction was methodical and robust. Refer to the PRISMA flow diagram provided in Figure 2.1. The PRISMA aided in the transparent reporting of the literature searched to complete the review (Liberati *et al.*, 2009; Bettany-Saltikov, 2012; Moher *et al.*, 2015). The literature review built upon the PEO considered the rationale, hypothesis, and review methods used to develop the PRISMA protocol, ensuring clarity and structure within the research process (Moher *et al.*, 2015).

Figure 2.1. PRISMA Statement:



The strategy for the literature review was accepted by the supervising group and the findings are presented in subsequent sections.

2.3 Qualitative and quantitative literature

The WHO (2014) stated 59 million healthcare workers risk disease infection on a daily basis. Consequently, the experience of stigma can occur in both the developed and undeveloped world and is not bound by income, class or country. The literature reviewed both quantitative and qualitative data sets and found that a quantitative approach to research was the dominant methodology for investigating the behaviour and attitudinal change of individuals who stigmatise against others (Quinn *et al.*, 2011). A mixed methods approach (using qualitative and quantitative data) was only identified within two papers by Dijker and Raeijmaekers, (1999) and Macq *et al.*, (2006). They researched stigma surrounding patients including; healthcare workers attitudes towards infected patients, family attitudes towards infected patients and values towards stigma. The work may have investigated attitudes of healthcare workers to patients, but did not include attitudes from one healthcare worker to another. One aspect of the research was considered managerial, as it looked at the ways the disease groups affected the delivery of care to the patient. The research also looked at the way positively diagnosed individuals could be managed within the clinical environments. (Dijker and Raeijmaekers, 1999; Macq *et al.*, 2006).

One research paper by Diesel *et al.*, (2013) looked at educational support for student nurses in the area of stigma. Literature in this area was seen to be primarily quantitative and providing further scope for exploration through qualitative research and/or mixed methods approaches.

Neither the quantitative or qualitative, or mixed methods research investigated the stigmatising attitudes, values and beliefs systems of health workers to other infected healthcare workers. van Brakel and Galarza (2014) and Corrigan, (2014) have identified that further research is needed within this area. Philosophically, commentaries and non-research based literature was reviewed supporting the sections seen within the literature review. Corrigan (2014) and Bos *et al.* (2013) identify that further research is required to provide an innovative way of considering stigma. The literature base was therefore expanded to address stereotyping, prejudice, discrimination and labeling as concepts potentially linked to the experiences of stigma.

As previously noted, five diseases had been identified in the preliminary literature review as being linked to stigma experiences by infected individuals. These were PTB, an airborne infectious disease which presents with a history of identification over centuries. HIV and Hepatitis C, which transfer through contact with bodily fluids. MRSA transmitted from physical contact from person to person and a non-infectious disease. Diabetes type 2, was considered as it had previously been reviewed as a disease pathway that can carry stigmatising attitudes. It offered a non-infectious disease, which has been highlighted as a developing issue within social stigma (Browne *et al.*, 2013) that could be considered as a comparator in the consideration of stigma in addition to the four infectious diseases listed above.

Stigma became a key issue with the seminal work of Goffman in the 1950's, whose research established a base for the development of today's models and theories. Much of Goffman's (1950's) work was over 20 years old and whilst relevant at that time, time, even today it is suggested further development is required (Manning, 1992). The following Section (2.4) critically reviews the development of evolving theories within stigma.

2.4 Stigma

Stigma is a mark or disgrace, manifested through potential feelings of isolation and/or the experience of stigmatising behaviours and attitudes of others. Goffman (1963, pg. 11) defined stigma as an individual demonstrating a fear of contact with, "*a blemished person, ritually polluted, to be avoided, especially in public places*". Stigmatisation may be expressed when an individual's physical or mental attribute is not considered to fit in with another individual or societal group, disagreeing with their perception of a "*normal pattern*". Quinn *et al.*, (2011, pg. 37) disagrees with this early definition, creating a new definition defining stigma as a co-occurrence of five components "*labelling, stereotyping, separation, discrimination and status loss*". They may be experienced by the stigmatised individual. Each component is considered to have attributes linking it to a particular stigma or label. The stigmatising individual may verbalise these feelings, underpinning the reactions experienced by stigmatising attitudes.

Goffman (1959) stated that stigmatising individuals knew what/how they would react before meeting a person, because of pre-conceived ideas. Goffman (1959) stated this was a language of relationships, rather than purely labelling attributes. Gouldner (1970) and Manning (1992) disagreed with this view, saying that the approach was superficial, lacking clarification and depth. Zickmund *et al.*, (2003) and Quinn *et al.*, (2011) presented an alternative view and considered that stigmatising behaviour was underpinned by the attitudes presented within a dominant group and the stigmatised group were thought of as “*socially unacceptable*”.

Within healthcare workers, there is a potential for many views. Some healthcare workers are seen to have formed values and attitudes which provide pre-conceived ideas regarding positively diagnosed individuals (Goffman, 1959). However, they may also consider themselves as the dominant group and as such present negative attitudes to positive individuals (Zickmund *et al.*, 2003; Quinn *et al.*, 2011). This may have supported the view that healthcare workers are pre-disposed to certain stigmatising behaviour towards other colleagues, requiring further investigation into potential changes within education structures (Moyle *et al.*, 2010).

The following sections introduce a review and thematic analysis of the literature surrounding stigma with subthemes of enacted, externalised and internalised stigma.

2.4.1 Theories of stigma

Stigma may be seen as a problem resulting from the behaviour of an individual, or from one group to another (Bos *et al.*, 2013; Corrigan and Fong, 2014). However, Goffman (1959; 1963) presented work which argued that stigma was something that was individual and that group stigma was a reaction to the perceptions of a collection of individuals. MacIntyre (1969) and Miller (1984) argued that Goffman’s work was morally poor and as such ‘*liquidates*’ sociology, not clarifying the links between stigma and psychology through an inability to duplicate the data provided (Schegloff, 1988; Manning, 1992). These perceptions provided a basis for further research into individual and

group stigma, investigating sociological (Corrigan 2014; Herek. 2007; Pryor *et al.*, 2012), psychological (Sayce, 1998; Sadow *et al.*, 2002; Schulze and Angermeyer, 2003; Corrigan and Wassel. 2008); managerial (Mitchel, 2009; Hannigan and Allen, 2011) and medical aspects (Gerhan *et al.*, 2004; Joseph *et al.*, 2004; Diel *et al.*, 2005).

In the socio-historical context, ideas regarding disease stigma have evolved rather than being considered as an eternal feature of human behaviour. Corrigan, (2014) stated that stigma could be seen as a response to an illness providing a form of prejudice. The pale and emaciated individual, who despite being seriously ill with PTB, whilst appearing to have been interesting and artistic in the late seventeenth century, would have been considered sexually promiscuous and dirty, in the nineteenth century. This was mirrored in more recent societal acceptance of diseases such as HIV (Sherman, 2007; Herek, 2014). In the nineteenth century there was a rise of public healthcare awareness and this provided a systematic development of state actions in prevention and control of infection. At this time marginalisation of some individuals began to be considered as a consequence of poor health and disease. Therefore, the concept of stigma related to health was thought to underpin class differences, providing platforms for the development of stigmatising attitudes and attributes (Kuraban and Leary, 2001; Bayer, 2008).

The development of definitions shaped the perceptions of a diseased or unhealthy individual as '*spoiled*' or '*marked*'. Research into stigma and its effect evolved primarily from work undertaken within mental health. Goffman (1959) provided a basis for the sociologists to consider the impact and theoretical concepts behind stigma. Gouldner (1970); Smith (2006) and Manning (1992) stated that Goffman provided a challenge for society at that time, challenging the concept of an individual as a self-contained and isolated person. However, whilst challenging thinking Goffman did not develop any new theories or highlight any particular methodological approach, which could be replicated (Smith, 2006). It could also be argued that since Goffman was an interactionist, replication was not really the purpose. Giddens (1984); Schegloff, (1988); Smith (2006) and Manning, (1992) said that Goffman's (1959, 1963) work lacked detail and appeared inconsistent at times).

From Goffman's (1959, 1963) work, further research within disease management and healthcare were developed (Thornicroft *et al.*, 2007; Hodgson, 2011). Theories evolved presenting individual and group stigma as segregation from society or a sign of disapproval and punishment. The stigmatiser used discrimination and power as a way to control individuals and groups (Link and Phelan, 2001; Parker and Aggleton, 2003; Link and Phelan, 2014; Corrigan and Fong, 2014). Goffman (1963) stated that the power within a stigmatising relationship was determined by the attributes attached by society and not individuals' actions. He stated that there was a mixture of the attribute attachment by society and an individual's psychological reaction to this. Within mental and physical healthcare these two areas have since been seen to be present when studying the effects of stigma within an individual or even family member. This hostility may provide non-stigmatised individuals with opportunities to display disdain to an area of conduct, attribute or situation, which may punish or sanction another individual.

Over decades, key theories have developed presenting differing viewpoints about the definition of stigma. Stigma is a complex phenomenon reflecting the social, physical, psychological and economic components of being not only a '*stigmatised*' individual, but also the '*normal, non-stigmatised*' group member (Corrigan and Fong, 2014). Erving Goffman (1959, 1963) provided work based on symbolic interactions between groups and individuals within society (Jones and Corrigan, 2014). Goffman (1963) established the '*spoiled identity*' as one which possessed attributes that demonstrates how one individual differs from another. The individual was thought of as '*reduced*', meaning that the individual was no longer a '*whole*' person, but somewhat '*discounted*'. To Goffman (1963, 1959) the stigma mark encompassed all the concepts of the negative labelling and stereotyping of individuals. Bos *et al.*, (2013) argues that since Goffman's work, two clear domains have emerged within further research, '*stigma*' and '*prejudice*'.

Goffman (1963) refers to the concept of stigma being related to that of the attributes attached to it. The attribute used to stigmatise one individual has an opposing norm. This may provide a more assertive stance for the stigmatising

individual when used as a descriptive adjective. Negative attributes accredited to blame can compound disdainful attitudes towards a diseased individual. Potentially, the individual can accept the blame and stigma attributes being presented as expected and adopting acceptance as a method of coping (Hodgson, 2011; Shih, 2004). This endorses the stigmatising of individuals as less than other non-stigmatised individuals making them feel less worthy. Scrambler (2009), Jones and Corrigan (2014) and Corrigan (2014) debate Goffman's theory stating that within the twenty first century it is time for theorists to move forward and add to them. Jones *et al.*, (1984) investigated stigma and supports Goffman's viewpoint with the introduction of terminology with definitions such as 'deviance', 'flawed', 'blemished', 'discredited' and 'spoiled'. Jones *et al.* (1984) depict that the acceptable eccentricity of one individual may be deemed as a stigmatising quality by other individuals, thus supporting the negativity voiced by Goffman (1963).

To the stigmatised individual such definitions can nurture negativity, making them feel stigmatised, supporting their feelings of rejection. Corrigan and Fong (2014) stated that individuals experiencing pity experienced more stigma. Stigma may however, offer opportunities to such individuals to seek inclusion through acceptance by a group who were also stigmatised (Shin *et al.*, 2013). The stigmatising attributes used towards an individual could encourage group acceptance through the shared experience. This can promote positive feelings in both the individual and the group, allowing the individual to flourish within the stigmatised group (Corrigan and Fong, 2014). Empowerment of this group may be seen by their potential acceptance within society. The reliance on the group's support, further education, acceptance and potential denial of the attributes experienced, may be seen as the motivation to rise from what is seen as, '*stigma adversity*'. As a collective group the individuals could feel more able to champion a positive depiction of themselves within society (Shih, 2004; Link and Phelan, 2014).

Experiencing stigmatising attributes and attitudes displayed towards a group or individual emphasises the negative views of others. The development of attributes such as 'ordinary' or 'normal', places a stigmatised individual within a societal group. These initial responses to the considered attributes were documented as far back as ancient Greece, providing a physical branding as confirmation of the stigma attached to an individual (Goffman, 1963; Jones *et al.*, 1984 *et al.*; Scrambler, 2009). Crocker and Major (1989) state that stigmatisation was a contributing factor to the poor effectiveness of the group's efficiency. The stigmatising groups or individuals have allowed society to develop an internally acceptable attitude which can appear to some as externally discriminatory.

This was the basis for the formation of hierarchical relationships between the stigmatising group and the stigmatised group/ individual (Hebl and Dovidio, 2005). Research into group relationships was considered to be too controlled and almost laboratory led (Hebl and Dovidio, 2005). The studies supported the continuation of exclusion, stereotyping, prejudicial behaviour, which was observed to fluctuate throughout history as key attributes. For Goffman (1963) and Jones *et al.*, (1984), stigma definitions were analogous to Link and Phelan's (2001) idea that the stigma of an individual or group was the real association between an attribute and mark (disease).

Pryor and Reeder (2011) built upon previous work undertaken by Goffman (1959, 1963) and devised a model linking four types of stigma. These were by association, self, structural and public stigma. The core of this model was public stigma, which may be influenced by social and psychological reactions and effects of stigma (Pryor and Reeder, 2011; Bos *et al.*, 2013). This model encompassed the recent literature (Corrigan 2014; Herek, 2007) and critical appraisal of Goffman's work. As such it built further theoretical concepts around the original work. Pryor and Reeder (2011) challenge Goffman who considers stigma as a reaction to people. They perceive stigma as a social and psychological reaction to a positively diagnosed individual. However, public stigma is displayed as central to self-structure and association, stigma presenting this as pivotal to peoples reactions. Yet, the stigmatised individuals may be

socially excluded, thus compromising healthcare delivery, perceiving societal negativity towards them, manifested in stereotypical beliefs. Crocker and Major (1989) believed that this could lead to disproportionately poor social and economic outcomes, which may strengthen the stigmatised group or individual's experience of discrimination.

The social boundaries within these groups may be movable, dependant on the considerations of '*norm*' or '*acceptable*' at that time. Dijker (2013) stated that the discrimination and stigmatising of such individuals, which may come from society's fear of contagion, often leads to attempts to repair the stigmatised individual in order that they can be reintegrated into society. This view supports the internalised stigma of the individual, in that to try and '*mend*' a person supports the internal perception of stigma. Snyder *et al.*, (1999); The Higgins Trust and the DailyStrength.org support group (2013) and Mitchell and Knowlton (2009) state that stigmatisation may preserve group living and cognitive development, excluding others and nurturing a non-threatening, non-detrimental societal group, such as seen within groups containing positively diagnosed AIDS/HIV individuals.

Jones *et al.*, (1984) presented a theory of stigma that highlighted where individuals had moved into what he considered '*deviancy*' through accepted social boundaries. Although deviancy may be considered as a behaviour which is not a way of demonstrating society's chosen attitudes, it may be considered as good or bad (Goffman, 1959; 1963; Jones *et al.*, 1984; Wilkins, 2006, Dijker, 2013). Pryor and Reeder (2011) stated that the consideration of someone as deviant may depend upon the culture, background and beliefs of society. An individual may appear '*norm*' to one individual and '*crazy*' to another. Some individuals may appear to move across these boundaries, moving from '*saint*' to '*sinner*', throughout the course of stigma. Others may choose to remain within a stigmatised group, developing what can be considered as disruptive emotional, cognitive and behavioural processes (Link *et al.*, 1997).

The public stigma model introduced by Pryor and Reeder (2011) demonstrated that an individual's internalisation and experiences of stigma mirrored the reactions they had received. Removal of societal acceptance and support was seen as the individual's own exclusion from the situation. The membership of a stigmatised group may offer support to the infected individual (Major and O'Brien, 2005; Bos *et al.*, 2013). This may increase the attachment of negative attributes towards a group or individual and underpin stigmatisation.

Jones *et al.*, (1984) developed a different model of stigmatisation, which focussed on the perception of being 'devalued' or 'marked' within society and may be seen as pivotal to many personal interactions. A stigma can be attached to an individual with physical or mental issues being considered that of a 'mark' (Corrigan and Fong, 2014). Jones *et al.*, (1984) and Mason *et al.*, (2001) described the relationship between societal values and the perceptions of the marginalised individual, supporting opinions of the individual being a 'devalued' or 'marked' person. 'Deviance' or 'mark' sets an individual apart from society, predisposing the feeling of rejection and isolation (Corrigan and Wassel, 2008; Link *et al.*, 1997; Corrigan and Wassel, 2008). It is compounded by the attitudes of others, their beliefs and prejudices, which may have been both encountered and perceived by a 'marked' individual. It may be perceived by others as an area for stigma and attachment of attributes. Therefore, Jones *et al.*, (1984) identified the theoretical model of stigma which introduced the concept of concealability.

Concealability provides theoretical consideration that individuals who have a positive diagnosis of a disease, thought to compromise their life by visibility to society, may wish to control this by concealing it. Stutterheim *et al.*, (2011) noted that even though concealment may be undertaken, the concerns regarding the discredit from others may need to be endured. This is a particularly important concept within healthcare, as a professional with a disease, may be concerned about stigma and may attempt to conceal a positive diagnosis (Felt, 2012). An inability to withhold such information from society, or even employers, may not be possible as the external physical signs may determine a need for disclosure (Mason *et al.*, 2001).

Goffman (1963) discusses concealability as being that of avoiding 'passing' the information, hence preventing the revelation of the 'mark' to others. Avoidance of this may lead to stress, increasing the internalised stigma of the individual. Jones *et al.*, (1984) and Pachankis (2007) stated that by concealing a 'deviance' or 'mark' an individual will experience psychological distress.

Consistency within the aspect of 'deviance' was openly challenged by Goffman (1963). Goffman debated the acceptance of deviance as a true indication and label of stigma. Goffman (1963, pg 168) states "*The member who is defined as physically sick is in the same situation*". Society may consider a disease positive individual as not being 'deviant' providing 'acceptable' behaviour was displayed. Non-compliance may be considered a reflection of this or the relationship to societal group. Social deviance could be seen as an acceptance of their mark. This may be purely situational and an attempt to gain acceptance in either the stigmatised or non-stigmatised group. This may substantially restrict the access to coping or recovery theories within a positively diagnosed disease group, physical or mental conditions. Stigma however, may not be experienced by everyone in the same way and can alter depending upon the situation and individual's perspective. Weis (2006) defines stigma as a personal or social experience which has been typified as rejection, exclusion or blame. This may result from the experiences of negative judgements (or expectancy of) within society or anticipated negative reactions to an illness. Self-stigma, however, may be portrayed as either perceived or real in some social situations.

The experience of stigma can cause increasing health concerns regarding an individual's disease process. Albon (2002) defined the stigma experienced within healthcare as a condition related to ill health, which often impacted on an individual and their family. Escalation of this may be seen when the stigmatised individual considers themselves as deviant. An individual needs to focus on the social and political resources available to free themselves from such stigma. Scrambler (2009) built upon the work of Goffman (1959; 1963) and presented sociological grounded theory linking stigma to an individual's health condition and stating that this may underpin a judgement that is completely

unwarranted through perceived risk and even ignorance. As such there may be repercussions on guidance and health policy development. Stigma and disease management, both societal and individual, were identified as an area requiring further research to support and develop sound theoretical representation within the domain (Hebl and Dovidio, 2005; Bos *et al.*, 2013; Corrigan, 2014). Parker and Aggleton (2003) and Stutterheim *et al.*, (2012) call for further qualitative studies into stigma. They also noted that to distinguish the origins of stigma and the manifestation of this within health, more extensive mixed methods studies should be undertaken, as there is a gap in methodological research for the reduction of stigma (Hebl and Dovidio, 2005; Bos *et al.*, 2013 Corrigan, 2014).

The four sub-themes of stigma are theoretical concepts, enacted, internalised and externalised stigma. These will be investigated further in the next section.

2.4.2 Enacted, externalised and internalised stigma

Goffman (1959), Goffman (1963) Scrambler (2009) and Herek (2014) stated feelings of enacted, externalised stigma can be felt by individuals and those in contact with an infected individual. They were supported by Drapalski *et al.*, (2013) when considering internalised stigma. Enacted stigma can however be beneficial, allowing an individual to be able to remove feelings of self-blame by disclosure of a stigma. An individual with a positive disease diagnosis would be able to openly introduce this without internalising the stigma and increasing the fear of a negative reception (Bos *et al.*, 2013). Externalisation of stigma can appear to undermine this process and lead to the development of internalised stigmatising attitudes. Internalised stigma has been identified as when an individual feels stigmatised keeping this withdrawn, silent and to themselves (Goffman, 1959; Goffman, 1963; Scrambler, 2009; Herek, 2014). The literature connected with these attributes is discussed in the following sections.

2.4.3 Enacted stigma

The enacting of stigma removes the concept of self-blame, allowing the bearer of the stigma to 'pass' or reveal this knowledge (Goffman, 1963; Jones *et al.*, 1984; Bos *et al.*, 2013). The experience of society's 'pity' may prevent the enactment, leaving the stigmatised individual feeling uncomfortable. This may prevent interaction with others and provide feelings of externalised stigma (Sayce, 1998; Corrigan and Fong, 2014). Rather than the individual feeling disgraced from the 'mark of shame', there may be a perception of social and economic exclusion. Bos *et al.*, (2013) argued that stigma feelings can be enhanced by the reaction to society's views on a perceived 'deviance'. An individual may monitor their behaviour and social interaction to avoid any enactments of such stigma, which can underpin further feelings of rejection (Sayce, 1998; Ilya *et al.*, 2008; Steward *et al.*, 2008; Bos *et al.*, 2013). Goffman (1959; 1963) argued that there was a social code which provided constraints when interacting with others. This code supported the concept that enacted stigma exercises power within relationships.

Goffman (1959; 1963) stated that society had a set of rules around disease stigma to determine our interactions. However, Manning (1992) presents that there should be further research into this. Social inferiority derived from a positive diagnosis, may be worsened by enacted stigma of this disease and may be demonstrated by the discrimination of people who would then remove themselves from contact with such cases. Macq *et al.*, (2006) argued there was a power sharing between the participants of the study with the PTB and healthcare workers, enabling the reduction of enacted stigma by increasing the perception of the positively diagnosed individual's power. Further investigation showed that the relationship between the healthcare worker and the patient was vital to ensure a feeling of acceptance and control whilst undergoing treatment. The individual felt more able to accept planned treatment and seek support, due to the acceptance of their enacted stigma beliefs.

However, this research is subject to the limitations of quantitative designs leaving scope for further explorations of attitudes. Mitchel (2009) undertook a discourse analysis of values and attitudes of four specialists within mental healthcare. This study, although small, identified that identification and alteration of values within healthcare professionals may be difficult to achieve and further studies were recommended (Mitchel, 2009). It should be noted that drawing upon different traditions of enquiry, such as mixed methods, can give a more nuanced/holistic take on a topic. Corrigan and Kosyluk (2013) stated that exposure and contact for stigmatisers and the stigmatised, through face to face or media conduits, may go some way towards reducing stigma. However, this needs to be continuous and to help support the equalising of power in the individual as indicated by Macq *et al.* (2006). Short term contact for disease treatment has not been investigated fully to explore the changes to long term views of either group of participants. Bos *et al.*, (2013) argued that further research is required into the impact of social interactions between perceivers and stigmatised individuals.

2.4.4 Externalised stigma

Externalisation of stigma is 'experiencing' stigmatising attitudes and attributes delivered from other individuals. Externalised stigma is likely to increase psychological distress and pre-empt conditions such as depression (Goffman 1959 ; 1963 ; Steward *et al.*, 2008; Herek *et al.*, 2013). The risk to others of contamination and treatment for a disease may prevent a return to employment. Externalisation may induce further 'internalisation' of stigma. Here the individual awaits disapproval and within a situation may respond with half answered or open questions. Individuals may believe that their acceptance could be false, providing a situation supporting the development of internalised feelings, thus supporting the experienced external view (Goffman, 1963).

The personal perceptions and stigma internalisation attached to a disease process may develop from experience of social mistreatment and the externalisation of stigma attributes. Pryor and Reeder (2011) built upon the work of Goffman (1959; 1963) and presented public stigma as the way people reacted to a disease. This model supported the link of people's interaction to an

individual's apprehension and development of self stigma. Therefore, learning from the behaviour towards them, individuals may experience externalised stigma, which supports the treatment that they perceive they have received and underpins their personal perceptions (Steward *et al.*, 2008; Pryor and Reeder, 2011). Individuals often attribute negative feedback to groups, therefore, the externalisation of this concept can be seen as a protection against ideals and societal perception (Goffman 1959; Goffman, 1963; Crocker and Major, 1989).

2.4.5 Internalised stigma

An individual who faces external stigma may internalise perceived negative attitudes and labels which may as a result cause withdrawal from society. They also may not apply for further employment, or engage in social interaction for fear of rejection (Goffman 1959; Goffman 1963; Sayce, 1998; Bos *et al.*, 2013). Pryor *et al.*, (2004) identified two models of stigma, which addressed a person's reaction to perceived stigma:

- The temporal (reflexive) stigma model
- The reactive (reflective) model

The temporal (reflexive) model is where an individual perceiving the initial threat of stigma, reacts to the perceived stigma by moving to the reactive (reflective) model which may be visualised by the infected individual as avoidance, calling into question a person's social identity and/or group membership (Pryor *et al.*, 2004). Pryor *et al.*, (2004) define reflexive stigma as learnt and instinctive. This may manifest as impulsive and responsive action, only supported later by the reflective and considered avoidance or reactive response of an individual. Some individuals feel removed or isolated at this point, thus underpinning perceived internalised stigma (Goffman, 1963; Jones *et al.*, 1984; Cianelli *et al.*, 2001; Mason *et al.*, 2001; Scrambler, 2009; Felt, 2012).

The dual model supports that there may be both implicit and explicit reactions to stigma which appear to be negative (Pryor *et al.*, 2004). The internalisation

of such stigma accepts a transfer of power to the stigmatiser, thus reiterating and supporting the externalisation of attributes to both parties. This may be seen when reviewing the treatment and thoughts toward positively diagnosed individuals accessing healthcare by healthcare workers. Potential lowering of social status of an individual by a healthcare worker can induce internalisation of considered attributes, further acceptance of behavioural changes and potential consideration of blame (Macq *et al.*, 2005).

The internalisation of stigma may leave the individual feeling inferior by a fear of the disease process (Jones *et al.*, 1984; Bos *et al.*, 2001; Macq *et al.*, 2006; Feldman and Crandall, 2007). Therefore, hidden aspects of the disease directly and indirectly prevent any help seeking behaviour or acceptance (Steward *et al.*, 2008; Corrigan and Fong, 2014). Steward *et al.*, (2008) and Herek *et al.*, (2013) argued that most individuals infected with HIV experienced internalised stigma, leading to feelings of normative stigma. This was considered to be due to the recognition of homosexual risk (Singhal and Rogers, 2003). Normative and internalised stigma run parallel, increasing secretive behaviour of individuals. Internalised stigma may prevent the passing of diagnosis, leaving the individual with a feeling of inferiority and a sense of fear may be considered the solid basis of stigma (Macq *et al.*, 2006; Steward *et al.*, 2008).

An individual can experience both internalised and externalised stigma simultaneously, increasing depression and need for positive coping mechanisms by the stigmatised individual. Bos *et al.*, (2013) stated that such coping methods required problem solving and emotional focusing. This may be not possible in everyone without support. Ritsher and Phelan (2004) argued that support may come only from the family. The threat of courtesy stigma may hinder this process, causing distress to all involved (Snyder *et al.*, 1999). Additionally, the devaluation of self and application of a stereotypical label to oneself may also occur (Boyd-Ritsher *et al.*, 2003; Corrigan and Fong, 2014). Goffman (1959; 1963) argued that the attachment of a label could be a way of replacing the field of deviance totally. A willingness to challenge the negative self-image accepted by the individual was now observed and this would challenge the

label of 'moral defectiveness', accepted by many and associated with the contraction and development of a disease (Green, 2009).

The passing of the diagnosis from one individual to another can be considered as a form of impression management. This enactment may emphasise the internalisation of their perceived situation, based upon reactions they have experienced. This behaviour has been observed within healthcare workers and their families when experiencing a positive disease diagnosis.

2.5. The fear of disease stigma within healthcare workers

The involvement of healthcare professionals should ensure that the disease is approached as the problem and not the people, who suffer with it (Macq *et al.*, 2006; Phelan *et al.*, 2014). Healthcare workers hold greater fear of contacting a disease through the ignorance, for example, of the differences between latent PTB and active PTB. As a result, education and knowledge into disease pathways have been identified as a requirement to minimise this within the healthcare community (Jaramillo, 1999; Joseph *et al.*, 2004; Macq *et al.*, 2005; ; Macq *et al.*, 2006; Radovic *et al.*, 2008; Rosenberg *et al.*, 2012; Corrigan and Fong, 2014).

Macq *et al.*, (2005) and Macq *et al.*, (2006) argue that the feelings of affection towards PTB sufferers were seen as a contradiction to the fear and stigma generally shown. HIV often considered "the second evil" was seen in modern day society as linked to PTB through a dual infection process. The potential dual diagnosis of these two diseases may provide the individual with experiences of fear and stigma. However, the commencement of health propaganda, assisted by the community, has enabled the reduction of both diseases over the last two decades. Such stigma appeared to be predominantly homophobic, skewing considerations of the disease being the issue, rather than the individual and their lifestyle. Zickmund *et al.*, (2003) stated that both the public and society consider Hepatitis C and HIV as a disease with a similar contagious risk, which today may be considered greater than the link with PTB. Women report having more enacted and internal stigma when positively diagnosed with the

Hepatitis C disease (Grundy and Nicholas, 2004; Zickmund *et al.*, 2003). Considerations for work induced Hepatitis C was seen marginally amongst NHS staff. Zickmund *et al.*, (2003) felt that this caused a common emotional burden, pre-empting NHS providers to become stereotypical. Coping strategies were not that far removed from other infectious diseases with recommendations of increased public education programmes and a supportive community network to decrease stigma within the home and work environment (Grundy and Nicholas, 2004; Roe *et al.*, 2014).

Scrambler (2009) reviewed the incidence of health related stigma with reference to differing diseases. He argued that studies have shown that all diseases held similar stigmas and that stigma was not a consequence of the actual disease, but a restriction that was placed upon it by society as a whole. The idea of disease being considered as deviance supported this belief (Goffman, 1963). Fear of positive diagnosis for a healthcare worker may underpin worries and concerns regarding employment issues.

2.5.1 Stigma in healthcare employment

The employment of positively diagnosed individuals within healthcare is controversial. Despite a positive diagnosis being considered an employment barrier, evidence has shown that this is not always the case (Macq *et al.*, 2005). It may lead to employment loss, compounding social and familial exclusion. Angermeyer (2004) identified three dimensions of workplace stigma.

1. The social stigma identified by knowledge, attitudes and practices of employers.
2. The self stigma considered to form the attitudes of patients to healthcare workers.
3. The legal and policy frameworks which presents an individual with structural discrimination (Ilya *et al.*, 2008).

These ideas were further developed by Pryor and Reeder (2011). Experiences

of explicit stigma may underpin the development of feelings of implicit stigma, which may be substantiated by employers. The implementation of anti-stigma policies may compound structural discrimination by highlighting individuals who were being stigmatised within an organisation (Suchman, 2001; Schulze and Angermeyer, 2003; Hannigan and Allen, 2011).

Although, anti-stigma campaigns were visible within the workplace, encouraging open frankness of employees and employers was not always visible. Suchman (2001) argued that the external management of healthcare workers may promote a lowering of status, an increase in fear directly affecting their work, feelings of self-worth and ability to influence working relationships and values. The lowering of employee status, professionally or personally, will lead to discrimination, affecting that individual's life opportunities (Suchman, 2001; Link and Phelan, 2001).

In some disease processes, the most relevant period for employment stigma, was at the most economically dependant time, such as when the individual had a financially dependent family. In such cases, a loss of status and employment holds severe ramifications, both for the individual and their dependants (Rajeswari *et al.*, 1999). This public stigma is considered to increase stigma by loss of wages, potentially driving the individual and family into poverty and danger, leading to social disadvantage (Rajeswari *et al.*, 1999; Roe *et al.*, 2014). The gaining and maintenance of employment can enhance the opportunities available to a stigmatised individual (Link and Phelan, 2006). The 'marked' individual perceives society's withdrawal as disempowering if they become identified with a particular disease. Employment may enable individuals to function 'normally', moving within society almost unseen, unchallenged and provide economic stability for both themselves and their families.

Rajeswari *et al.*, (1999) argued that there was a significant economic cost of PTB, which increased within society's most productive economic groups. There may also be gender issues e.g. in nursing, predominantly a female profession, the risks for women may have far reaching consequences to them as employees

or family members. The impact of stigma upon the individual, however, may be greater than the physical disease, exposing them and their families to potential financial and economic loss, impacting upon individuals and family access to housing, education and nutrition (Rajeswari *et al.*, 1999).

The effects on healthcare workers can be equally devastating since this mainly female group are within the most economically productive age group. Lost days of healthcare employment can lead to a potential downturn in economic stability as in many countries they constitute a large proportion of the female workforce. Additionally, a reduction in healthcare workers supporting the infrastructure of healthcare delivery, may mean a secondary effect being reflected in other economic groups who found that access to healthcare provisions were compromised. Employers may feel it necessary to potentially manufacture labels and stigmas to manage the healthcare workforce (Lee and Loveridge, 1987). Research in this area of stigma is limited and further studies are needed at a global scale (Corrigan, 2014; Jones and Corrigan, 2014; Bos *et al.*, 2013).

The manipulation of a stigmatised group of individuals can demonstrate the blatant disregard for them, facilitating minimal support for a diseased and stigmatised group, whilst maintaining the focus of control. Some groups are championing a cause to develop support for work legislation and the Disability Act in 1944 addressed the removal of employment from the positively diagnosed individual (Lee and Loveridge, 1987). Hebl and Dovidio (2005) examined such relationships within stigma. Suchman (2001) and Bos *et al.*(2013) argued that further research was required into the connection between different forms of stigma and relationships. This would provide a platform for further work into the relationships of positively diagnosed individuals, employers and families within society.

Healthcare professionals remained within the stigmatised group were restricted both personally and professionally. The capping of career development can be seen as a form of management, implementing restrictions on individuals (Shih 2004). Pryor *et al.*, (2004) believed that the stigma of a marked individual was driven by the recognition of such marks, leading to a rule based process which

underpinned further emotional reactions. This can be controlled by individuals and channelled potentially to being a more positive aspect of stigma, effectively turned on and off. An inability to control the situation may increase an individual's stress, presenting a potentially damaging physical and psychological situation (Bos *et al.*, 2013).

The healthcare worker has a professional responsibility to reveal infections that may put those they care for at risk (Felt, 2012), but the healthcare governing bodies have not yet recognised the importance of reducing stigma (Felt, 2012). This results in the reluctance of the healthcare worker to report their diagnosis, for fear of stigma, loss of employment and risk to their social and financial stability. Therefore, concealability of the disease contagion and treatment were components of stigma which compound the non-acceptance of diagnosis, making disclosure to an employer a concern (Jones *et al.*, 1984). These feelings can be reduced by confiding in a trusted individual and a feeling of acceptance which, in turn, would have the knock on effect of reducing fear (Cole *et al.*, 1996; Heatherton *et al.*, 2003; Joseph *et al.*, 2004).

The Department of Health (2013) argued that support and confidentiality for positively diagnosed individuals was pivotal to the reduction of stigma in the workplace and consequently the encouragement of disclosure. The healthcare worker could continue within their role, experiencing minimal, if any, stigmatising and prejudicial repercussions of sharing the diagnosis. This would be dependent upon factors such as the employer's management of the situation and can often be influenced by attitudes towards the disease, attributes and impact upon the individual and others. Goffman (1959) stated that social interactions were at the heart of stigma presentation.

The '*perceived severity*' of the disease and diagnosis has been observed to evoke sympathy and potential anxiety from the stigmatiser and as such lead to emotional ambivalence (Crandall and Moriarty, 1995). This may be seen as exclusion from the healthcare team and an increase in the isolation of the positively diagnosed individual. Shih (2004) considered intelligence, access to education and social standing as factors which influenced the course of stigma, but depression and anxiety were not considered barriers to this.

A reluctance to disclose a diagnosis may be dependent on previous social and employment position and not the individual's intellectual prowess. Self-control of stigma may become parallel with that of the attempts by the stigmatised to actually control the disease or blemish. Stutterheim *et al.*, (2009) argued that people's perception and awareness of marks may influence the explicit and implicit stigma development. Jones *et al.*, (1984) discusses how individuals may find that a potential blemish retraction mirrors that of the stigma. Shih (2004) stated that four factors were observed to moderate the course of the stigma;

- How the individual responds to failure,
- The type of disease/stigma,
- The family,
- Community support or acceptance.

These factors can affect both internalisation and externalisation of the stigma in an individual and how they react to or accept a disease. They also determine whether the treatment of a disease will be undertaken and adhered to, disclosure and diagnosis of an infected healthcare worker.

Mason *et al.*, (2001) determined that regaining social control over interactions and communication within their network was vital to the stigmatised individual. The diseased individual may feel that the diagnosis was their fault and adopt an attitude of self-blame (Jones *et al.*, 1984). This could place communication barriers within any community or employment environment, compromising professional, personal or cultural boundaries (Scrambler, 2009; Felt, 2012; Bos *et al.*, 2013).

The aesthetics of a disease could affect the individual by placing them in an unacceptable or pitied position within society. A revulsion, or disassociation, by society could also cause considerable distress to the bearer or family, underpinning the perceived stigma and providing courtesy stigma to the family (Jones *et al.*, 1984; Mason *et al.*, 2001; Bos *et al.*, 2013; Corrigan and Fong, 2014). Therefore, healthcare education was an area which was seen

to influence the responsiveness of employers and other colleagues to positively diagnosed healthcare workers and should be considered for further development (Corrigan and Fong, 2014).

2.5.2 Stigma and health education

The education of healthcare workers has been undertaken in various ways over the centuries. Nursing as a profession gained recognition in 1928, by obtaining the Royal Charter (Royal College of Nursing, 2014). Over the next twenty years nursing developed into structured educational programmes.

The first students accessing degree level education programmes in the UK commenced in 1960 (Brooks, 2011). Education was undertaken in Schools of Nursing until the 1990's, with pre-registration courses evolving into 'Project 2000', diploma and degree qualifications. The English National Board provided courses for continuing education until it was dissolved in 2002. Regulation of nurse education after 2002 became University based and many Higher Education Institutions developed under and post graduate courses using nursing guidance and regulations in education produced by the Nursing and Midwifery Council (NMC).

Within the nursing curriculum, the concept of stigma within healthcare employment was at the forefront of further educational reform in 2010. Recommendations by the Nursing and Midwifery Council (2015) stated that 'healthcare professionals should consider the ethical and professional implications of stigma and discrimination for positively diagnosed individuals.

In addition to this, the influence of stigmatising attitudes on health education which are predominantly addressed within mental health and elderly care (Sadow *et al.*, 2002; Green, 2009; Punter, 2012), need to be comprehensively established globally in order to reduce stigmatising attitudes.

Healthcare workers with an infectious disease may consider the origin or process of initial infection as relevant to reactions of others (Goffman, 1959; Goffman, 1963; Scrambler, 2009; Corrigan, 2014). Blame may be apportioned if infection was related to the person's behaviour or lifestyle choices. Thus responsibility for infection may be deemed to be that of the individuals (West *et al.*, 1996; Mason *et al.*, 2001; Scrambler, 2009).

Healthcare workers may also consider a positive diagnosis of a disease within healthcare employment as that of personal negligence (Jones *et al.*, 1984; Felt, 2012). In society, the unexpected diagnosis can evoke sympathy, distrust and fear or blame dependant on the stigmatiser's view of the possibility of further contamination of others (Eliason, 1993; Moriya *et al.*, 1995; Bos *et al.*, 2001). The perceived danger of infection has been identified as an area for further research due to concerns of detrimental effects for participants (Felt, 2012). Doyle and Cruickshank (2012) felt that transference of stigmatising information based upon pre-developed attitudes and values regarding a disease could be seen between healthcare professionals within employment. This has been identified as particularly important during patient handovers and a need for further research was recognised. Mitchel (2009) supported this view, arguing that values were potentially integrated within the framework of discourse and as such, difficult to alter. Hannigan and Allen (2011) suggested that such integrated values, beliefs and ways of working could influence the way healthcare workers interacted and worked together, thus affecting the power within their relationships (Suchman, 2001). Further mixed methods research (using quantitative and qualitative evidence) into the values and potential interaction was identified as a requirement. Both of these studies were conducted using small sample groups (within mental health), single methods, qualitative interviews (Hannigan and Allen, 2011), discourse analysis (Mitchel, 2009) and within one health discipline only. Hannigan and Allen (2011) and Mitchel (2009) identified that, the externalisation of stigmatising values were a professional and ethical issue within healthcare education and delivery.

Diesel *et al.*, (2013) and Manganye *et al.*, (2013) stated that healthcare workers lacked the sufficient knowledge and education to facilitate empathetic, stigma free care for HIV positive patients. Yiu *et al.*, (2010) stated that the knowledge of healthcare workers could not be identified as the significant cause for the reduction in stigmatising values. Mitchel (2009) disagreed with this, arguing that values could not be changed and that healthcare workers were partly responsible for bringing about change.

Research conducted on student healthcare workers showed that attitudes of students towards stigma were perceived as negative by qualified staff and positively diagnosed patients who received care from trainees (Eliason, 1993; Wilfinger, 2009; Yiu *et al.*, 2010 ; Hassan and Wahsheh, 2011).

Healthcare education can be seen to underpin their recognition of their stigmatising attitudes and the implementation of further education programmes support healthcare workers identification of their own values and attitudes towards infected and non-infected patients. This was considered to provide a reduction in the incidences of poor care delivery through recognition of their attitudes (McGarry and Aubeeluck, 2013). Further research reviewed the attitudes of healthcare workers towards obese individuals, mirror the findings of that undertaken with HIV positive patients (Teixeira and Budd, 2010; Sikorski *et al.*, 2013, Buxton and Snethen, 2013; Waller *et al.*, 2012). The negative stigmas attributed to obese patients by healthcare workers have been reported to prevent care of Diabetes type 2 (Teixeira and Budd, 2010). Browne *et al.*, (2013) supported this and stated that Diabetes type 2 patients experienced stigma within healthcare. However, it should be noted that this was a small sample and as such may not be transferable to a wider population. Further large cohort studies, potentially utilising mixed methods should be undertaken. Prodanovaska-Stojcevska *et al.*, (2010) stated that healthcare workers experiences of Hepatitis C may highlight their knowledge and attitudes but without educational support and clinical experience, they are at risk of infection and negative stigma (Ilya *et al.*, 2008). Setia *et al.*, (2013) stated that there was an urgency that should be recognised when addressing the development of

further education programmes to increase healthcare workers knowledge and reduce stigma towards individuals with Hepatitis C. Without formal education, routes of knowledge acquisition around such diseases as Hepatitis C may be seen to evolve from peer and social input leading to an ignorance which may be fatal (Moore *et al.*, 2009). Healthcare workers acceptance of the positively diagnosed individual, may be influenced by social values, geographical positions or employment policy which may be seen to influence the cultural acceptance of the positively diagnosed individual (Weis and Ramkrishna, 2006; Moore *et al.*, 2009; Chirwa *et al.*, 2009)

Pickles *et al.*, (2009), Prodanovska - Stojcevska *et al.*, (2010), Hassan and Wahsheh (2011) and Rosenberg *et al.*, (2012) argued that the education of healthcare workers was vital in reducing the stigmatising attitudes, values and beliefs by the increase of knowledge. This would enhance understanding and counselling skills offered to positively diagnosed individuals. Eliason (1993); Leasure *et al.*, (1995), Downing and Kawuma (2008); Wilfinger (2009) and Yiu *et al.*, (2010), argued that the vital elements to a reduction in stigmatising attitudes were not the educational programmes, but the acquisition of knowledge which could be gained through clinical experiences. Bos *et al.*, (2013) argue that further research was required to consider the link between social interaction, structural factors, reduction and intervention. As such, the basis of stigma may still be considered to be multi-faceted and more complex than able to determine in a specific single method study. Teixeira and Budd (2010) argued that the implementation of self-reflection in education was vital to recognising and reducing healthcare workers implicit and explicit values. Hannigan and Allen (2011) supported this view, but explored the way in which policy development could break down negative aspects of healthcare delivery and provide a forum for more staff engagement within the process.

Waller *et al.*, (2012) stated that the individual healthcare worker required education to be aware of personal biases and implicit stigma before providing care. Care delivery for positively infected individuals being considered a 'learning' experience compounded feelings of enacted stigma for the positively

diagnosed individual (Manganye *et al.*, 2013). The need for clear educational, clinical, institutional and structural application of policies and knowledge would provide a sound basis for the recognition and understanding of healthcare workers stigmatising attitudes (Moore *et al.*, 2009; Doyle and Cruickshank, 2012).

Despite the contrasting results of these studies, it is clear that education is key to the development of knowledge and it is suggested, that such knowledge may help in the reduction of stigma. However, further research is required to explore this. Evans and Ndirangu (2011) advocated urgency in the development of educational support for healthcare workers in training with clinical mentorship support, education and development. As such, the learning experience is considered to be invaluable in identifying negative attitudes within healthcare workers.

To strengthen the need for this research, at this point in the literature review, there appeared to be a lack of evidence to support the value of focusing on stigma issues in education programmes. Such a focus would prove beneficial as a means of assisting healthcare staff to manage the ways in which they work with conditions that carry a stigma, either in the people that they care for or at times when colleagues may be faced with health problems that carry a 'stigma'.

2.5.3 Healthcare workers stigma when considering disease transference

The infection of healthcare workers has been seen as an issue for decades, although recognition of risk is an ever emerging concept. Transference of disease between a healthcare worker and client is a topic which has had a developing research base over the past two decades. Roe and Uphur (2001) stated that despite the severity of the issue, both ethically and physically, healthcare workers have recognised more accountability when the urgency of screening within an infected healthcare setting is presented. Leung (2001) argued that although the healthcare workers were aware of the need for screening, their rights as individuals should be supported and removal of the tag 'healthcare worker' may prevent further stigmatisation. Consideration should be given to the professional accountability which may be countered by the healthcare workers and the

implications for personal freedom, privacy and dignity (Roe and Upshur, 2001). The healthcare workers duty of care is to ensure that no initial infection occurs, thus, preventing the potential spread of disease. Consideration must be given to the potential a healthcare worker who has a positive diagnosis of PTB, HIV, MRSA and Hepatitis C has of exposing patients and should have restrictions on their ability to work. It may be considered within society that healthcare workers can potentially transmit a disease as well as provide a cure for it.

The transference of disease can lead to increased stress for a healthcare worker. They may believe themselves to be '*blamed*' for such an incident. This will increase the potential stigmatising views held by both the positively diagnosed individual and society. Despite assurance from employers that cross infection risk is minimal, studies reviewing positively infected healthcare worker aftercare, show that there was a reluctance to attend screening and treatment post diagnosis (Hallak *et al.*, 1999 ;Richeldi *et al.*, 2004; Gerhan *et al.*, 2004; Diel *et al.*, 2005; Lee, 2009).

Healthcare workers were aware of the risks involved in communicable disease transfer (Thomas, 1999). Elevation of '*superbugs*' within the society has provided areas of further concern for the healthcare worker. A contagion can be difficult to treat and some healthcare workers feel that immunity was acquired through repetitive exposure and inoculation (Thomas, 1999). Thomas (1999) points out that healthcare workers are not routinely screened throughout employment and this can lead to a workforce reluctant to accept diagnosis, support, treatment and care.

Joseph *et al.*, (2004) reviewed the uptake of PTB testing within employment. They investigated the ideals and values behind non-compliance with testing and treatment by healthcare workers. Mitchel (2009) argued that healthcare workers uptake of testing was due to professional and/or personal attitudes. However, Suchman (2001) and Hannigan and Allen (2011) stated that often policies were required to ensure staff compliance with regard to self-testing, which is perceived to affect the power relationship between healthcare professional and a positively diagnosed individual. Despite the introduction of

clear Centre of Disease Control guidance in 1994, healthcare workers remain poor in the adherence to screening and treatment uptake, ranging between 8-82% (Leung, 2001; Joseph *et al.*, 2004). The variance is large and warrants further investigation to determine the reasons why uptake of screening differs so much.

The healthcare employer has a 'duty of care' towards an infected healthcare worker (Health and Safety at Work Act, 1974; Department of Health, 2013; NHS UK, 2014). Documentation of potential employee infections and risk data is required. Recognition of the demoralising effect of catching an occupationally acquired disease should be a priority (Sepkowitz, 1994). Regular screening programmes, policy implementation, occupational health support and guidance should all be supported by an open and non-stigmatising environment. Further research shows that despite recommendation, screening has been shown to provide little reduction in infection rates (Leung, 2001; UNISON, 2001). By putting these measures in place and increasing support to infected healthcare workers and their families, may increase the uptake of testing and encourage treatment and reduce fear.

Sepkowitz (1996) and Camins *et al.*, (1996) felt that the cornerstone to disease control and prevention was 6-12 monthly testing for all healthcare workers. The feasibility in many countries of such a programme may be limited, as there would be a large financial burden. Staff compliance and relevance of the programme to disease control may not support the implementation of such a rigorous testing system. Additional consideration of the healthcare workers human rights has been questioned by Lowe (2014). The identification of PTB being a primary risk for healthcare workers within the nineteenth and twentieth centuries has been a driving force for the implementation of screening and policy development (Fennelly and Iseman, 1999; Leung, 2001). This has also been seen to a lesser extent for blood borne infections (Palenik, 2003; van Wijk *et al.*, 2008). Healthcare within Asia and Africa presents risk factors which mirror those within the USA. In the first half of the twentieth century full screening of staff was advocated to reduce risk (Fennelly and Iseman, 1999; Leung, 2001).

A declining economic status of a nation has been linked to the declining health status of a population. This may mean a reduction in the screening, education and support of healthcare workers as less money is available to be spent on support services. These actions will eventually impact upon the healthcare system, increasing workloads and consequential economic burdens (Davey *et al.*, 2001; Helman, 2007). De Vires *et al.*, (2006) felt that health seeking behaviour was no different in healthcare workers, than any other group. Cohort studies, quantitative surveys and qualitative research has shown (migrant) healthcare workers as less likely to access further support and even initiate treatment, as they are more concerned that screening and treatment may lead to shame, loss of status and even deportation (Allimuddin, 2001; Thorson and Diwan, 2001; Gerhan *et al.*, 2004; Holland and Hogg, 2010).

Statistical studies taken from retrospective data bases have identified infection rates within healthcare workers. Quantitative methods of research within the migrant workforces give a decisive statistical picture and weaknesses were identified as a lack of knowledge within this area. This may be one of the reasons why screening and support was reluctantly accessed (Leung, 2001). Further qualitative studies are required to add insights into to review fear, blame, coercion, peril and marginalisation of the individual workers by society, family and employers Bos *et al.*, (2013).

The data can be used to indicate the infection risk, but in the healthcare profession Bos *et al.*, (2013) and Corrigan (2014) have identified a reluctance to accept disease transference as a potential risk and accepting this risk may lead to a global reduction in infection. Further qualitative or mixed method research was proposed to investigate this (Bos *et al.*, 2013; Corrigan; 2014).

The reporting of a disease contagion forces an individual (both infected and otherwise), into accelerated self-protection strategies for such risk (Lowe, 2014). Goffman (1963) disagreed this was central to the implementation of stigma. He felt that a negative stigma was generated by society towards an infected

individual. The accelerated self-protection was seen in response to this. Society's actions towards an infected individual were observed and society appeared to consider the individual as inferior and develop feelings of danger. Goffman's work (1959; 1963) may be considered as being focused more on societal research as a whole than individual and as such has been extensively debated (Smith, 2006; Manning, 1992). Within healthcare the implementation of risk management models supports both the individual and the transference of an infection have been adopted. This may assist with the reduction of stigma. Providing, an education and knowledge package for healthcare workers throughout their career may go some way to providing avenues for support and coping with a positive diagnosis (Radovic *et al.*, 2008).

2.5.4 Coping strategies for healthcare workers

The stigmatisation of an individual may stem from fear and a perception of risk which may have been learnt from a previous event or accident. Corrigan *et al.*, (2012) argued that within mental health, education appeared to be equal to personal contact for the reduction of stigma and fear. Sengupta *et al.*, (2011) supported the findings, but found that with infectious diseases such as HIV the contact was not as effective. The individual was required to adopt positive attitudes to face the negative ones encountered from others, to minimise internalisation of stigma (Shih, 2004). Developments of two reactionary positive models were defined by Shih (2004);

- 'Coping' (passive behaviour, avoiding confrontation regarding the disease),
- 'Empowerment' (active behaviour, actively seeking to take control of the situation).

The implementations of coping strategies were seen in many formats. Within the initial phases, retreat and withdrawal can challenge positive liberal tolerances seen in 'normal' individuals (Taylor, 2001). Further support though implementation of open counselling and intervention centres provided the stigmatised individual supportive behavioural change programmes, which promote further positive attitudes towards oneself, the disease and others.

This may afford multi-disciplinary forums for support on diagnosis or symptoms occurrence (Somma and Bond, 2006). Implementation of counselling in training for healthcare workers may reduce the potentially predetermined aspects of stigma towards certain groups. It may also highlight some of the additional stress which is experienced within the family unit.

2.5.5 Social effects on the family

Implications of the disease contraction can be seen to be a secondary stigma, affecting employment, social and psychological development and even existence of the family. The family unit may also become infected with a disease such as PTB or HIV, stigmatising and restricting them economically and socially by losing an income or even a family member. Stigma has a lasting and detrimental effect on the family and colleagues because of their proximity to a disease (Pryor *et al.*, 2012). The fear of such information being discussed within a society (which stigmatises a diagnosis of PTB), can lead to social mistrust, isolation and feelings of individual and familial guilt. Macq *et al.*, (2005), found that positively diagnosed PTB participants felt 'untrustworthy' and 'negative' connotations towards their behaviour before diagnosis. These findings were also seen within studies looking at Diabetes type 2 (Teixeira and Budd, 2010; Browne, 2013) The community presented mostly negative responses to the individuals and their families with regard to blame and stigma (Taylor, 2001; Bos *et al.*, 2013). The family involvement supports the disempowerment of an individual, potentially isolating and alienating the entire family. The physical manifestations may further challenge the social views, restricting the supportive family of an infected healthcare worker. Social exclusion and blame presented a higher risk of stigmatisation (Taylor, 2001).

The reactions of the family may may indeterminably influence the recovery or deterioration of an infected individual. The stigmatising of the family, in addition to the infected individual, means that all of the individual members were at risk of disempowerment. Historically, the diagnosis of PTB meant that the contents and belongings, even houses were burnt to the ground making a family homeless, ostracised from society. The entire family may then be forced into a potential

risk of further infection. This practice is no longer continued within the United Kingdom, yet other forms of enacted stigma are still present. As a result, disease diagnosis may be kept from other healthcare professionals and even family because of fear of further contagion.

Families may become closer, when a contagion is attributed to an individual family member, offering acceptance and support which cannot be seen within society. This provides potential reinstatement within a group, but maybe not full societal reinstatement. A secondary stigma may be extended to family individuals. This may encourage a compliance with the social stigma views, offering support, but potentially underpinning condemnation from healthcare professionals and society. Taylor (2001) stated that the healthcare professionals often, having the power to diagnose, will be responsible for attaching the stigmatising label to an individual and family. This can lead to '*courtesy stigma*' a compounding of fear and revulsion from the family, or even acceptance and support (Goffman, 1963; Taylor, 2001). Fear of '*courtesy stigma*' within the family can be an influential factor for potential responses. A discrediting diagnosis may lead to retreat and withdrawal of family support. Moses (2014) stated that many empirical studies refer to stigma being experienced by family members and clarifies three main areas as;

- The interpersonal domain experienced within the family itself,
- The internalised stigma felt by the family members attributing negative thoughts about themselves and
- The institutional courtesy stigma limiting access to resources by policy.

These findings were supported by Macq *et al.*, (2006) who stated that PTB was viewed by many healthcare professionals, as attributed to factors such poverty and familial co-infections and as such has a detrimental effect upon the family of a positively diagnosed individual.

Stigma of diseases can motivate social rejection of an individual or group (family), thus leading to blame and anger, rather than understanding or even

pity (Dijker and Raeijmaekers 1999). Jones *et al.*, (1984) introduced theoretical concepts that the stigmatised individual, within a familial relationship, will bring stigma upon the family. This may be dependent on their ability to maintain the previous family roles. There may be an acceptance that hardship, both emotional and financial, could be the cohesive aspect that encourages the support of a concerned family. However, the effect upon the family could be negative (Jones *et al.*, 1984). Support for the whole family should be forthcoming from the healthcare providers. Family breakdown and withdrawal of support may be seen. This presents risks of further undiagnosed or untreated contagion. An important role of the healthcare worker is to remove stigma, even when considering the potential personal 'peril' (Jones *et al.*, 1984).

The literature review has highlighted a need for further research to broaden the existing theoretical concepts and embed them in today's society (Bos *et al.*, 2013; Corrigan, 2014). The existence of stigma was experienced by individuals and groups developing societal sub-cultures, in which individuals perceived they experienced less enacted stigma. The evidence indicated that stigmatising attitudes were presented by individuals surrounding disease on a global scale. The subject of stigma remains debatable and multi-faceted yet, the acceptance of the potential effects of stigma for healthcare workers and their families are only at the first point of development. A further review of literature supporting attitudes, values and beliefs was indicated to explore the development of stigma within student nurses and healthcare. Experiences of stereotyping, prejudice, discrimination and labelling are reviewed in the next section.

2.6 Attitudes

An attitude is an individual's evaluative response towards, or opinion of another person (object). An attitude of an individual or society which is 'degrading' towards another individual or group may be considered stigma. This is influenced by cognitive, conative or affective experience (Boogardus, 1931; Allport, 1935; Campbell, 1950; Ajzen and Fishbein, 1980; Ajzen, 1988; Hayes, 1998; Maio and Haddock, 2010; Ajzen, 2011), however, an attitude may be influenced by memories of past encounters or knowledge (Allport, 1935; Asch, 1946; Festinger, 1957; Maio and Haddock, 2010). There remains little

agreement about nature verses cognition of attitudes within stigma (Corrigan, 2014).

Attitudes are considered in relation to their influence within healthcare. Attributes within attitude research, are used to explain what an object means to another Goffman (1959; 1963). When considering societal stigmatising attitudes, behaviour patterns and belief systems should also be considered within that society (Jones and Corrigan, 2014). Therefore, reviewing the literature surrounding these attitudes will underpin further development of the study.

2.6.1 Attitude and attribute development

Conceptual theories of attitude development present no conclusive construct (Mueller, 1986; Jones and Corrigan, 2014). A uniform view identified that an attitude was a hypothetical view of an individual's evaluative response, or opinion to an object, which was influenced by cognitive, conative or affective experience (Boogardus, 1931; Allport, 1935; Campbell, 1950; Ajzen and Fishbein, 1980; Ajzen, 1988; Hayes, 1998; Maio and Haddock, 2010; Ajzen, 2011). Potentially, an attitude can be influenced by what has previously been seen or learnt, affecting situational memory (Allport, 1935; Asch, 1946; Festinger, 1957; Maio and Haddock, 2010). This could influence attitude development, values, beliefs and potentially the assumed personality traits for an object/person. The reverse should also be considered as personality traits can hold influence over attitude development within individuals (Ajzen, 2011). Hayes (1998) argues that there were three states of functions for attitudes:

- **Stage one:** where the object was the thing or event to which an individual develops an attitude, such as: liking a specific painter's work or disliking rainy days. These views were formed by repetitive exposure to an object. A good experience develops a positive attitude and if not a negative attitude may be developed.
- **Stage two:** social adjustment, which allows us to reflect on our attitudes encouraging association with particular societal groups, thus, confirming our place within it.

- **Stage three:** subconscious externalisation of a fear, which was felt toward the object which was reflected upon.

These views may be considered rigid and as such, should be measured carefully against other theories of attitude development.

The influence of exposure and reinforcement may explain why many theorists feel that attitudes were hard to change, possibly even viewed as a resistance to change. The development of tension altering attitudes, according to our personal experiences may be difficult. The measurement of attitudes was seen as a predictor for a type of behaviour. An attitude may be seen to be influenced by a situation and although researchers can observe even measure this, confirmation of attitudes may be difficult (Mueller, 1986; Ajzen, 2011). It can alter in strength, be positive or negative, presenting the individuals feelings of readiness to accept or reject a person (Boogardus, 1931; Allport, 1935; Campbell, 1950; Ajzen and Fishbein, 1980; Ajzen, 1988; Hayes, 1998; Maio and Haddock, 2010; Ajzen, 2011). Yet, attitudes do not exist in isolation, and may only be aroused when a trigger and intense feeling was observed within the individual's response to a person. They were reinforced by a cognitive component called a belief, which was seen to present attributes such as '*intensity*' (Oppenheim, 1992).

Explicit attitudes are presented over decades with underpinning ideals and research (Wittenbrink and Schwarz, 2007). Implicit attitudes are considered as demonstrations of attitudes through non-verbal behaviour, such as avoiding HIV infected individuals (Neumann *et al.*, 2004; Rosenberg *et al.*, 2012). Explicit attitudes towards diseases are seen to be a more reflective response (Maio and Haddock, 2010) therefore; implicit attitudes are observed to be measurable and potentially adaptive (Maio and Haddock, 2010). The cognitive component was demonstrated in speech and verbalisation of personal ideal. This can be influenced by the values and beliefs formed by an individual (Hayes, 1998). An affective attitude was seen through non-verbal signs and physical reactions to an individual, which was thought to portray a non-reflective implicit attitude with little or no cognitive recognition (Hayes, 1998; Ajzen, 2011). Jones

and Corrigan (2014) question the internal and external forces which drive an individual to associate with a particular group. The individual gains what they consider as 'normal' social identity, but this raises the question of why this does not make the individual feel less devalued.

Attribute adjectives (traits) such as dishonest or faithful, may be considered when forming an attitude, displaying their beliefs surrounding the individual. Ajzen (2011, page 2) stated "*personality traits and attitudes are latent, hypothetical characteristics that can only be inferred from external, observable ones*". Similar to attitudes and values, an attribute can evoke both implicit and explicit reactions and may be researchable with a with a visual analogue scale.

Ajzen (2011) argued that personality attributes weren't evaluative depicting attitudes towards a given object, however, it could be considered that this was only relevant at the point of data collection. Burris (2002) stated that within research on values, stigma presents parallel areas for consideration around attribute development. Katz (1960), Oppenheim (1992), Wittenbrink and Schwarz, (2007) and Maio and Haddock (2010), considered that a strong incentive was thought to be required as a motivator to formation and although potentially amenable, the attributional based attitude may be close to our inner self beliefs and more resistant to change. Attributes within healthcare, may be presented uniformly across professions, despite the potentially differing beliefs between them.

2.6.2 Values and beliefs

A value is the regard which an individual considers an object or person to be worth. Values influence the attitudes, goals, standards and behaviors of an individual either directly or indirectly (Rokeach 1968; Mueller, 1986; Hayes, 1998). Alder (1956) debated whether a value was an '*attribute*' of an object being valued, or the person who was valuing. It may be influenced by the individual's thoughts on what they ought or want to do. The evoking of a value enables an individual to justify themselves (Robinson *et al.*, 1991). Values have been seen to be explicit and implicit.

Once the value was measured alongside the individual's attitude, the introduction of a belief system may be considered as an area for further research (Rokeach, 1973). A belief may be portrayed as the knowledge that the believer considers to be true at that point in time. Therefore, stigma evaluation and interpretation of others may be underpinned by beliefs, attitudes and values surrounding the object and the disease which may have been contracted (Burris, 2002). Healthcare workers could be seen as having a bias when considering their employment. It may affect their responses to research undertaken surrounding values and beliefs within disease processes. This could present false beliefs in the healthcare workers infection control methods (Paulhus, 1991; Wittenbrink and Schwarz, 2007). The response, however, could be temporary within that period of time and therefore, of questionable validity when defining the beliefs and attitudinal responses to stigma (Paulhus, 1991; Bradburn *et al.*, 2004; Ajzen, 2011). Moyle *et al.*, (2010) argued that student nurses presented positive feelings towards health beliefs. It should be considered that nurses already work within the profession and therefore were more likely to be advocates of health, displaying more positive attitudes (Ajzen, 2011). Moyle *et al.*, (2010) found that personal characteristics and age may be seen to influence health values and beliefs.

Attitudes may be seen to be acquiescent, but extremely personal. A review of attitudes and their relevance to healthcare professionals indicated that the importance of attributes, values and beliefs were interlinking, supporting the potential development of stigma towards positively diagnosed individuals (Burris, 2002). The next section of the literature review, links the domains of stereotyping, prejudice, labelling and discrimination. These domains were in part, shaped by the values and beliefs of society, in conjunction with the formation of attitudes. Phelan *et al.*, (2008) recognised an overlap between these areas.

2.6.3 Stereotyping

A stereotypical attitude may be seen to characterise another individual or group and present the way others consider that person or group should, look, behave or react like. The Oxford Dictionary (2014) defines a stereotype as an

image, which is widely considered, but is an oversimplified, fixed ideal of a person or group. This allows the reflection that societal 'norms' may lead to the 'stereotypical' view of others. The embedding of stereotypical attitudes into one person's reaction to another individual underpins the emergence of stigmatising behaviours. This has been discussed within many studies, identifying links between labelling, stigma, prejudice and discrimination (Asch, 1946; Goffman, 1959; Goffman, 1963; Crocker and Major, 1989; Pinel, 1999; Link and Phelan, 2001; Albon, 2002; Corrigan and Wassel, 2008; Pryor and Reeder, 2011; Jones and Corrigan, 2014). Link and Phelan (2001) criticised these links, considering that stereotyping was a vaguely defined and individually focused concept in itself and may not be seen as an underpinning element of stigma. This aids the understanding of its close co-occurrence, with the certain components of labelling, stigma, separation, status loss and discrimination. Additionally, the stereotyped individual experiences an element of power loss, compounding the effects of the external stigmatisation and further supporting the internalised perception of being stigmatised. Considering the individual as powerless may imply that they were in fact unable to change their situation (Roe *et al.*, 2014).

The stigmatising of an individual may be considered a formation of a relationship between the attribute and stereotyping (Goffman, 1963). The pivotal concept of the individuals perception of stereotyping was the effect of this power upon their personal and social perceptions (Link and Phelan, 2001; Jones and Corrigan, 2014). Assumptions about an individuals characteristics and their ability to function within society can be both internalised and externalised by the affected individual. This will compound pre-conceived stereotypical ideas. Yet, internalised stigma has not been as well researched as public stigma (Jones and Corrigan, 2014). Therefore, an individual, or group, may form impressions of another individual based upon a series of attributes, singular or joint, which may be internalised and often relied upon when forming stereotyping behaviour pattern towards others (Jones and Corrigan, 2014). Goffman (1959) and Goffman (1963) considered this a '*dramaturgical principle*'. The construction of this principle utilised three methods;

- Extended metaphorical description,
- Unsystematic naturalistic observation and
- Systematic naturalistic observation.

Goffman combined these methods and as such, was considered by others as failing in his work as it was thought that the results were more meaningful if they were kept separate (Giddens, 1984; Manning, 1992).

Attributes will depict the reception and actions of society towards individuals depending upon their learnt and inherent 'perceived' ideals (Asch, 1946). Pinel (1999) argued that experiencing 'discrimination' was often perceived by the stereotyped individual as a forerunner for the encouragement of stereotypical beliefs regarding an individual. Link and Phelan (2001) and Pinel (1999) argued participants may pre-empt stereotypical situations to reduce externalised stigma and yet internalise the belief that this will occur irrespective of one's individual behaviour. This was supported by Goffman (1959; 1963). Link *et al.*, (2001) and Corrigan and Fong (2014) described an opposing view that the individual's actions will present a loss of power rather than a heightened positive group consciousness, which will fight stereotypical discrimination. However, Crocker and Major (1989) discussed the stereotyped individual developing the process of looking within a group for negative comparisons to support the externalised stigma. The use of negative feedback ensures the maintenance of personal self-esteem. An individual who rejects the stereotyped group may have already internalised their beliefs and presented themselves as blameless, developing a good self-esteem. This has been identified as a coping mechanism that can leave the individual ostracised from both groups. Although treatment of the disease may reduce the stigma and stereotyping, allowing the individual to alter their status within a group. The concept of stereotyping can therefore be considered as a person remaining fixed on a particular ideal surrounding another individual. When this occurs we display prejudice. This can lead to a particular form of negative behaviour towards an individual.

2.6.4 Prejudice

Carlson *et al.*, (2004, pg 672) defined prejudice as “a shared attitude, generally negative, towards a social out-group and thus towards members of that group purely on the basis of their membership in that group”. Prejudice has pervasive cultural ideologies and because seen as a negative attitude, links to stigma. Asch (1946), Crocker and Major (1989); Pinel (1999); Link *et al.*, (2001); Albon (2002) and Corrigan *et al.*, (2008) and identified links between labelling, stigma, prejudice and discrimination. Stigma is the addition of prejudicial attitudes to those of deviance (Dovidio *et al.*, 2000). Allport (1935); Goffman (1963) and Phelan, *et al.*, (2008) argue the two areas of stigma and prejudice were separated within their field of exploration, with no determinate conclusion as to their relationship can be drawn. Jaramillo (1999) stated that the disease process for PTB had unfounded beliefs surrounding it and showed that fear significantly correlated to stigma and prejudice which surrounded the disease. This supports the potential social, economic, psychological and even political consequences for the group (Crocker and Major, 1989). Consideration of this should be noted not seen when reviewing potential conduits for prejudicial and stigma reduction.

Phelan *et al.*, (2008) reviewed 18 models of prejudice and stigma to determine whether this was one concept or two. They determined that the prejudicial behaviour focused on beliefs, identifying visible areas such as an individual's race. The stigma took into account deviant's behaviour linking it to an individual's positive disease diagnosis or disability. Therefore, the concept of prejudice can be seen to influence the internalisation or externalisation of a perceived stigma. It underpins discrimination of an individual who has experienced labelling through attribute attachment.

2.6.5 Labelling and discrimination

Labelling has been identified as an insidious form of discrimination and for the individual involved can support internalisation of self-worthlessness that may have been projected upon them by society (Allport, 1935; Link and Phelan,

2006). Smith (2006) argued that Goffman (1959; 1963) stated individuals present an impression, which may be returned from another another individual. However, Manning (1992) stated that small sections of Goffman's work were taken to support some views and this discredits the work undertaken. The label and discrimination can leave the individual with residual and lasting effects, greater than the disease itself (Thorncroft *et al.*, 2007; Corrigan, 2014). To attach a label to a stigmatised individual provides a way of distinguishing their differences from a societal group, introducing feelings of isolation and difference and inadequacy, compounding the feeling of loss and discrimination. To reinforce stigma, prejudice or stereotypical behaviour patterns, the infected individual may be provided a '*label*' which justifies the exclusion process, altering the power within the relationships built with others.

Weiner *et al.*, (1988) argued that stigma labelling may be cross cultural and particularly prevalent when the disease was perceived as not controllable. Corrigan (2014) considered the effects of a change of disease name to be a reduction in the use of stigmatising labels, but debated that this would not make any measurable difference to stigma experiences. It is questionable whether research to date has explored this fully and further studies should be recommended. Scheff (1966) argued that the social construction of labelling could cause an individual to appear deviant, thus stigmatising them. Grove (1980) and Weinstein (1983) critically appraised this and showed that internalised stigma was present before the attachment of a label. Therefore, a change of disease name may not be relevant to the disease stigma.

The Individual's label within stigma, considers the marks or attributes attached to a certain disease as non-malleable to the labeller (Link and Phelan, 2001). Within healthcare the labelling of an individual (as a disease rather than an individual suffering from a disease) separates '*them from us*' perpetuating the concept of the disease being a danger to society. Discrimination ensures the loss of social status, devaluing an individual. The individual or group may feel that the applied label prevents them from fully integrating back into society.

Individual's negative internalised views may be formed from the attached label allowing society to reject the individual with the disease. This can be seen historically within disease management. The experience of isolation and continuing prejudice after the initial symptoms begin to improve has also been reported (Link *et al.*, 1997). This may link to a disease process and visibility offering various levels of conscious isolation. Labelling a disease or individual will enforce disempowerment and acceptance that the process/treatment may not lead to the removal of an attributed label. Potentially, the discrimination and labelling of a person can provide a forum for stigma. It increases feelings of isolation, which may encourage the individual to enter into the new societal fraction and then recovering from this new empowerment may not seem so difficult.

In the last two decades there have been few developments in psychology on the measurement of attitudes (Wittenbrink and Schwartz, 2007). The few studies that have been undertaken investigate the construct of implicit and explicit attitudes that are not openly discussed, or may leave individuals unaware of them themselves. This may be considered to underline the development of society's values and beliefs which were often considered as stigma.

Stigma was identified to be intertwined with stereotyping, prejudice, labelling and discrimination. The literature review has shown how they were present in both the internalisation and externalisation of stigma.

2.7 Disease

The Oxford dictionary (2014) defines disease as "*A disorder of structure or function in a human, animal, or plant, especially one that produces specific symptoms or that affects a specific location and is not simply a direct result of physical injury*". The word disease has been derived from the old English word meaning '*lack of ease*' or '*inconvenience*'. These can also be seen within the French language, taken from '*des*' and '*ease*' meaning the '*lack of ease*'. These definitions in themselves depict the views of society towards infectious diseases. The recognition that disease contraction could be related to life style choices, poverty, overcrowding and poor sanitation, supported research into preventative and ethical healthcare.

The ethical side developed into a 'duty to care' despite personal jeopardy, a service which has been provided within healthcare since 1847 (American Medical Association). This ensured healthcare workers considered the needs of their patients as paramount, despite the possibility of personal infection from disease. In 1957 the medical profession revised this, being able to choose who to treat, making this more ethically acceptable. These developments within the ethics of healthcare provision were implemented in parallel to the emergence of the knowledge of infection routes and preventative policies (Sepkowitz, 1996).

Professional attitudes towards disease related stigma may be thought to be formed or even reinforced by the presentation of personal or professional stigmatising values and beliefs. The return of an infected healthcare worker to a status of functional fitness may be physically prevented by either the contraction or disease processes after contraction. This coupled with the effects of stigma on the individual may prevent the return to employment of a healthcare worker (Simmons, 1989). The ability to be healthy and perform tasks, even within society may have been removed, excluding the individual from the society. However, an alternative perspective was that once stigma has been accepted by both society and the individual, the potential of improving health will be beneficial to both parties (Stuber *et al.*, 2008). Consideration of this leads to advocating the internalisation and externalisation of stigma early in a disease process.

The preliminary literature review indicated a number of diseases that may be seen as leading to or resulting in stigmatising behaviour. Five of these diseases were considered as part of this study, four of which are infectious diseases PTB, HIV and Hepatitis C, MRSA. A fifth, Diabetes type 2, is a non-infectious disease which has been seen to hold life choice connotations relating to stigma (Schabert *et al.*, 2013; Browne *et al.*, 2013). Statistical evidence shows that these infectious diseases remain prevalent within healthcare professionals (Meredith *et al.*, 1996; Joshi *et al.*, 2006).

Levels of infection rates of these diseases within healthcare may be linked to an improved behaviour, seeking help, a young migrant health workforce, higher exposure to risk or recognised changing global patterns of the diseases (Meredith *et al.*, 1996; Joshi *et al.*, 2006; Graham *et al.*, 2006; Coker *et al.*, 2008). It was considered appropriate to consider the disease implications globally as stigma relating to these disease groups was identified as a global issue and attitudes to stigma were seen to cross physical and cultural boundaries.

2.7.1 The global implications

Globally, management and acceptance of disease differs, being dependent upon many factors. Diseases which were seen as global killers such as HIV and PTB emerge as forerunners for funding and research. Sub Saharan Africa, Brazil, India and Asia continue to be forums for further research in HIV and PTB studies as the population incidence of the disease was identified within the young and old. A reduction in life expectancy, demographic and economic factors was identified as areas of research. The growth of more developed countries policies and guidelines are reliant on differing research in such areas (Humphreys, 2007). Although, a true global picture of a disease threat and progression cannot be quantified, horizontal infection crosses societal sections and vertical transference can be identified within families (Davey *et al.*, 2001). Topical research has been seen over time, fluctuating with the emergence of differing diseases. Hospital/community acquired diseases such as MRSA and Hepatitis C, have less visible symptoms and a lower mortality impact than HIV or PTB, therefore, exerting less global expenditure pressure (Noah, 2006; Coker *et al.*, 2008).

Dormandy (pg. 1, 1999) stated "*Only births and deaths have shaped human history more decisively than illnesses.*" Poverty, overcrowding, war, poor nutrition, drug abuse, sexual exploitation, unprotected sexual intercourse, migratory workforces, ignorance and poor education, underfunded research, poor access to healthcare systems, stigma, prejudice and marginalisation of populations are all recognised threats to global disease control. They may undermine the acceptance and management of the diseases, providing platforms for escalating

infection rates and symbiotically escalating rates of stigma (Noah, 2006). These areas are all accessed by healthcare professionals and therefore, expose healthcare workers globally to not only contagion and disease development but also to the risk of becoming stigmatised within society.

Within the context of PTB, there were more recognised cases now than at any other time in history (Allimuddin, 2001; Thorson and Diwan, 2001; World Health Organisation, 2014). Although, it is justifiable to state that clearer records and healthcare regimes hold a great influence over the disease transmission and recognition. The demographics, growth and migration of a population hosting the disease impacts upon how virulent a disease may be. Additionally, resources such as healthcare provisions, education, housing and food requirements within potentially struggling countries, can be seen to be influential (World Health Organisation, 2014).

The economic cost of today's global disease pattern can be seen in all countries. The economic challenge of MRSA for example, was identified as the delivery of health systems which were already struggling (Coker *et al.*, 2008). Hepatitis C, HIV and PTB were seen to be increasing globally in both low and middle income countries (Coker *et al.*, 2008). Diabetes type 2 was observed as the most up and coming disease in middle and lower income societies and holds a great economic and health burden to these areas (Roglic *et al.*, 2005; WHO, 2009; WHO, 2013).

The global pressure to respond to HIV and PTB infections may provide more uniformity in treatments increasing improved health seeking behaviour through a reduction of stigma (Coker *et al.*, 2008). Demographically the diseases may provide a potential for growth of political power, increasing stigma and fear within the populations, particularly within susceptible populations, such as the elderly and the young, demonstrating no gender and class boundaries.

2.7.2 Airborne disease pathways: Pulmonary Tuberculosis (PTB)

Pulmonary Tuberculosis has been identified in humans since 3,700 BC and cattle 8,000-10,000 BC up to the present day (Ryan 1993, Renè and Dubos, 1996;

Thomas, 1999; Lee *et al.*, 2002; Sherman, 2007). It has been found within Egyptian mummies, Greek remains, textual recollections by Socrates, cave and tomb drawings across cultures and continents, Neolithic man in Europe from 5,000 BC, Stone age man in Italy, Prehistoric elephants and humans in Asia, Japan and Denmark, Bronze age remains in Jordan and further beliefs that Columbus took PTB to America were disproved with the discovery of Inca, Mayan and Indian remains (Ryan, 1993; Renè and Dubos, 1996; Thomas, 1999; Sherman, 2007). PTB was discovered in remains from 1,000 years later within the United Kingdom. Development of the disease in cattle was discovered during the first half of the twentieth century and concerns over transference through the route of human to human contact and animal to human contact was possibly a consideration.

Emergence of this global killer gathered force within the middle ages and further reports of PTB can be found as it thrived within poor conditions through lack of adequate nutrition, poor hygiene practices and where animals dwelled within housing and overcrowded city areas, which increased the potential transference (Ryan, 1993; Renè and Dubos, 1996; Thomas, 1999; Sherman, 2007). By the eighteenth century, this was compounded by a shifting of the population into (taxed) windowless dwellings within urban industrial settings, reducing the natural light and flow of fresh uncontaminated air. The gathering momentum was fueled by the poor living conditions and lack of knowledge about disease processes, it became a major global killer leaving no class or culture untouched (Ryan,1993; Renè and Dubos,1996; Thomas,1999; Sherman, 2007). Considerations of infected individuals as having attributes affiliated to being '*artistic*', '*bright eyed*', '*pale and rosy cheeked*', '*sexually hyperactive*', '*interesting*' and '*bohemian*' began to present a romanticised view of the disease. These were countered by rising beliefs that poor, dirty living conditions, sexual deviance or familial traits were responsible for infection of the lower classes, leading to the emergence of a fresh wave of stigma (Ryan, 1993; Renè and Dubos, 1996 ; Lee *et al.*, 2002; Gandy and Zumla, 2003; Sherman 2007). The infected poor were ostracised, unemployable, evicted with a burning of their possessions, stigmatised both individually and by association and unable to access healthcare facilities (Dormandy, 1999).

As recently as 1930, an infected man would be unemployed and his children removed from school indefinitely (Renè and Dubos, 1996).

Wealthy society on the other hand was admired, revered; travelling to Mediterranean and sanatorium centres for cures, undertaking treatments through fresh air, rest and increased ultraviolet. Gandy and Zumla (2003 pg 19) stated “Hereditary and constitutional” conceptions of PTB had allowed dual cultures of disease to emerge: for the poor PTB was a disaster, yet for the rich the illness was transformed into an intense personal experience. The negative depiction of the disease gained momentum in 1880-1905 and final discovery of the bacilli by Knock in 1905 lead to recognition of causative factors and the disease became notifiable in the UK in 1908 (Ryan, 1993). Presently, infection rates are obscured by population’s migrant workforces and an inability, or possible reluctance, to access healthcare. Inoculation and treatment globally is sporadic and resurgence is now seen within the context of HIV/AIDS (Ryan, 1993). Statistics indicate an aggregate of Tuberculosis cases, rather than specifically PTB, presented in Table 2.3.

Table 2.3 - Estimated WHO Regional PTB statistics for 2011

Region	Incidence	Prevalence	Deaths	Populations
Africa	2,300,000	2,500,000	220,000	857,382,000
Americas	260,000	330,000	21,000	943,019,000
Eastern Mediterranean	660,000	1,000,000	99,000	608,628,000
Europe	380,000	500,000	45,000	899,500,000
South East Asia	3,500,000	5,000,000	480,000	1,830,361,000
Western Pacific	1,700,000	2,500,000	130,000	1,808,797,000
Global Total	8,800,000	11,830,000	995,000	6,947,687,000

Taken from: <http://www.PTBfacts.org/PTB-statistics.html> [accessed 2.7.2013]

2.7.3 Airborne infection development within health care workers

Throughout history, diagnosis of PTB testing and treatment placed healthcare workers at greater risk of contagion. Doctors testing the sputum of infected patients in the 1600's and obligatory autopsy attendance increased medical risk (Renè and Dubos, 1996). The treatment of human milk in the nineteenth century exposed nurses to PTB bacilli (Renè and Dubos, 1996). Specialised care required for PTB within the twentieth century began to gain momentum. The rising numbers within sanatorium care required specialised medical and nursing staff, who often presented with PTB symptoms, both during their time working there and before they undertook employment within the speciality. The growing numbers of staff required during this time encouraged the development of Schools of Nursing to be set up within the grounds of sanatoriums. Infected healthcare professionals historically remained within the field throughout their employment. This fact in itself promotes a reduction in stigma at this time as the education of healthcare workers was within the grounds of the sanatorium and the staff lived and worked within such communities. However, from outside such communities the healthcare workers experienced disease related stigma. Present day infection of healthcare workers with PTB is considered an equitable risk to that of other infectious diseases such as HIV. Kehinde *et al.*, (2011) presented a cross sectional study within two healthcare facilities in Nigeria. They discovered an estimated 3.3% of healthcare workers surveyed (271) had a positive sputum test. Of these staff members 2.2% had positive cultures. The inoculation of staff appeared to reduce the risk. Working within an area with exposure to PTB for two years increased it. In conclusion infection control guidelines were not amended as they felt this risk was minimal and seen in other disease statistics. Within the United Kingdom, PTB screening is undertaken as obligatory prior to employment and therefore is seen to mirror the results of this international study (Leung, 2001).

2.7.4 Bloodborne disease pathways: Human Immunodeficiency Virus (HIV) and Hepatitis C

HIV and Hepatitis C presents asymptotically, allowing the potential of a transfer window and prophylactic treatment prior to diagnosis (Noah, 2006; Coker *et al.*, 2008; Helman, 2007). This increases the risk to healthcare workers. Global HIV

recognition has been recorded separately within Europe and the USA since the late 1960's (Sherman, 2007; Steward *et al.*, 2008). It is thought to have possibly returned to Germany with soldiers from Cameroon (from where it has been considered as active for 300–400 years), in the 1930's (Sherman, 2007). Within the 1980's identification of HIV and Hepatitis C, began to be seen as a more dominant feature within society (Herek, 1990; Davey *et al.*, 2001).

The stigmatising and segregation of this subdivision of the population was supported by 12 recognised cases of HIV within the gay community. There was a political reluctance to support health promotion campaigns globally, as at this time it was considered a homosexual disease and infected individuals were viewed as offensive to heterosexuals (Baggott, 2000). Metaphors for these diseases mirrored that of PTB with beliefs that the '*new plague*' cleansed society of deviant behaviour. The occurrence of public stigma increases in HIV with the association of the disease with negative metaphors. Media fuels the depicting of negative stigmas affiliated with disease, so for 30 years, the opinion was that HIV was due to deviance and disorder from immigrants and '*invaders*' (Davey *et al.*, 2001; Helman, 2007; Sherman, 2007).

Sherman (2007) states in 2005 there were a minimum of 400,000 heterosexual cases of HIV a year and 200,000 deaths. Hepatitis C is equally difficult to confirm, with predicted infections prevalent in an estimated 170 million carriers, 1% in Europe, 2% in Asia and 5% in Egypt (Noah, 2006). The burden of both diseases were considered to have not yet peaked.

HIV/AIDS have been linked to the resurgence of PTB and assumptions of increasing numbers of diagnosis in Africa appear to support this (Ryan, 1993). The individual who is HIV positive is 800 times more likely to develop PTB and as such may feel that PTB treatment access is irrelevant due to the overall prognosis. Access to HIV treatment is inconsistent (Reichmann, 2002). In undeveloped countries, even if offered a treatment regime, individuals were less likely to comply due to resignation of a poor prognosis and a fear of a dual headed stigmatising label (Pratt *et al.*, 2005; Farmer and Lawreson, 2004; Noah, 2006; Helman, 2007). Within some countries e.g. Brazil,

the emergence of HIV has reduced stigma attached to PTB. However, the emergence of a particular health burden leads to a reduction in financial input and education for another, thus supporting a resurgence of an age old killer such as PTB (Coker *et al.*, 2008).

Hepatitis C, was not considered alongside PTB. It was recognised as 90% infectious throughout its duration and compromises the individual physically, mentally and economically status (Noah, 2006; Lee, 2009). In the 1980's its transmission was seen in gay men pre-empting the HIV stigma seen today. In the 1990's changes to a behavioural reactions produced enacted stigma reactions to all individuals rather than affiliation to one group, supporting the start of stigma within heterosexual groups with a positive diagnosis of HIV (Davey *et al.*, 2001; Herek. 2014). The management globally of bloodborne diseases such as HIV and Hepatitis C presented similar challenges and economical burdens within countries as PTB has done in previous times and were recognised by the World Health Organisation as a major concern. In the United Kingdom registered cases of healthcare professionals with suspected occupational HIV transmission in 2005 were recorded as seen in Table 2.4.

Table 2.4 – Estimated global healthcare infections of HIV in healthcare workers

USA	Europe	UK	Rest of The World	Total
139	85	14	14	238

Accessed online on 1.2.14 :

<http://www.hpa.org.uk/webc/HPAwebFileHPAwebC/1194947320156>

The Department of Health disputes the figures in Table 2.4, and state that HIV/AIDS occupational cases were probably as low as 10 globally (Department of Health, 2013).

2.7.5 Bloodborne infections development within healthcare workers

Healthcare workers were recognised to have a higher risk of HIV and Hepatitis C infection throughout the low and middle income countries (Palenik, 2003; Rapparini *et al.*, 2007; van Wuijk *et al.*, 2008; Alamagir *et al.*, 2008; FitzSimons *et al.*, 2008; Lee, 2009). Infection of healthcare workers remains grossly under reported and this was attributed to an increasing risk of infection through poor equipment, a reducing work force, poor prophylaxis and reductions in education (Davey *et al.*, 2001; Lee, 2009). The studies were primarily undertaken in low and middle income countries and the results were not indicative of high income countries (Lee, 2009). The first healthcare worker reported with HIV was in 1984 (Lee, 2009). Palenik (2003) disputes the date, referring to cases post 1985. Since this date, HIV incidence in healthcare workers was thought to be 0.3% caught from blood and 0.09% from mucous transfer (Lee, 2009). Palenik (2003) undertook a retrospective quantitative study, which demonstrated 5.1% of 23,951 healthcare workers in the US having reported a needle stick injury were serum positive on testing. Within the healthcare groups it was found that 42% of these were nurses, 6% medics and 16% lab workers and 84% of these were preventable needle stick injuries. It should be noted that 73% of the AIDS positive healthcare workers died. This may then be transferred to an additional 3% risk within healthcare workers of future generations.

Hepatitis C was considered a high risk to healthcare workers with between 0.19% and 0.28% seen in general healthcare (Noah, 2006; Lee, 2009). This increases to an estimated 2% within renal units, mostly attributed to poor needle care, increased screening and recognition through education (Leung, 2001; Noah, 2006). Rapparini *et al.*, (2007) attributed increased risk to healthcare workers from poor handling of needles (14%) poor surgical procedure management (14%), needles within trash (13%), sharps bin disposal accidents (13%) venopuncture accidents (10%) and blood taking from patients (5%). This large study was transferable across healthcare providers, but may have differing results within low and middle income countries due to, as previously highlighted, poor equipment and training.

Alamagir *et al.*, (2008) described a greater risk of 51.3% for bedside sharps injuries, 26.9% within theatres and 46.1% splash injuries at the bedside. It should be noted that these risks are considered preventable.

The potential cost of testing healthcare workers can be seen as one stumbling block to the full exposure of the problem. This was mirrored across the five diseases considered. The positively diagnosed healthcare worker 'may' require to be removed from employment. This coupled with inertia within healthcare workers and a reluctance to adhere to guidelines and policies through reasons unexpanded fully within research leads to an escalating preventable risk (van Wuijk *et al.*, 2008). Helman (2007) described statistics within HIV infections as being 13 women to 10 men, with the acceptance that disclosure of such positive infections may lead to social stigma and shame, the gap appears to be widening (Holland and Hogg, 2010). Potentially an increased attributional stigma attached to such diseases will compound reluctance to access appropriate education and support within healthcare workers, leading to an ever increasing risk of a positive workforce.

2.7.6 Person to person transference of infections: Methicillin-Resistant *Staphylococcus Aureus* (MRSA)

Staphylococcus Aureus, a person to person transfer risk, has been considered present within healthcare settings for many years (Noah, 2006). The recognition of a bacterial infection which was resistant to a wide number of antibiotics became more publically known as MRSA. This has been branded as one of the most commonly known 'superbugs', a phrase attributed by the media to such infections due to their high mortality and prevalence. The development of antibiotic resistant infections, which were indicated to be predominantly hospital acquired, lead to an upsurge of panic fuelled by the press. The initial consideration of a 'superbug' was not affiliated to a specific type of person and could be seen in any gender or culture. According to the Office of National Statistics in 2011, deaths over the previous two years had fallen by 38%. However, MRSA remains visible within the media and a potential risk within the ward areas. This infectious bacterium was considered as one of the diseases threatening healthcare workers for this study as it was indicative of an infectious disease which is prevalent both in hospital and the community.

The development of MRSA in healthcare workers was controversial when considering their potential role in transmission (Lessing *et al.*, 1996). Noah (2006) acknowledged that there was an increase in recorded incidences, which were not specific to hospitals, being seen elsewhere within the community in the UK, Europe and the USA. A quantitative study by Kampf *et al.*, (2003) demonstrated that screening of staff presented only a 0.7% of nurse carriers. Advocates for continuous staff screening programmes have to acknowledge that although staff may become infected with MRSA, a screening should only be undertaken if no source was identified within the patients, as staff to patient infection is rare (Lessing *et al.*, 1996; Leung, 2001; Kampf *et al.*, 2003).

2.7.7 Non Infectious Disease Routes: Diabetes Type 2

Diabetes was identified as early as the 6th century BC. It is a non-infectious chronic disease which prevents the pancreas from making insulin adequate enough to control the changes in glucose within the blood. The World Health Organization (2014) defined Diabetes type 2 as being caused by the body's ineffective way of using insulin, which can occur as a result of physical inactivity and excess body weight.

In today's society sufferers complain of stigma experiences which apportion attributes of blame, leading to a negative stereotyping and restrictions for life opportunities and discrimination (Browne *et al.*, 2013; diabetes.org, 2014; Winkley *et al.*, 2015). Education regarding disease contraction and to support patient acceptance was thought to increase access to healthcare programmes and disease management, vital to reduce stigma (Deakin, 2011; Browne *et al.*, 2014; diabetes.org, 2014; Winkley *et al.*, 2015). Winkley *et al.*, (2015) undertook a qualitative study into newly diagnosed individuals and found stigma fear to be a primary reason for non-attendance at educational sessions. This view was supported by Cameron and O'Reilly (2015) who argued that the recognised rise in obesity stigma has now given rise to a 'shadow epidemic' identified as Diabetes type 2 and, as such, prevents treatment access. It mirrors the societal issues found within infectious diseases, such as employment reduction, poverty, poor nutrition and disease risk (Browne *et al.*, 2014; Cameron and O'Reilly, 2015; Winkley *et al.*, 2015). It was initially considered a disease in humans,

which can be identifiable by sweet smelling urine, linked to a sedentary life style and being overweight (Browne *et al.*, 2014; Cameron and O'Reilly, 2015; Winkley *et al.*, 2015). Historically, similar disease symptoms were reported until the 1890's identification to pancreas removal and the disease was made by von Mering and Minkowsk. By 1921, treatment was discovered and the disease became more socially accepted due to an increase in knowledge regarding its non-infectious route.

To date, Diabetes has no cure and has a large impact upon healthcare through a significant morbidity and mortality. The estimated cost to the NHS budget is 10% and it has been recorded that 80% of this is due to complications (diabetes.org, 2014). The population affected by Diabetes type 2 has been estimated to be 3.8 million and of these 3.2 million have either type 1 or 2 Diabetes, with the remaining 0.6 million being undiagnosed type 2 (diabetes.org, 2014). The disease has been considered to be a new epidemic and as such, with these statistics, becomes a target for stigma, labelling and prejudice.

Diabetes type 2 remains a target for stigmatising views and attitudes, with negative attachments of secondary stigmas of the sufferer being obese, alcoholic or a non-exerciser, views seen to be held by society, family and friends equally (Browne *et al.*, 2013). Such factors of the disease acceptance within society may alter according to the media depiction of sufferers. Statistical data shows that Diabetes is a greater killer of the population than HIV/AIDS or PTB within the last ten years (Office of National Statistics, 2011). The psychological effects of the disease, treatment and access to the healthcare environment have been considered to be influenced by negative and stigmatising attitudes from healthcare workers (Peyrot *et al.*, 2006; Valentine and Azuka, 2015; Winkley *et al.*, 2015). Therefore, stigmatisation of individuals with this disease was considered relevant to include it as the fifth disease. Studies have shown stigmatising attributes mirroring infectious diseases such as PTB, HIV, MRSA and Hepatitis C.

The non-infectious Diabetes type 2 is not found specifically in patient or staff groups. There is no obligation to report this as an infectious disease. Attitudinal

research into the staff perceptions of patients with Diabetes has used the Diabetic Attitude Scale (Anderson *et al.*, 1991; Anderson *et al.*, 1993; Shute *et al.*, 1997; Sharp and Lipsky, 2002; Valentine and Azuka, 2015). Peyrot *et al.*, (2005) undertook a large qualitative study, DAWN, which studied staff from 13 countries in Europe, Asia and North America. The findings supported the implementation of team training and education as a continuum for all staff to reduce stigmatising attitudes. Winkley *et al.*, (2015) stated that this was vital to increase access to knowledge and education and this may go some way to stigma reduction. Peyrot *et al.*, (2005) stated that health professionals attitudes towards individuals with Diabetes type 2 are negative. This was, potentially due to a lack of education.

2.8 Synopsis of the findings

The risk of disease to healthcare workers remains a contentious area. Policies and procedures have been implemented to reduce the global spread of the disease groups, yet global patterns of disease in society were seen to be mirrored within healthcare workers. The emergence of stigma will follow suit with healthcare workers experiencing the same stigmatising attitudes as the global population. Corrigan *et al.*, (2012) and Corrigan (2014) provide reviews of evidence indicating that stigma can be reduced by not only education, but contact with the positively diagnosed individual. The four infectious diseases were chosen for this study, because, the review of literature has identified the existence of stigma within disease management processes. The non-infectious disease, Diabetes type 2, has been identified as emergent within the literature and although non-transferable, also has been seen to have a developing stigma surrounding it. All diseases studied were experienced by healthcare workers.

The prejudicial beliefs and attitudes towards an individual with a positive disease diagnosis may lead to labels, stereotypical reactions, discrimination and stigma. Society or individuals may associate a label to a negative social attribute and the formation of stigma begins to develop (Goffman, 1959; Goffman, 1963; Jones *et al.*, 1984; Crocker and Major, 1989; Link *et al.*, 1997; Link *et al.*, 2001). An individual's reaction to such stigmas may influence their perceptions

of themselves. Attributes considered at birth may be internalised differently, at this point identification of these produces stigma. A potentially stigmatising positive disease diagnosis may require support over time for the individual to regain their self-esteem until they accept the reactions of society (Jones *et al.*, 1984; Crocker and Major, 1989) however, some individuals may not adapt at all.

Stigma recognition has built upon the existing theoretical constructs and the seminal work by Goffman (1959; 1963) and Jones *et al.*, (1984). These theorists have offered a base for the further work discussed, however this requires a new approach to review the emergence of concepts such as stereotyping, prejudice, discrimination and labelling in relation to stigma and attitudes (Bos *et al.*, 2013; Corrigan, 2014). These concepts have been found to underpin each other and interlock, providing areas for further consideration within research. Manning (1992) argued that Goffman was reluctant to support one theoretical concept for fear of reducing the ability of his work to evolve. Classification of such concepts aims to clarify the difference between attitudes, values and beliefs and the way these areas intertwine and support each other theoretically.

The review of the literature within this chapter linked it to the overall objectives of the study;

- The literature indicated that globally stigmatising attitudes, values and beliefs may be seen to exist towards positively diagnosed individuals with HIV, PTB, Hepatitis C, MRSA and Diabetes type 2. The experience of such individuals of stereotyping, prejudice, discrimination and labelling supports the acceptance of attributes. Further longitudinal exploration is required to ascertain potential stigmatising values within student nurses towards healthcare workers positively diagnosed with the five recognised diseases addressed by the study (*Objective 1*).

-
- Education within stigma and disease pathways supported the reduction of stigma and fear through recognition of its presence. Limited evidence was found to support the implementation of education for healthcare workers, theoretical course work or practical clinical experiences influenced their stigmatising attitudes or the values. The literature review indicated only a small number and these were limited in methodological scope mixed methods studies had been undertaken to explore specific disease groups and the stigma potentially seen towards positively diagnosed healthcare workers. Therefore, an exploratory mixed methods research study was advocated (Corrigan, 2014) (*Objective 1*).
 - Five diseases have been identified that link to the experience of stigmatising attitudes from non-infected individuals. Enacted stigma supported the internalisation, responsiveness and expectant reaction experienced by others. No evidence was found to support that stigmatising attitudes and values experienced within healthcare altered from that within general society (*Objective 1*).
 - It has become apparent throughout the literature review, that no previous research had been conducted into stigma amongst healthcare workers and further work using the mixed method approach would help ascertain the presence and extent of stigma within the healthcare profession. It was noted specifically that there was a dearth of research exploring the ways in which healthcare workers develop attitudes towards stigma associated with disease processes, especially those to which they may be exposed in their caring role, such as a range of infectious diseases. Moreover, insights into the potential for stigmatised attitudes to be held towards people with conditions that can be associated with life style choices, such as Diabetes type 2, offered another route by which to explore attitudes to the concept of stigma. (*Objective 1*).

It was decided that, given the limited research available, it would be helpful to '*start at the beginning*' and focus on the issue of stigma development and attitudes to this range of conditions in a group of healthcare workers from the beginning of their programme. The focus was settled on studying this further with a group of student nurses as the nursing group is the largest healthcare professional population.

The next chapter describes how this work was developed.

3.0 Research Design and Methodology

3.1 Prologue

The aim of this study was to ascertain whether student nurses held stigmatising views of healthcare workers who had a positive diagnose of either PTB, HIV, Hepatitis C, MRSA and/or Diabetes type 2. A deficit of research informed a methodological approach that allowed exploration of the question. It was considered the potential of using a mixed methods approach identified a means of getting a more holistic picture. Data collection was undertaken through a sequential two phased study which allowed the comparison and interpretation of quantitative and qualitative data as follows (see *Figure 1.0, Chapter 1*):

- **Phase 1.0** examined the participants' stigmatising attitudes/values at the commencement of a pre-registration nursing course, conducted over three Phases 1.1, 1.2 and 1.3 (delivered at 12 monthly intervals). Data collection was through administration of structured visual analogue scales, providing data to enable comparative analysis of stigmatising attitudes from course commencement to completion (*Objective 2*).
- **Phase 2.0** examined a sub-sample drawn from the Phase 1.0 participants allowing deeper exploration of the question (*Objective 2*).

This study was completed over a three year period in a single University as described in *Section 3.4*.

This chapter is split into nine main sections which review the methodological process undertaken to achieve *Objectives 2 and 3*:

- **Section 3.2** introduces the descriptive exploratory research design and the mixed methods approach used (*Objective 2*).
- **Section 3.3** discusses the development of the research question and hypotheses (*Objectives 2 and 3*).

- **Section 3.4** explores sampling in Phase 1.0 including demographics, sampling, recruitment of the sample and design of the questionnaire used (*Objective 2*).
- **Section 3.5** described the Phase 2.0 study considering demographics, sampling, recruitment and design of the interview tool used (*Objective 2*).
- **Section 3.6** considers the ethical aspects of the study and the limitations of the approach adopted (*Objectives 2 and 3*).
- **Section 3.7** explores the reliability and validity of the mixed methods approach and discusses Phases 1.0 and 2.0 (*Objective 2*).
- **Section 3.8** presents discussion around reflexivity from the perspective of the researcher and the approach adopted (*Objectives 2 and 3*).
- **Section 3.9** is a summary of the chapter.

3.2 The research design

The study was designed as an exploratory descriptive study. Several methodological processes were considered. The literature review identified quantitative studies into stigma and attitudes which used differing approaches descriptive (Link and Phelan, 2001; Boyd Ritscher and Phelan, 2004; King *et al.*, 2007; Brooks, 2011), correlation (Sirey *et al.*, 2001) and experimental (Weiner *et al.*, 1988; Pryor *et al.*, 2004). Qualitative studies utilised methods such as grounded theory (Taylor 2001; Macq *et al.*, 2005), phenomenology (Zickmund *et al.*, 2001; Chapple *et al.*, 2004; Joseph *et al.*, 2004), ethnography (Rajeswari *et al.*, 1999; Steward *et al.*, 2008; Macq *et al.*, 2008; Bayer, 2008) and historical research (Pinel, 1999; Angermyer 2004; Macq *et al.*, 2006). No studies were identified using mixed methods which was seen as a limitation. Avis (2003) and Bishop (2015) state that to enumerate a study within the constraints of the methodological theory some researchers may in fact miss out on a wealth of data.

The descriptive exploratory design reported here uses sequential staging in a quantitative study and further explores the data generated within a qualitative study (Creswell and Plano Clark, 2011; Creswell, 2013; Creswell, 2014). The analysis of the statistical results of Phase 1.0 may be considered as an 'inference' of the sampled population (Vogt *et al.*, 2014; Creswell, 2014; Babbie, 2015). As little is known about the phenomenon of 'stigma' in healthcare it is appropriate to consider ways of identifying the extent of the occurrence, the influencing factors and the conflicts it creates.

A single method approach may not offer a precise understanding of the phenomenon. It may neglect to take into account all of the attributes that effect the phenomenon. This is often a criticism of single quantitative studies (Silverman, 2005; Hesse-Biber and Johnson, 2013). Therefore, the addition of a qualitative component offers a broader framework for data collection and analysis as described below.

3.2.1 Rationale for using mixed methods

Mixed methods or multi methods research combines differing methods of data collection in one study (Tashakkori and Teddlie, 2003b; Kemper *et al.*, 2003; Tashakkori and Teddlie 2003a; Johnson and Onwuegbuzie, 2004; Teddlie and Yu, 2007; Teddlie and Tashakkori, 2009a; Creswell and Plano Clark, 2011; Hesse-Biber and Johnson, 2013). Traditionally, research has been carried out using one method only, but often a more complex method may be required (Teddlie and Yu, 2007; Hesse-Biber and Johnson, 2013).

Whilst mixed method research may be considered rigid and reductionist, leading to the exclusion of some researchers/practitioners who consider the method as too complex (Hesse-Biber and Johnson, 2013), mixed methods that combine quantitative and qualitative means of data collection and analysis can help provide new insights into the subject area (Bryman, 2006; Teddlie and Yu, 2007; Greene, 2008; Bishop, 2015; Yardley and Bishop, 2015). Zhang and Creswell (2013), Hesse-Biber and Johnson (2013) argued that utilising mixed methods within health science research enables an expansion

of methods rather than just the *'combining'* of two independent methods. It promotes the embedding of the data generated from both research methods to analyse the connections and integration of the generated results.

Within this study two phases were integrated and the data from the quantitative Phase (1.0) was used to inform the qualitative Phase (2.0). This sequential mixed method design has been recognised as not only the most simple of such methods, but also the one that can yield the most information (Kemper *et al.*, 2003; Teddlie and Yu, 2007). Teddlie and Yu (2007) argued that the quantitative phase promoted the collection of a wide breadth of information and this can be supported by the integration with the qualitative results, which provided a great depth of information. Tashakkori and Teddlie (2003b) argued that the use of the sequential design did not take into account the *'multiple units design'* as it may over complicate what is seen as an already complicated method.

The insights provided within the literature indicated that either a single data set, quantitative or qualitative alone was sufficient to answer the research question (Teddlie and Yu, 2007; Pryor and Reeder, 2011; Bos *et al.*, 2013; Corrigan, 2014). Morse (2003), Morse and Niehaus, (2009) and Creswell and Plano Clark (2011) identify fifteen mixed method typologies. There is no widely accepted model of mixed methods and whilst many forms have been developed (sequential, concurrent, multi-level and basic) the sequential was considered the most appropriate when addressing the hypothesis, mixing weight of the sample, data collection and the longitudinal nature of the study (Johnson and Onwuegbuzie, 2006; Teddlie and Yu, 2007).

Within the sequential model the quantitative design was given priority as the *'main'* study with the qualitative work designed to add insights into that data (Creswell and Plano Clark, 2011). The sequential design was deemed to overcome the recognised praxis/practice barrier and fully integrate the results from the two Phases (Hesse-Biber and Johnson, 2013). Teddlie and Tashakkori (2009), Wiggins (2011) and Bishop (2015) argued that the use of a single method may give rise to uncritical, unreflexive practice, with poor quality

research. The mixed method design supported the drawing of data from both quantitative and qualitative studies, addressing the strengths of each paradigm. This suggested that the combination of the two methods allowed the construction of deeper exploratory arguments to analyse the data collected (Johnson and Onwuegbuzie, 2006).

The mixed methods approaches offer differing types of epistemological stance. Bishop (2015) stated that together they provide philosophical and technological challenges. Quantitative research adopts the view of positivism/post-positivism, a realist belief in knowable reality, with the qualitative being that of the interpretive/epistemological/constructivist, a relativist view of knowing. A recognised disadvantage of mixed methods is that single methods are often embedded without considering the two paradigms (Hesse-Biber and Johnson, 2013; Bishop, 2015; Yardley and Bishop, 2015). Some researchers view the analysis of the quantitative data as simply statistics and the qualitative as collecting and analysing the non-statistical data. Morse (2003), Creswell and Plano Clark (2011) and Bishop (2015) argue this is too simplistic as although both methods must be included, the technical challenges of doing so may make the sequential analysis more challenging. It should be noted that the complexity of the design may introduce a method which appears non-transparent, therefore questioning of the trustworthiness of the findings (Johnson and Onwuegbuzie, 2004; Johnson and Onwuegbuzie, 2006)

Mixed methods research develops from an underlying philosophical assumption which can support the generation of a research question (Teddle and Tashakkori, 2009). Advantages of using the mixed methods approach have been recognised as being able to provide more complex answers to the research question enabling the development of further complete conclusions (Thomas *et al.*, 2004; Teddle and Yu, 2007; Heyvaert *et al.*, 2011; Hesse-Biber and Johnson, 2013; Bishop, 2015; Yardley and Bishop, 2015). The use of mixed methods enables the researcher to identify any discrepancies seen within one method alone (Polit and Hungler, 1999; Risjord *et al.*, 2004; Johnson and Onwuegbuzie, 2006; Heyvaert *et al.*, 2011; Yardley and Bishop, 2015; Bishop, 2015). The data generated from the questionnaire

within the Phase 1.0 was supported by the data in Phase 2.0 and provided the generation of theories surrounding the planned behaviour considered within questionnaire results (Bishop, 2015). The mixed methods approach requires expertise to successfully integrate the quantitative and qualitative data at point of analysis and is better achieved by a single researcher (O’Cathain *et al.*, 2010; Heyvaert *et al.*, 2011). Morse and Niehaus (2009) consider the ‘*point of interface*’ as pivotal to mixed methods. This is the point of integration of the two phases of a study and may be when the data has been generated or on interpretation. The Division of Health Psychology (2013) expressed concern that the point of interface was only one area where mixed methods researchers require further training and knowledge development to implement the method correctly. There is little guidance on transformative methods and the longitudinal nature of the study may be difficult for time restricted research (Creswell and Plano Clark, 2007). The mixed methods approach to data complimented that already existing within the subject area, adding new perspectives to it. The use of qualitative methods explores the individual’s attitudes, beliefs and values and how they relate this to their surroundings and the quantitative method reviews behavioural aspects (Hicks, 2009). The exploratory mixed methods approach was adopted to enable the embedding of data by looking at the results as a collective after the sequential collection of the data (Creswell, 2007; Creswell and Plano Clark, 2011). Quantitative research through the delivery of structured visual analogue scales investigated the cognitive aspect (*Section 3.4.6*), whilst the qualitative semi-structured interviews focused on the affective domain (*Section 3.5.4*) (Hayes, 1998). This supported the exploration of the research question to collecting data showing trends on a large cohort using a structured approach to analyse the statistical data and then apply a qualitative approach to further explore why the findings occurred. The analysis of the qualitative data provided a ‘*holistic*’ approach to the quantitative hypotheses, supplementing this with more data indicating the individual’s perspective.

3.3 Development of the research question

The research question was generated and developed from the extended literature review and objectives were set to achieve the aim, providing grounding for the development of the study (Creswell and Plano Clark 2007). The concept of stigma was key to this study and it was explored through the research question as *'do student nurses hold stigmatising values towards healthcare workers with a pre-determined positive diagnosis of infection ?'*

3.3.1 Phase 1.0 study: Hypothesis

As Phase 1.0 was a quantitative study, it was appropriate to develop a working hypothesis to look at the analysis of cause and effect at each stage (Mueller, 1986; Creswell and Plano, Clark, 2007).

The development of further questions surrounding the hypothesis and research question allowed the researcher to consider their impact upon the objectives.

These were:

- Was there any change in stigmatising values over the Phases 1.0 and 2.0, if so what were they?
- Was this potentially because of educational or clinical input and experiences?
- Is it probable / possible that the values were endemic prior to the commencement of training?

As a result of this the following hypotheses were developed (*Chapter 1, Section 1.2*).

Hypothesis 1: Student nurses draw on previously acquired stigmatising values which underpin their attitudes towards PTB, HIV, Hepatitis C, MRSA and Diabetes type 2.

Hypothesis 2: Educational input regarding PTB, HIV, Hepatitis C, MRSA and Diabetes type 2 will reduce the stigmatising values of student nurses towards healthcare workers with these diseases.

Hypothesis 3: Clinical placements will influence the stigmatising of student nurses towards healthcare workers with PTB, HIV, Hepatitis C, MRSA and Diabetes type 2.

Hypothesis 4: Student nurses, on completion of a pre-registration course will present less stigmatising attitudes and values towards healthcare workers living with a positive diagnosis of PTB, HIV, Hepatitis C, MRSA and Diabetes type 2.

The purpose of the study lay within the phenomenon of ‘*perceived stigma*’ values towards individuals positively diagnosed with PTB, HIV, Hepatitis C, MRSA or Diabetes type 2 by under and post graduate student nurses at the University where the courses were delivered. This will be expanded upon in the next section exploring the study design for the quantitative study, the sample demographics and selection.

3.4 Phase 1.0

This section gives a summary of Phase 1.0.

3.4.1 The Sample

The sample was drawn from a cohort of students in a single University that had developed pre-registration education across five geographical sites. There were two campuses within an urban ‘area and three campuses with more rural surrounding catchments. Within the student nurses courses the students attended clinical placements. It was considered possible that students may have interacted with healthcare workers who may have a positive diagnosis of the five diseases under investigation within this study.

University education is discussed in *Chapter 2, Section 2.8*. Individual Universities provide this template education at various academic levels, diploma, undergraduate and postgraduate, which all culminate with a Registered Nurse

(R. N.) qualification, underpinned by differing academic qualifications. Within the University in which the study was located, both undergraduate and post graduate options were provided, giving a choice of a diploma, bachelors degree, post graduate diploma and masters in nursing in conjunction with the R.N. qualification.

Within mixed methods research the choice of sample is vital to the success of the research (Teddlie and Yu, 2007). Phase 1.0 (quantitative data collection) required a sample considered to be representative. A large sample from one University could be considered representative of the student nurse population. However, given the diversity of Schools of Nursing and locations across the country it would not be reasonable to make this claim (Polit and Hungler, 1999; Johnson and Onwuegbuzie, 2006; Teddlie and Yu, 2007; Hicks, 2009; Creswell, 2013). Phase 2.0 (qualitative data collection) required a smaller sample which was selected for its usefulness and ability to answer questions on the research topic (Polit and Hungler, 1999; Teddlie and Yu, 2007; Hicks, 2009).

A diverse set of course levels and nursing speciality (learning disabilities, mental health, child and adult nursing) were all delivered by the University. The yearly intake was 600 students across five campuses, which offered access to a large, diversely aged sample. Within the potential sample, male and female distribution that reflected similar groups in other centres, that is a minority male cohort. This was taken into account on data analysis. The curriculum design for all courses had predetermined learning outcomes and a specific lecture on stigma within healthcare was delivered to all students accessing R.N. training after the initial 8 week induction curriculum. This was delivered by differing lecturers with no uniform lecture plan given for delivery. Access was promoted with clear communication with the University School of Nursing, ethical board and participants, enabling longitudinal access to the participant groups.

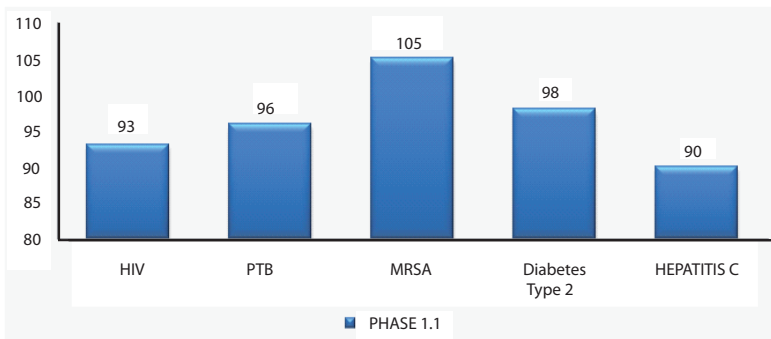
3.4.2 Participant group formation

As it will be seen below in *Sections 3.4.6 and 3.4.7* the tool to collect data

was administered in a way that required some sub-group formation of the sample. The sample was taken from the identified cohort of student nurses who were offered places to undertake R.N. training at the local University. There were 482 participants approached for the study in Phase 1.1 (see Appendix 1). These were the students which had accepted a place from the original 600 offers for the course. (118 potential students who declined the offer of a place at the University). Generalisability to the population of R.N. students was considered and the sample was large enough to be transferable and hold external validity (Teddlie and Yu, 2007).

Smaller groups within the sample set were formed within Phase 1.1 by randomisation of the participants (Dempsey and Dempsey, 1996; Polit and Hungler, 1999; Hicks, 2009) when the tool was administered (see Section 3.4.6) (see Appendices 3, 4, 5, 6 and 7). This was possible as the descriptors used were case specific, each descriptor was identical other than the final disease diagnosis. The tools administered in Phase 1.1 were randomly implemented within each of the five centres classes which were accessed (see Section 3.4.6). It was noted at the outset that the distance between the campus sights may cause difficulty in accessing the participants. This resulted in a range of 90 to 103 responses from the total sample in relation to specific disease descriptor (see Figure 3.1).

Figure 3.1
Numbers of participants allocated within each specific
disease descriptor Phase 1.1



The participants’ demographics were also considered as relevant to the data and would be later used for further comparative group analysis. To enable this, the demographics were coded into groups; gender, age, course, centre and branch of study (seen in Table 3.1). The descriptive statistics showed groups were not equal splits due to the nature of the student course attendance (see Table 3.2).

Table 3.1 - Phase 1.0 demographic descriptive codes

Descriptives	Codes
Gender	1.0 = male participants 2.0 = female participants
Age	1.0 = 18-25 years 2.0 = 26-65 years (mature students)
Course	1.0 = undergraduate (BSc/Diploma) 2.0 = postgraduate (MSc and Post graduate diploma)
Centre	1.0 = satellite centre 2.0 = central centre
Branch	1.0 = adult branch 2.0 = non-adult branch

Table 3.2 - Numbers of participants within each group for Phase 1.0 at study commencement (Phase 1.1).

Descriptives	Codes	
Gender	1.0 = 67	2.0 = 414
Age	1.0 = 245	2.0 = 237
Course	1.0 = 287	2.0 = 195
Centre	1.0 = 317	2.0 = 165
Branch	1.0 = 324	2.0 = 158
Total Participants	n = 482	

3.4.3 Phase 1.0 - sampling

It was recognised that a full population sample was beyond the scope of the study, therefore a sample from one cohort was taken (Polit and Hungler, 1999; Teddlie and Yu, 2007; Hicks, 2009). The law of diminishing returns was considered here to prevent skewing of the data and a loss of any extreme views (Hicks, 2009). Kemper *et al.*, (2003) stated that the attrition of participants should be addressed so the sample does not become one of convenience (Polit and Hungler, 1999; Teddlie and Yu, 2007; Hicks, 2009). Reflection upon the results would demonstrate that the more the results differed from the expected results within a larger sample, then the less likely they were to be determined by chance (Polit and Hungler, 1999; Katz, 2006; Hicks, 2009). However, it is recognised that the non-probability sampling method was not random, therefore 'quota sampling' considered what was already known about the sample, e.g. the demographic elements such as age, gender, centres, courses, thus allowing cluster data development. A univariant test was undertaken analysing the mean calculations through ANOVA's and within-subjects repeated measures. The participant criteria for sample selection is noted, (see Table 3.3).

Table 3.3 - Inclusion criteria for Phase 1.0 sample

No.	Inclusion criteria for the quantitative sample
1	Participants were within three months of commencement of a pre-registration nursing course.
2	All participants were attending the single University School of Nursing.
3	All participants were attached to a specifically coded course (within the University coding system).
4	All participants had undertaken the first six weeks of a pre-registration nursing course.
5	No formal lecture had been delivered for stigma and stereotyping within the curriculum before the first study was undertaken (Phase 1.1).
6	Participants would not receive any remuneration or payment for the interview.
7	All participants had received additional and consent information, been given the chance to query or withdraw ethical consent at any time.

The sample selection was supported by a power calculation which was undertaken to calculate the minimum sample size required to undertake the study (*Figure 3.2*). The sample identification and a power calculation was undertaken to ensure that the participant recruitment could commence. Table 3.3 was not a 50%/50% age, gender, centre of study, course undertaken or year of study split and it was recognised that a larger sample than was accessible for this study would be required for 50/50 precision (Katz, 2006). The confidence interval used was 95% (usual error sampling of 5%, $p=0.05$) and this was the range expected for the repeated samples to fall within the three stages of the quantitative study (Phase 1.1, Phase 1.2 and Phase 1.3). Again, it was identified that the sample would need to be larger to consider a Confidence Interval (CI) of 99% as appropriate (Katz, 2006; Hicks, 2009). This confidence interval type of population parameter will show the reliability of the estimate.

A standard calculation for the cohort used throughout the Phases collectively (1.1, 1.2 and 1.3) was developed as a potential response of positive stigma of 50% and a potential negative of 50%:

$P_y = \text{stigmatising } 50\% = 0.05$, $P_n = \text{non stigmatising} = 0.05$, $C.I. = 0.05$ (chosen sampling error), Standard constant value = 1.96

$$P_y \times P_n = (N \text{ standard error})^2$$

Figure 3.2 Power calculation for sample size (Hicks, 2005).

1. $0.5(P_y) \times 0.5(P_n) = 0.25$
2. $\frac{0.25}{(0.00255102)^2}$ (standard deviation) = 0.0006507
3. $\frac{0.25}{0.0006507}$ is equivalent to $n = 384$

The calculation indicated that $n=384$ are considered as an adequate sample. The study sample provided $n=482$ participants at commencement of the study in Phase 1.1 and therefore this was considered adequate to provide significance.

3.4.4 Recruitment of the sample

The courses ran over differing time frames three years for undergraduate, two years for post graduate diploma and four years for masters. The degree and diploma, which are placed together, includes evidence based practice and the degree has a higher marking criteria. The Masters level requires students to do a four year course; the post graduate diploma requires study at masters level for a period of two and a half years. The completion of the quantitative

data collection could be facilitated allowing access over three pre-identified annual periods. This allowed for comparative analysis between the groups (Table 3.4).

Table 3.4 - Time allocations for data collection in the Phases 1.0 and 2.0.

The quantitative study	The qualitative study
Phase 1.1= year 1 data collection (2009)	Data collection in year 3 (2011) immediately after Phase 1.3
Phase 1.2 = year 2 data collection (2010)	
Phase 1.3= year 3 data collection (2011)	

3.4.5 The semantic differential scale

A review of literature surrounding attitude scales indicated that a modification of the semantic differential scale would provide quantitative attitudinal research data for this study. This would enable the measurement of the stigmatising attitudes (concepts) of the participants, providing data on their attitudes towards sets of opposing attributes such as good and bad.

The use of attitude scales provides an opportunity for a respondent/participant to address attitudes in an unbiased way (Wittenbrink and Schwarz, 2007). The semantic differential scale was developed by Osgood *et al.*, (1957). It is a ubiquitous rating scale developed to explain the underlying dimensions of meaning when considering objects and others within the world. Osgood *et al.*, (1957) argued that to perceive the world, people used adjectives, describing their perception of the world around them. These may be seen as overlapping and interlinking and could be mapped by using the semantic differential scale. Thousands of adjectives in all languages are used to describe the world, providing platforms to further study its meaning. These may be measured as personality descriptors such as 'good/bad' or 'weak/strong'. The semantic differentiation scale collects nominal data for analysis of categorically named groups (Hicks, 2009; Bowling, 2005).

The semantic differentials are bipolar sets of adjectives, anchored at each end of a seven point scale. The development of a ten point scale has also been undertaken, adding a semantic design format, which coupled with the traditional Likert scale increases the scale length from 7 to 10 centimetres (see *Appendices 3 to 7*). Osgood *et al.*, (1957) argued the majority of the answers (in this study crosses on the scale), fell between the mid points of 4 to 7 centimetres. Participants may also consider the extreme ends of the scale (0-1 and 9-10 centimetres). Changing a validated scale to 10 cm it should be noted that the '*semantic space*' is altered and offers a further consideration of this space being wider. Heise (2010) recognises that differences in the individual's beliefs, culture and perceptions surrounding triggers, may influence the semantic space for that individual. This supports the changes to a ten point scale for this study. Yet, it may leave room for false interpretation by the participant, researcher and therefore a false picture of the perceived semantic scale and space.

Use of the semantic differential scale, enables the researcher to analyse the conceptual views, regarding stigma, of the participants. These may be considered as three dimensions towards an individual or object; '*evaluative, potency, or activity*'. Osgood *et al.*, (1957) defined the meanings of attributes as seen within these three dimensions and as such demonstrated the attitude of the participant towards the person or object. The first is the '*evaluative*' dimension of the scale, which corresponds to an '*evaluative*' attitude. Analysis of this may deliver more sensitive and in-depth information to the researcher on attitudes than a simple question. The second dimension is '*potency*' and can be considered as '*reaction*' to the attitude and an individual's perception of risk based on the evaluative assessment. Thirdly, the '*activity*' is that of an individual's explicit '*response*' regarding the potential reactions of an individual to the initial assessment. Fazio *et al.*, (1986) argued that the attitudes an individual presented by choosing an attribute on the scale are primarily implicit automatic responses. This may be offset by that of a more reflective and controlled way of considering ones attitude towards another person or object (explicit). Fazio *et al.*, (1986) argued that the evaluation of the individual within the trigger may be influenced by strength of the implicit (automatic) association within the participant towards the object (descriptor).

It may be argued that the semantic differential scale can potentially be seen to have an evaluative connotation only and may be influenced by previous priming (Fazio *et al.*, 1986). Within this study the researcher considered that the development of the scale may predetermine the potential responses of the participants presenting evaluative responses only and not including the dimensions of activity and potency as highlighted by Osgood *et al.*, (1957). Gollob (1968) states that each person can affect the 'affective' dimension by being dependent upon recent events or experiences when considering an adjective attributed to another person or object. An 'affective' meaning derived from personal experience and cultural influence is called a sentiment or fundamental effective meaning. This was considered when analysing the results. The use of mixed methods provided opportunity for exploration of the 'affective' meaning, adding further examination of the attitudes and values of participants responses within the quantitative phase of the study.

Advantages of the semantic differential scale were identified as the ease of construction and its flexibility, being easy and quick to administer (Mueller, 1986). The use of multi item measurements as opposed to single item scales, were considered to have fewer reliability issues (Ajzen, 2011). Yet, limitations of the scale were recognised as its value being dependent upon the overall suitability of the concept and that of the rating scale in general (Oppenheim, 1992). A significant problem identified with the scale was that its properties of measurement are unknown (Himmelfarb, 1993). Polit and Hungler (1999) described the scale as offering extensive 'freedom' when the researcher considers the bipolar adjectives used, but limitations of poor administrative rapport and a reluctance to complete some of the scale, may lead to some additional statistical errors (Mueller, 1986). It was noted that the semantic differential scale could be influenced by the experiences of the participants at the point of their educational journey when it was answered only.

Within Phases 1.1, 1.2 and 1.3 the researcher investigated the "evaluative dimension of semantic differential" (Bowling, 2005 pg. 292). Mueller (1986) states that to singularly look at this area can prove limiting and prevent a researcher providing an extensive and clear measurement of attitude. The use

of the positive and negative attributes within the scale may prove to be difficult for the participants, as this makes them consider the object or person within those two points only. Considerations on scale development therefore, were that the adjectives used to investigate the concept were appropriate and broad enough, underpinned by the theoretical stigma work seen to date (Polit and Hungler, 1999). Within this study a supplementary section at the base of the scale and descriptor offered the participants the chance to express any further attributes they felt would help to describe their perception of the individual within the descriptor (see *Appendices 3 to 7*). Dawes (1972) argued that these extra attributes should then be added to the scale.

Oppenheim (1992) stated that if considering all three dimensions, Evaluation, Potency and Activity (E.P.A.), they can be extended to include tartness, novelty and receptivity. However, Moyle *et al.*, (2010) considered that certain adjectives can be utilised to explain personality dimensions such as loud, aggressive or calm. Moyle *et al.*, (2010) argued these may explain personality traits and attitudes (see Table 3.5). The scale remained within the original three dimensions as introduced by Osgood *et al.*, (1957) as this was sufficient to investigate the participants responses. It is then possible to map the twenty attributes within the E.P.A. dimensions on the scale and analyse this to demonstrate their importance to an individual participant. This may be considered to increase the reliability of the original E.P.A dimensions. However, the additional attributes/adjectives highlighted by the participants were considered in the development of the qualitative tool in Phase 2.0 of the study.

To reduce the halo effect the placing of the opposing adjectives on the scale was considered when designing this tool. Whilst the positive adjective usually sits on the right end of the continuum, it is common practice to randomly assign these so as to reduce the risk of the participant answers developing a pattern or an adverse effect which will then undermine the validity of the scale (Bowling, 2005; Mueller, 1986). Therefore, the attribute pair was randomly assigned on the scale to prevent the participants forming an impression which would influence the other answers (*Table 3.5*).

Table 3.5 - A review of the five basic personality traits (Moyle et al., 2010 pg 10)

Five Basic Personality Factors	
Extraversion	Introversion, Talkative - silent, Frank - secretive, Adventurous - cautious, Sociable - reclusive.
Agreeableness	Good natured - irritable, Gentle-headstrong, Cooperative - negativistic, Not jealous - jealous.
Conscientiousness	Tidy - careless, Responsible - undependable, Scrupulous - unscrupulous, Persevering - quitting.
Emotional Stability	Calm-anxious, Composed-excitable, Poised - nervous, Not hypochondriacal - hypochondriacal.
Culture	Artistically sensitive - insensitive, Imaginative - simple, intellectual - non-reflective.

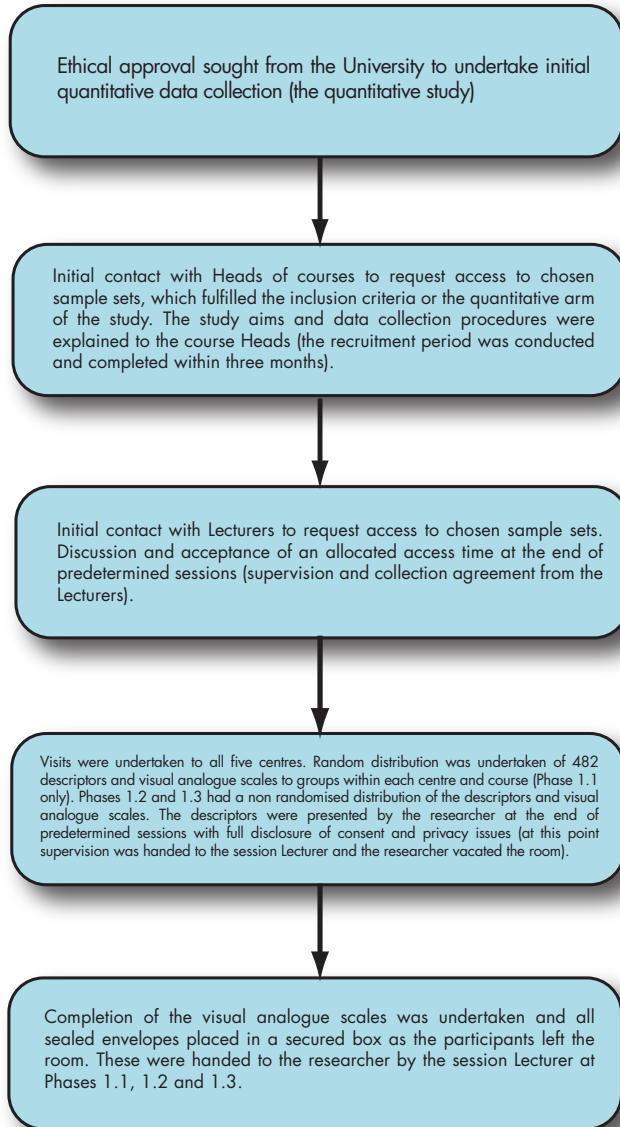
3.4.6 Development of the tool and data collection

There were five individual descriptors developed (see Appendices 3 to 7). The descriptors introduced a healthcare worker with an underlying positive diagnosis of one of the five disease groups (PTB, HIV, Hepatitis C, MRSA and Diabetes type 2). Each descriptor held the same information except for a positive diagnosis with one of the identified diseases. The healthcare worker written about within each descriptor was presented as having no particular gender or ethnic origin, so as not to influence the participants views. This descriptor was a trigger for the participants to consider which attribute pairs best described the highlighted positively diagnosed healthcare worker. The semantic differential scale was then chosen as it enabled the participants to choose an attribute which had no apparent central point of reference (Oppenheim, 1992;

Ajzen, 2011). The participants were to indicate within the scale whether there was an agreement or disagreement towards a predetermined set of attributes (Bowling, 2005). This indicated the attitudes of the participants towards a healthcare worker with an underlying diagnosis of one of the five specified diseases. To indicate which attribute best described the healthcare worker within the descriptor the participant had to place an X on a 10 cm semantic scale (*Appendices 3 to 7*).

A pilot and review was recommended prior to commencement of the quantitative study (Oppenheim, 1992). The pilot would provide the study with identification of the feasibility of the study enabling the analysis of data collected and considering the hypothesis (Polit and Hungler, 1999). Peat *et al.*, (2002) state that pilot results may provide flawed and inaccurate results due to the size of the sample used and any changes to a tool seen then as inappropriate. Prior to commencement of Phase 1.1 a critical review of the quantitative tool was undertaken by two academic supervisors and three additional lecturers within Psychology and Sociology. They noted that identification of the adjectives from within the literature was very important to enable defense of the tool development. Changes made were openly discussed. These were undertaken to ensure no influence was exerted from the language and the only word that may influence the responses was the disease diagnosis. These discussions removed the potential of researcher bias (Oppenheim, 1992; Peat *et al.*, 2002). Feedback also requested the addition of a section for further attributes at the base of the semantic scale (*Appendices 3 to 7*). Within the quantitative study the descriptor and visual analogue scale was presented to the participant groups at the five centres. This was Phase 1.1 (*see Figure 3.3*).

No further changes were made to the tool at Phases 1.2 and 1.3 to ensure the analysis of the comparative longitudinal data. However, to maintain analysis of the changes in participant stigmatising attitudes and values over a three year period, each participant received the same disease group on the descriptors within Phases 1.2 and 1.3 (*see Figure 3.3*).

Figure 3.3 - Phase 1.0 data collection process

3.5 Phase 2.0

On collection of the data in Phase 1.2 commencement of the qualitative study was undertaken.

A key consideration for the Phase 2.0 study was as far as possible, to identify a group which represented the sub-groups of gender, age, course, centre and adult/ non adult branch attendance, reflecting the key requirement for sampling within the qualitative studies (Johnson and Onwuegbuzie, 2004; Teddlie and Yu, 2007; Zhang and Creswell, 2013; Creswell, 2014). Therefore, the development of Phase 2.0 was designed to further explore the findings of Phase 1.0 (Teddlie and Yu, 2007; Creswell and Plano Clark, 2011; Creswell, 2014) Polit and Hungler, 1999). This section reviews the sample selection, considers the tool development and methods of data collection through semi-structured interviews. It also considers the analysis process which was undertaken.

3.5.1 The sample

A key consideration was the demographics required for the qualitative sample. Identification of the Phase 1.0 sample remained unchanged over the longitudinal study. Access to a sub-group for Phase 1.0 was taken from the same sample demographic (Polit and Hungler, 1999; Kemper *et al.*, 2003; Tashakkori and Teddlie, 2003; Creswell and Plano Clark, 2007; Green and Thorogood, 2014). These are presented in Table 3.6. It should be noted that none of the sample dropped out of the courses or data collection at any point.

Table 3.6 - Demographics of the Phase 2.0 sample

Participant Number	Gender		Age		Course Undertaken		Centre Attended		Branch of Nursing	
	Male	Female	18-25 years	26-65 years	Under-graduate	Post Graduate	Central	Satellite	Adult	Non-Adult
1.0		*	*		*			*		*
2.0		*	*		*			*		*
3.0		*	*		*			*	*	
4.0		*	*		*		*		*	
5.0		*		*	*		*		*	
6.0		*		*	*		*		*	
7.0		*		*		*	*		*	
8.0		*		*		*	*		*	
9.0	*			*		*	*		*	
10.0	*			*	*		*		*	

3.5.2 Recruitment of the sample

The sample for the qualitative study was drawn from the same cohort of student nurses that completed Phases 1.1, 1.2 and 1.3. Following acceptance of Phase 2.0 by the ethical committee, a further sample of participants was requested from the original participants (see Section 3.6). An e-mail was forwarded to all participants of the quantitative study to volunteer for a confidential and anonymised, semi-structured interview attendance (Appendix 8). Ten random participants replied. Access to the participants for interview had to be within 2 weeks of Phase 1.3, as some participants would then be moving out of the area and decreasing access to them for Phase 2.0. Creswell and Plano Clark (2007) argued, sequential sampling should not present issues within mixed methods studies and actually provides consistency within the data collection. The undertaking of the qualitative sample enabled the gathering of information and a further insight into the responses of the quantitative sample. The ten respondents to the e-mail

were considered against the inclusion criteria formatted in the qualitative study and ten students were considered to be included (*Table 3.7*).

Table 3.7 - Inclusion criteria for the Phase 2.0 sample

No.	Inclusion criteria for the qualitative sample
1	All participants were attending the University School of Nursing
2	All participants were attached to a specifically coded course (within the University coding system).
3	Participants responded voluntarily to an e-mail request to attend a semi-structured interview.
4	Participants had completed the descriptor at a minimum of one of the three Phases of the quantitative arm of the study.
5	No restrictions on age, gender, centre or discipline within the course would be incurred to prevent access.
6	Participants would not receive any remuneration or payment for the interview.
7	All participants had received additional and consent information, been given the chance to query or withdraw ethical consent at any time.

3.5.3 Development of the tool and data collection

The questions asked were placed together in an interview protocol which supported the semi structure of the interviews (*Appendix 9*). The topics were generated from the literature and findings of the quantitative study. These were embedded into the tool:

- What are your experiences with healthcare workers infected with PTB and/or HIV, MRSA, Diabetes, Hepatitis C?
- How do you feel about working with healthcare workers infected with HIV, PTB, Hepatitis C, MRSA and Diabetes type 2?
- If you are working with a healthcare worker and they disclose they have a positive diagnosis how does this make you feel?
- What if you looked after a patient and then received a positive diagnosis in any of the conditions?

- Have you encountered/heard of any healthcare professionals who have worked with others infected with one of the diseases?
- What were their attitudes towards these infected healthcare workers?
- How did that make you feel?
- What would influence/affect your encounter with an infected HCW with HIV, PTB, Hepatitis C, MRSA and/or Diabetes type 2?

The qualitative tool was reviewed by the research supervision team and after review additional development of the interview protocol was undertaken (*Appendix 9*) and an e-mail was forwarded to all participants to request attendance at the semi structured interview (*Appendix 8*). It was noted that the interviews would be conducted within the participants centre of study so the student incurred no financial cost for travel to one particular centre. Ten responses were received and arrangements made for the qualitative interviews to be conducted within one week of data collection at Phase 1.3. The interview was attended by the researcher and the participants within a pre-booked quiet interview room within their centre of study. (Burnard, 1991; Polit and Hungler, 1999; Silverman, 2005, Speziale and Carpenter, 2007). Additional information, consent and confidentiality was discussed prior to the interview commencement (*Appendix 10*).

The participant recruitment process is shown in (*Figure 3.4*). The participants were informed that the interviews were expected to take sixty minutes and the semi-structured interviews would be taped and transcribed throughout. It was reiterated that this would be confidential and anonymised and all data storage was discussed (Smyth and Holian, 2008). The semi-structured interviews provide time to listen and gather responsive data for later interpretation. It was important that the qualitative researcher was highly reflexive about the data collection process to prevent judicious social interaction with the participant (Oppenheim, 1992; Polit and Hungler, 1999; Baumgarten and Hensley, 2006; Green and Thorogood, 2014). Forming dialogue with a participant within the interview was restricted and considered so as not to lead the answers of the participant.

Any potential agreement and disagreement discussions surrounding a point were avoided so as not to bias or influence the responses (Oppenheim, 1992). The qualitative data aimed to explore further the quantitative data gathered within the study. The next section reviews the method of analysis applied to the semi-structured interviews.

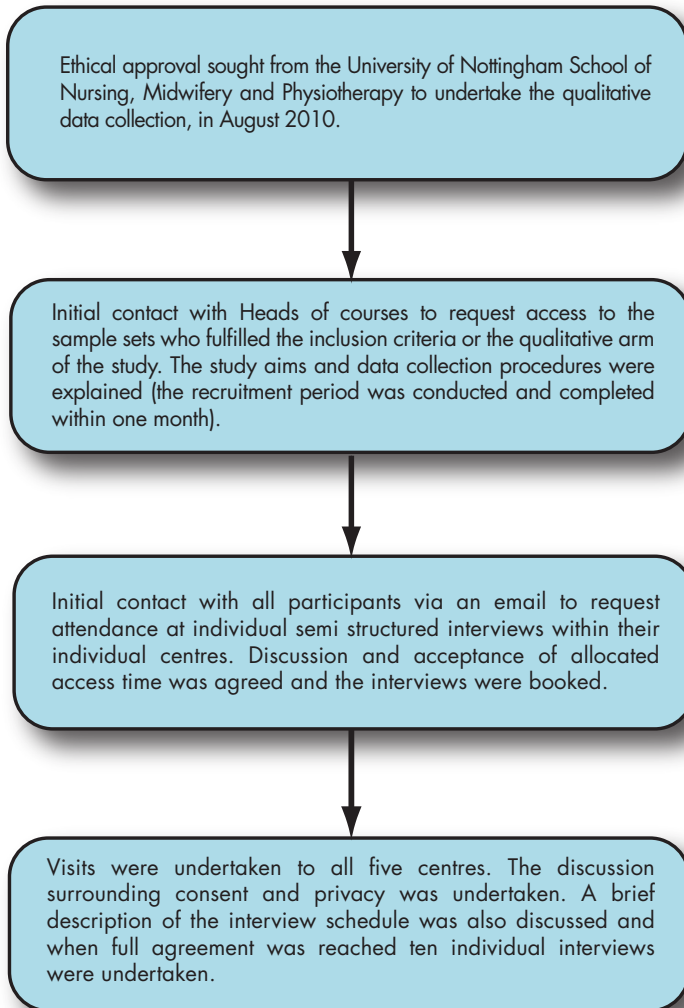
3.5.4 Semi-structured interview schedule

A topic guide for a semi-structured interview can clear up misconceptions and ensure the interview yields more complete responses, which can be followed up and built upon, (*Appendix 9*) (Baumgartner and Hensley, 2006). This was supported by the development of a clear interview protocol to allow the expansion of responses to the semi-structured questions. This dependability considers whether the theoretical assumptions about the phenomenon were seen to present significance (Oppenheim, 1992; Green and Thorogood, 2014).

The protocol considered the language used to form sequenced questions, which within this Phase 2.0 did not mention attitude and stigmatising values specifically (Bowling, 2005). This assisted, not only in the gathering of information, but the development of the interview protocol to ensure all of the responses were as relevant as possible (Oppenheim, 1992; Green and Thorogood, 2014). Green and Thorogood (2014) argue that the language spoken and transcribed from such interviews are an essential pillar to understanding of how we make sense of the world around us. Interview transcription of the data may highlight the disadvantage that the language used within the semi-structured interview could present a bias through a differing understanding of the words (Oppenheim, 1992). The formatting of the questions provides prompts which link to predetermined codes set by the researcher (*see the codes within Chapter 5*) and supporting further analysis and interpretation of the themes and findings (Oppenheim, 1992; Gillham, 2005).

The semi-structured interview is viewed as less objective than the structured interview. The structured interview had full clear guidance as to the timings and structured questions undertaken and answered. These require training and confidence to achieve full data collection (Baumgartner and Hensley, 2006; Floyd and Arthur, 2012). The undertaking of the interview can itself present issues for a novice researcher. Attendance at the primary interviews from the lecturers who reviewed the initial tools would reflexively monitor interaction with the respondents. This enables the '*participants*' self expression within a confidential environment, with a non-judgemental and open semi-structured approach. However, ethical considerations for such interviews were noted. The information gathered was protected through anonymity of the participants. Interviewing participants within the researchers own '*cultural community*' may support the awareness of both individuals '*role*' within the environment and should be considered (Ganger and Scott, 2006; Floyd and Arthur, 2012). The ethical issues are further reflected upon in Section 3.6. The interview was held at a time convenient for the participants as external stress and pressures may cause a skew in the data by influencing their reactions and even bias the results (Oppenheim, 1992; Polit and Hungler, 1999).

Figure 3.4 - Phase 2.0 recruitment process



3.5.5 Methods of Phase 2.0 data analysis

Interpretation of the qualitative data provided a platform to consider the potential beliefs and attitudes underpinning the actions and statements of the participants (Garrick, 1999). The generation of the themes drawn from the literature and data meant further access to more extensive literature was required (Speziale and Carpenter, 2007). This approach was adopted by the researcher. Transcripts were completed as the interviews were undertaken and collated for analysis after the tenth interview. Transcript analysis by the reading and rereading of the data is an opportunity to code and analyse at the same time (Speziale and Carpenter, 2007; Zohrabi, 2013). The analysis of emerging themes provided a platform for further development of the researchers thoughts and findings within the data requiring revisiting of the transcripts numerous times.

Throughout the process of interview transcription, level 1 substantive coding was undertaken and the researcher worked directly with the data analysing and coding it. This was the collation and identification of specific words (*see Table 5.2, Chapter 5*). These linked to previously analysed literature surrounding the relationships of stigma and attitudes to each disease. These also emerged in the data collected within both Phases 1.0 and 2.0. After the codes have been identified, the secondary stage was to develop and categorise them. Again the transcripts were revisited to analyse the frequency of the words and codes within each script. This is a comparative method, allowing the condensing and comparing of the original data collected to generate themes as a framework for further in depth analysis of transcripts (Polit and Hungler 1999; Dempsey and Dempsey, 1996; May, 2003; Silverman, 2005; Gillham, 2005; Creswell and Plano Clark, 2007; Green and Thorogood, 2014). Credibility of the themes was provided on review and verification by the research supervisory team. NVIVO Ver. 9.0, a qualitative data software package, was considered for usage as an analysis tool, but as software was fully supporting the quantitative aspect of the study, it was decided that a personal analysis would yield a better analysis of the transcripts at this time.

Completion of the analysis provided interpretive data, which reflected the exploration of theories and presented an application of meaning to the findings (Silverman, 2005). Within this study the main concepts which emerged as dominant coded areas, are further discussed within the results section of the qualitative data analysis.

3.6 Ethical considerations

Care and due consideration must be undertaken when approaching research with human participants (Polit and Hungler, 1999; Creswell, 2007; Floyd and Arthur, 2012). To undertake a study, ethical approval must be sought to access healthcare workers within the United Kingdom. Disregarding ethical considerations when conducting research can lead to a questioning of the scientific integrity of the research. Neglect of the participants rights and psychological, physical or emotional wellbeing should be considered (Baumgartner and Hensley, 2006; Floyd and Arthur 2012). Consideration of participants as worthy of the research is pivotal to the ethical process (Dempsey and Dempsey, 1996). Respect for the participants should be addressed at all times (Polit and Hungler, 1999). The researcher has a duty to the participants to prevent them from any harm, ensuring the maximisation of benefits (Polit and Hungler, 1999; Baumgartner and Hensley, 2006). It was imperative to provide a transparent and easily understandable consent process within the study. Psychological issues must be addressed with sensitivity and understanding (Polit and Hungler, 1999; Baumgartner and Hensley, 2006; Floyd and Arthur, 2012). The mixed method approach may potentially expose the participants to self-acknowledgement of certain views that they may find distressing. Therefore, they were offered access to debriefing at any time and a transparent procedure was discussed for complaints or concerns to be addressed to the ethics committee which granted approval for the study (Polit and Hungler, 1999; Bowling, 2005; Baumgartner and Hensley, 2006). At no point did any participant express concern or harm during data collection.

Study ethics was obtained by approaching the University Ethics Committee. A review was undertaken of all documentation to ensure that the participants would be safe physically, psychologically and emotionally at all times during the

study. The documents sent for approval within Phase 1.0 were the quantitative data tool (*Appendices 3 to 7*), the additional information (*Appendix 10*) and the consent form (*Appendix 11*). Documents required for Phase 2.0 were the semi-structured interview tool (*Appendix 9*) and the e-mail requesting participant (*Appendix 8*). Approval was given. Anonymity of the students was protected throughout both Phases 1.0 and 2.0 of the study by identification codes known only to the researcher (Polit and Hungler, 1999; Smyth and Holian, 2008; Floyd and Arthur, 2012). However, it should be noted that the insider researcher's role is one which may compromise the ethical stance of the researcher.

3.7 Critique of the mixed methods approach

The mixed methods approach employs multiple data collection methods and as such increases confidence in the validity and transferability of the study (Polit and Hungler, 1999; Johnson *et al.*, 2007). Long and Johnson (2000) stated that all studies should be open to critique and evaluation which will question and support the validity and reliability of the study. It was recognised that sequential mixed method research has some potential validity considerations (Creswell and Plano Clark, 2007; Creswell, 2014). Polit and Hungler (1999) argue that the validity of the results are supported by providing a more robust interpretation of the data, by testing and retesting through differing data collection methods. Zohrabi (2013) states that the validity and reliability of mixed methods research is ever shifting and should be ensured by the researcher and participants development, building trustworthiness from the differing phases within the research (data collection, analysis and interpretation). Further work is required to develop clear standards to determine validity and reliability of this research method (Tashakkori and Teddlie, 2006; Johnson *et al.*, 2007).

Internal validity helps consider that the methods and analysis are sound (Polit and Hungler, 1999; Zohrabi, 2013). The study was undertaken longitudinally and underwent peer review throughout, by supervisors, re-examining the tools, process, data collection and analysis. This augmented the validity of the study (Zohrabi, 2013). External validity was also considered in the applicability of the results to the healthcare population (Zohrabi, 2013; Polit and Hungler, 1999;

Creswell, 2014). Reliability of the research is ensured by the replicability, dependability and reliability of the data and results (Zohrabi, 2013; Creswell, 2014). This was achieved within Phase 1.0 through the repeating of identical tests. However, in Phase 2.0 replicability of the data is difficult and as such was provided through the use of the same researcher and tool, embedding the results from Phase 1.0 into the analysis of Phase 2.0 (Tashakkori and Teddlie, 2003; Zohrabi, 2013; Creswell, 2014). Reliability can also be seen through transparency in methods and data collection within the study.

3.7.1 Critique of Phase 1.0 methodology

Validity of a study may possibly be considered as its credibility (Long and Johnson, 2000). Silverman (2005) argues that validity of quantitative data collection is undertaken to avoid type 1 and type 2 errors. External validity requires further consideration, as it may be difficult to show generalisability to the larger population. The quantitative tool was not piloted, but was reviewed by academic supervisors to support the construct validity (Zohrabi, 2013). This enabled reduced validity issues by ensuring the implementation of rigorous procedures (Creswell and Plano Clark, 2007). It should be considered that the design of the tools by a single researcher may lead to bias. Therefore a peer review of the quantitative study tool by the supervisors and academics highlighted the need to randomly reverse the adjectives within the scale to prevent the halo effect (Zohrabi, 2013). Validity and reliability was considered for the exploratory method by the quantitative sample ($n=482$) being the same participants in all three stages of Phase 1.0 (1.1, 1.2 and 1.3). Dawes (1972) states that because the reliability of the single cases within the semantic scale are weak, it is acceptable to add further adjectives to support the assessment of each domain (E.P.A.). This was undertaken within this study.

The choice and construction of the attitude scale was considered when addressing the validity of the study. Researcher experience and knowledge was also taken into account and supervisory support provided validity (Robinson *et al.*, 1991; Zohrabi, 2013). It is recognised that not undertaking full pilot may be seen as a weakness, but every effort was made to develop a valid

and reliable tool and that subsequent consistency in responses gave some reassurance this was the case.

3.7.2 Critique of the Phase 2.0 method

The qualitative method also required acceptance of potential issues within the validity and reliability of the tool as well as method and analysis to ensure bias minimisation (Johnson *et al.*, 2007; Zohrabi, 2013). The degree of consistency when the researcher views and reviews the qualitative data, supports the reliability of a study (Long and Johnson, 2000). Therefore, the test/retest utilised in Phase 1.0 may also be considered as important within the qualitative study (Polit and Hungler, 1999; Patton, 2002; Green and Thorogood, 2014). The answers of the participants were consistent and this also supported the reliability of the tool used for data collection (Brink, 1991; Polit and Hungler, 1999; Creswell and Plano Clark, 2007; Creswell, 2007).

Testing/retesting was undertaken by repetitive analysis of the transcripts by the researcher (Creswell, 2007). Silverman (2005) and Creswell (2007) argue that to achieve reliability within qualitative studies the researcher should consider pre-testing interview schedules, train researchers in interview skills and use inter-rater reliability tests (to decide if a scale is appropriate to use with a certain variable) to check the open ended questions codes which were developed. The coding of the data within this study was checked and re-checked with the supervisory support providing consistency (Silverman, 2005; Creswell, 2007; Zohrabi, 2013).

Validity and trustworthiness are also considered to be a potential issue within qualitative research (Polit and Hungler, 1999; Silverman, 2005; Johnson *et al.*, 2007; Zohrabi, 2013; Green and Thorogood, 2014). Recognition of the Hawthorne effect, where the impact of the researcher on the data collection or environment, the potential imposing of the researcher's personal values on the tool development or data collection and the belief in the participants truthfulness within their response, may all be considered as potential areas of questionable credibility (Silverman, 2005). Data collection by an insider researcher may

provide questionable dependability at point of data analysis Hammersley and Atkinson (2007) argue that even the most enthusiastic of participants may provide inconsistent answers due to poor memory when undertaking a longitudinal study.

Therefore, the checking of a transcript with the participant may reduce issues of poor credibility in data collection (Polit and Hungler, 1999). Mason (2006) argues that this may not be helpful due to poor memory and truthfulness of participants and as such should not be undertaken. These issues were considered and for the reasons noted by Mason as well as pragmatic reasons, such as difficulties of travel to meet participants and time limitation, scripts were not returned to participants in Phase 2.0.

The ethical and beneficence considerations for both data collection methods are addressed within the next section.

3.8 The reflexive researcher

The longitudinal nature of this study may in itself hold both benefits and negative connotations for the researcher. At each of the three Phases 1.1, 1.2 and 1.3 in the quantitative study, the semantic scale was given to all of the participants. This group of students may have been influenced by undertaking a longitudinal study. The curriculum provided taught sessions on stigma within the first year only. However, a false positive may be seen within this group as they addressed attitude and stigma throughout the longitudinal project, because of revisiting it as a topic on each data collection point. Therefore, the participants may have been more, or even less receptive to considering their attitudes towards the diseases throughout the course. This presents a potential issue with projected bias upon the results of studies at Phase 1.2 and Phase 1.3 of the qualitative study because of their knowledge of the research topic and their potential reflection upon their stigmatising attitudes.

The role of an '*insider-researcher*' has its own limitations. An increase in the regulations within research, whilst setting out to protect participants from harm, have forced an increase in '*insider researchers*' (Floyd and Arthur, 2013). Tolich

(2004), Drake and Heath(2008) and Drake (2010) argued that researchers working within the environment being studied were at risk of knowing too much about the participants, skewing the transferability of the results. Further compromise may be considered from a blurring of the researcher/professional boundaries (Mercer, 2007). The integrity of the researcher and study may be questioned due to a distortion in the clarity of some boundaries. Negative results reflecting on a researchers employing institution may provide a conflict of interest as such areas cannot be '*unheard*' (Clandinin and Connelly, 2004). Although noted that this was an '*insider researcher*' supervision of the study was undertaken by external academics to this institution (Floyd and Arthur, 2012).

Students within one rural centre had access to the researcher throughout the course. This may highlight potential biases and a Hawthorne effect from the participants within the results (Landsberger, 1958; Polit and Hungler, 1999). It was identified that there was a position of power within the researcher's role which may lead to consideration of the researcher as an expert. This can affect their ability to subjectively remove themselves from the research and data and critically appraise the methodology and findings. Addressing this goes some way to ensuring the development of the research process and researcher as being recognised as symbiotically emergent. Within the study recognition of this developed throughout the process and allowed the growth in knowledge and expertise within the area to underpin the articulation of the results and findings to others.

Effects upon the researcher should also be considered. The research undertaken derives from personal experiences, observations, which may not only present risks of skewed results and biased influences, but also, the researcher for personal distress (Creswell, 2007). Yet, this was addressed throughout with research supervision meetings providing an open forum for discussion surrounding such areas. It is important to note that potential immersion in the topic over a longitudinal study can become consuming for the researcher and therefore, a loss of purpose may be present on completion (Polit and Hungler, 1999). Reflexivity is how the researcher reflects upon their writing and considers their interpretation of this, based upon their own cultural, social, gender, political

and personal beliefs (Creswell, 2007). Finlay (2002) stated that reflexivity was required for the researchers 'inter-subjective' views which may impinge upon and alter the research. Finlay (2002) argued it is at the centre of all methodological ways of thinking, monitoring the research and increasing the trustworthiness of the results found within a study. The researcher's reflexivity provided a basis for the qualitative study (Phase 2.0) and ensured the deconstruction of the interview data allowing interpretation and analysis (Polit and Hungler, 1999; Finlay 2002; Silverman, 2005; Creswell, 2007; Walker *et al.*, 2013). Although an important part of the evolution of qualitative research it may also be that the researcher is offering personal and incomplete accounts of the data and as such impacts upon the readers and even participants view of the write up (Finlay, 2002; Creswell, 2007).

Walker *et al.*, (2013) argued that reflexivity may also be relevant to the quantitative study (Phase 1.0). Similarly to within qualitative studies it provides information about the researcher's personal and positional views about the research topic and analysis. Transparency within both Phases of the study is required to ensure an ongoing critical review of the mixed methods work, researcher and process development (Polit and Hungler, 1999; Finlay 2002; Silverman, 2005; Creswell, 2007; Walker *et al.*, 2013). Finlay (2002) argued that although vital to the process of the research the reflexivity of the researcher is not an opportunity to interject their own emotion and beliefs onto the process and results of a study but merely a way of utilising their own experiences and personal meaning into a critical appraisal of the data.

Hunt (1989) and Ballinger and Payne (2000) state that the researcher is seen as a professional with a kind of influence and authority over the research and data. The researcher examined the influence and potential biases within this study and ensured they were addressed by collaboration with a supervisory team. However, previous personal experience was a driver to undertake the project and seen as a positive when critically reviewing the data generated from both Phases. This encouraged the opening up of discourse with the participants

(Finlay, 2002). The researcher did grapple with the potential of limited honesty from the participants due to the insider researcher role (Finlay, 2002; Creswell, 2007). Yet, the importance of reflexivity and critical appraisal of the data is vital as the potential influences of a study may be greatly affected by future work or policy development within this area (Creswell, 2007; Walker *et al.*, 2013). Examples of reflexivity may be found within *Appendix 14.0*.

3.9 Synopsis

This chapter has described the methods used in the study. It has given an outline of mixed methods. The mixed methods approach was adopted on the basis of exploration of the presence of potentially stigmatising views of healthcare workers towards other positively diagnosed healthcare workers. The process of the study was considered and the implications of this from the researcher's perspective. Chapter 4 will report on Phases 1.0 and 2.0 of the study.

The methods chapter addressed the objectives by:

- Describing the modes of collection of the data for Phase 1.0 and Phase 2.0 (*Objective 2*).

4.0 The results of Phase 1.0.

4.1 Prologue

This chapter presents the findings from the quantitative study for Phases 1.1, 1.2 and 1.3. Prior to commencing any analysis, data cleansing was concluded to prevent type 1 and type 2 errors (Tabachnick and Fidell, 2013; Pallant, 2007; Field, 2009). A type 1 error incorrectly rejects that which is considered an 'actual true null hypothesis'. A type 2 error may cause the rejection of a false null hypothesis. On completion of the data cleansing and missing values removal a Principle Component Analysis (PCA) was undertaken and the emerging components were used in an analysis of variance test (ANOVA's). Three individual ANOVA tests were run within each Phase (1.1, 1.2 and 1.3). The null hypothesis was tested on completion of Phase 1.3 with a within-subjects repeated measures test on the full data set. (See Appendix 12 for test glossary).

The structure of this chapter is as follows:

- **Section 4.2** introduces the data descriptives and data cleansing,
- **Section 4.3** discusses the PCA analysis.
- **Section 4.4** presents the three ANOVA tests undertaken in Phases 1.1, 1.2 and 1.3.
- **Section 4.5** presents the analysis of the results and trends from the within-subjects repeated ANOVA.
- **Section 4.6** provides a synopsis of the findings.
- **Section 4.7** discusses the limitations identified in this phase of the study.

4.2 Data Description

The tools used to collect data in Phases 1.1, 1.2 to 1.3 is described in *Chapter 3, Section 3.4.6*. Here it can be seen that students were asked to rate 20 attributes linking to a range of diseases in the perception of stigma (see *Appendices 3 to 7*).

The mean scores for each attribute were identified and Standard deviation (SD) calculated to indicate how much each of the group members differed from the mean value for the group (Table 4.1). This discarded 5% of the smallest and largest mean values (5% trimmed mean). Further analysis of the mean of the other values the 5% interpretation was commenced to reduce the risk of these results causing type 1 or type 2 errors (Field, 2009; Tabachnick and Fidell, 2013). The type 1 error would mean that acceptance that the null hypothesis is true (Field, 2009; Tabachnick and Fidell, 2013). The type 2 error would be the failure of the research to reject a null hypothesis that was false (a false positive) (Field, 2009; Tabachnick and Fidell, 2013). Interpretation of the 5% trimmed mean showed no significant differences with the original means other than in variable 11 (Table 4.1). This is reviewed further in Table 4.2.

Table 4.1 - Phase 1.1 The twenty attribute analysis

Twenty original attributes used within the visual analogue scale	Mean	5% Trimmed Mean	Standard Deviation	Skewness	Kurtosis
Honest-not honest	32.74	32.10	18.393	0.376	-0.468
Good -bad	31.98	31.15	17.734	0.638	0.217
Strong-weak	36.88	36.50	19.690	0.152	-0.818
Happy-sad	33.50	32.68	19.709	0.610	-0.044
Warm-cold	34.47	34.12	17.621	0.277	-0.194
Attractive-not attractive	46.72	46.89	17.989	-0.261	0.0588
Calm-aggressive	33.61	33.07	17.285	0.432	-0.101
Clean-dirty	36.92	36.28	20.652	0.330	-0.437
Productive-idle	39.98	39.66	20.963	0.253	-0.713
Fit-not fit	28.88	27.41	22.293	0.942	0.084
Faithful-not faithful	44.14	43.83	18.986	2.250	26.006
Social-not social	31.78	30.46	22.813	0.824	-0.176
Responsible-not responsible	42.55	42.33	20.681	0.100	-0.726
Innocent-guilty	41.81	42.10	16.366	-0.413	0.583
Introvert-extrovert	49.83	50.10	20.325	-0.150	-0.079
Passionate-not interested	42.53	42.52	18.930	-0.046	-0.269
Quiet-loud	49.34	49.44	19.937	-0.109	-0.037
Not ashamed-ashamed	41.57	41.30	18.813	0.033	0.064
Sensitive-not Sensitive	38.44	38.29	16.799	0.066	0.042
Moral-not moral	39.65	39.64	16.740	-0.066	0.329

Other than in variable 11 no extreme outlying means were identified. However, within the variable faithful/not faithful (11) the findings from 10 participants, identified within *Table 4.2* by their participant score, gave responses that varied widely from the mean. For example, in the last column marked ‘participant values’ it can be seen that in relation to PTB participant number 237 gave a score of 99 and participant number 169 gave a score of 0; in the MRSA response participant 302 gave a score of 1 and participant 83 gave a score of 94. These outlying participant value scores account for the high Standard Deviation noted in *Table 4.1* for the attribute ‘Faithful-not Faithful’. The P value for this attribute can be seen in *Table 4.3*.

Table 4.2 - Illustrative example of the outliers scores.

Variable		Participant Number	Participant value from n=482	
Faithful-not faithful	Highest	HIV	365	99
		PTB	237	99
		MRSA	83	94
		Diabetes Type 2	456	93
		Hepatitis C	43	86
	Lowest	HIV	401	0
		PTB	169	0
		MRSA	302	1
		Diabetes Type 2	183	2
		Hepatitis C	287	3

The Participant values are extreme mean values which may skew the results and significance, therefore potentially providing type 1 and type 2 errors. Skewness is where the majority of results sit in a distribution in comparison to a mean and the kurtosis is the peak of the distribution where most results lie. Pallant (2007) and Tabachnick and Fidell (2013) stated kurtosis and skewness tests are considered too sensitive for samples $\geq n=200$ which may in itself skew the results seen within the analysis. Therefore further analysis of the faithful-non faithful attribute was undertaken and no significance between faithful and not faithful was seen (see *Table 4.3*).

Table 4.3 Tests of Normality

	Kolmogorov-Smirnova test			Shapiro-Wilk test		
	Statistic	df	Significance	Statistic	df	Significance
Faithful-not faithful	0.162	482	0.000	0.823	482	0.000

The symmetry distribution (skewness) indicated that the symmetry distribution of the data set had a left sided distribution peak. The kurtosis test indicated a slight flat distribution across all visual analogue scales within all disease groups indicating that some extreme cases were influencing the results (Polit and Hungler, 1999; Pallant, 2007; Field, 2009; Tabachnick and Fidell, 2013).

The skewness test and kurtosis test were undertaken to consider the shape of a probability distribution and it is recognised that there are differing ways of determining this. Both tests were undertaken and even though one attribute faithful/unfaithful was seen to be potentially skewing the results within *Table 4.1* this was not seen to be significant enough to cause error (*Table 4.2*). The sample was considered large enough to ensure this did not skew the results (Polit and Hungler, 1999; Pallant, 2007; Field, 2009; Tabachnick and Fidell, 2013).

4.2.1 Data cleansing (outliers)

The data set was drawn from a sample of $n=482$ and considered a large enough sample to identify outliers ($n=2$) (see *Chapter 3, Section 3.4*). An outlier is a measurement within the analysis, which is seen to differ significantly from the other statistical observations within the data set. In Phase 1.1, two cases were seen to be greater than 10% outside of the average mean and were removed to prevent type 1 and type 2 errors (Pallant, 2007; Field, 2009; Tabachnick and Fidell, 2013). On removal of the two outlying cases the data was re-analysed for further outlying cases, no further cases were identified. This process was repeated in Phase 1.2 and Phase 1.3 and no outliers were seen within these data sets, therefore no further removal of outliers was required from these data sets.

4.2.2 Missing data

Missing data occurs when no data was stored for a variable found within the visual analogue scale or on participant removal from a stage of the longitudinal study (Bryman and Cramer, 1994; Pallant, 2007; Kinnear and Gray, 2009; Field, 2009; Tabachnick and Fidell, 2013). This may be seen as a common occurrence and should be noted to have a possible affect on the analysis and conclusions drawn from the data. Missing data can 'spoil' a data set as a result of incomplete answers. However, within this study the missing data was minimal and appeared to be random, a common occurrence when instigating research over a long, three year period, it was considered that this may have occurred due to the completion of the three Phases (1.1, 1.2 and 1.3) being undertaken longitudinally.

Missing data was identified within each Phases. Analysis of Phase 1.1, showed 10 missing values ($n=10$; total percentage =2.1%). Mean substitution was considered, but not undertaken as 2.1% was <5% of the overall value ($n=482$) and would not create a type 1 error (Field, 2009; Tabachnick and Fidell, 2013). Missing values from incomplete descriptors increased in Phase 1.2 to 59 ($n=59$; total percentage 12.2%) and Phase 1.3 to 127 ($n=127$; total percentage 32.6%) (see Table 4.4). After removal of the ten cases of missing data the number of data sets analysed was reduced to $n=472$. The missing data was adjusted across all Phases (1.1, 1.2 and 1.3).

Table 4.4 Missing data identified by disease groups in Phases 1.1, 1.2 and 1.3.

Disease group		Phase 1.1		Phase 1.2		Phase 1.3	
		Number of missing values	Percent of missing values	Number of missing values	Percent of missing values	Number of missing values	Percent of missing values
Valid	HIV	92	19.1	84	17.4	67	13.9
	PTB	95	19.7	81	16.8	64	13.3
	MRSA	105	21.8	97	20.1	66	13.7
	Diabetes Type 2	97	20.1	73	15.1	66	13.7
	Hepatitis C	83	17.2	88	18.3	62	12.9
	Total	472	97.9	423	87.8	325	67.4
Missing Data		10	2.1	59	12.2	127	32.6
Total		482	100	482	100	482	100

4.3 Principle Component Analysis (PCA) Phase 1.1

The development of the visual analogue scale provided twenty opposing attributes which were identified (*Appendices 3 to 7*). Principle Component Analysis was used as a means of reducing the data and identifying possible type 1 and type 2 errors in the analysis (*see Table 4.1*).

Research reducing large amounts of data can be more readily interpreted by the factors, depicting areas of correlation within attributes (Tabachnick and Fidell, 2013; Fabrigar *et al.*, 1999). The statistical package, SPSS (version 21) was used in the analysis resulting in the development of the least number of factor axes or 'components' (Tabachnick and Fidell, 2013). The components assess the factorial validity of the question and provide an underlying process of correlation within the twenty original attributes (Bryman and Cramer, 1994; Tabachnick and Fidell, 2013; Field, 2009; Pallant, 2007; Kinnear and Gray, 2009).

It is recognised that PCA is dependent on the researcher interpretation (Field, 2009; Tabachnick and Fidell, 2013). Therefore, care was taken to apply the appropriate meaning from the data by close analysis of the correlation matrix as described below. Phase 1.1. The correlation matrix reviews the attributes and analysis shows all correlation. This comparison of multiple connections should always equate to 1.0. If they do not this indicates that the variables are unequal (Field, 2009; Tabachnick and Fidell, 2013). Here, the correlation matrix was analysed and all attributes with a correlation ≥ 0.3 noted, supporting sufficient correlations across all 20 attributes (Pallant, 2007; Field, 2009; Tabachnick and Fidell, 2013). The absence of correlations ≥ 0.3 would indicate no correlation and the PCA analysis would not be useful to reduce the data (Field, 2009; Tabachnick and Fidell, 2013).

To support the factorability of the correlation matrix the Kaiser-Meyer-Olkin test (KMO) was used (see Table 4.5) to measure the adequacy of the sample. This determines if the sample is useful for PCA analysis and variable reduction. The recommended value was $KMO=0.6$ to ensure the sample is adequate for further use of PCA (Kaiser, 1960; Field, 2009; Tabachnick and Fidell, 2013). A result of ≤ 0.5 or greater ≥ 0.8 would indicate sample inadequacy. Joliffe (1973) stated that this test should look further at a recommended value of 0.7, as it may be too restrictive at 0.6. The $KMO=0.857$ result was supported by a sample size ≥ 250 and attributes ≤ 30 showing that PCA was an appropriate test to use here. It indicated good factor correlations yielding reliable factors (Hutcheson and Sofroniou, 1999). Therefore the use of PCA was supported (Field, 2009; Tabachnick and Fidell, 2013).

A Bartlett's test was also used to test the variance of the population sample (Snedacor and Cochran, 1989). Further use of a Bartlett's test of sphericity (1954) presented a significance of 0.001, thus supporting the correlation matrix factorability. This test ensured the sample was normal with a population of equal variance which supported the reduction of variables through PCA. It also supported undertaking further analysis such as the ANOVAs which assume the variance is equal (Field, 2009; Tabachnick and Fidell, 2013).

In summary, The Bartlett's and KMO test together tested a null hypothesis which was that no difference exists between the set of observations taken that may be due to experimental or sampling error (Polit and Hungler, 1999) and thus supported the use of PCA analysis

Table 4.5 The sampling adequacy table reviewing the KMO and Bartlett's test for Phase 1.1.

KMO and Bartlett's test Phase 1.1		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.857
Bartlett's Test of Sphericity	Approx. Chi-Square	2136.557
	df	190
	Sig.	0.000

4.3.1 Extraction of the Factors

Analysis was undertaken of the Eigenvalues to determine when the correlation matrix is multiplied the non-zero values are indicated (Tabachnick and Fidell, 2013; Field, 2009). The Eigenvectors showed 20 factors which are the same as the variables used on the visual analogue scale. The variance is analysed and the percentage of each Eigenvector reviewed to ascertain the amount of variance is seen for each one (Field, 2009).

Within Phase 1.1 PCA analysis demonstrated the presence of five potential components with Eigenvalues ≥ 1.0 measure of variance showing which of the attributes within the correlation matrix that could be utilised for further analysis (see Table 4.6).

The components identified showed - (1) 25.08%, (2) 9.84%, (3) 6.49%, (4) 5.54% and (5) 5.37% of variance respectively. Of the five components which multiplied to the non-zero values, the lowest sum of squared loadings was 1.074 which indicated that the components were internally consistent. This variance can be seen in the Scree plot shown in Figure 4.1.

The researcher should view the Scree plot as a form of confirmation of components for further analysis (Field, 2009). A Scree plot review tests the components on a graph with two axes (*Figure 4.1*). The components can be viewed on the X axis and the Eigenvalues of these components on the Y axis (Tabachnick and Fidell, 2013; Field, 2009). Further analysis of the Scree plot showed a graphical display of the variance contributed by each component within the analysed data set as shown in *Table 4.1*, see also *Figure 4.1*.

The first three points identified fell above the clear break (represented by a red dashed line on *Figure 4.1*) (Cattell, 1966). However, the knee of the curve is more clearly defined by the first five themes having Eigen values ≥ 1.0 . Only after point 5 does the curve tend to a shallow negative slope, indicating that the remaining components, from 5 to 20, contributed very little to the total variability and could therefore justifiably be considered as unimportant. (Pallant, 2007; Field, 2009; Tabachnick and Fidell, 2013).

For this reason, the five themes shown in *Table 4.6* displaying Eigenvalues ≥ 1.0 were initially retained. However, from *Table 4.6* it can clearly be seen that variables 1 to 3 really hold the largest percentage of sums of square loadings. The total percentage of variance explained by these three components is 41.41% which was therefore considered to be adequate. The three new components which were generated from the PCA of the original 20 variables shown on *Figure 4.1* were named as:

- Personal statements (P1), evaluations by participants of the evaluative strengths and weaknesses of an infected healthcare worker.
- Personal responsiveness (R1), the healthcare workers considered responses or activities to stigma attributes.
- Personal reactions (R2), the reactions of the healthcare workers to the perceived stigma statements regarding a disease.

Introvert and extrovert were placed within P1: personal statements and not in R2: personal reactions because the loadings were greater within P1 component (*Table 4.7*). The first three components (attribute pairs forming P1, R1 and R2)

identified on analysis are the attributes which have the most commonality with themselves. This supported retention of these three as primary components for further investigation. They are seen in Table 4.6 and Figure 4.1 as numbers 1, 2 and 3.

Table 4.6 - Five identified Eigenvalues for Phase 1.1 with a squared loading ≥ 1

Component	Initial Eigen Values			Extraction Sums of Squared Loading			Rotation Sums of Squared Loading
	Total	% of Variance	Total	Total	% of Variance	Cumulative %	Total
1	5.016	25.081	25.081	5.016	25.081	25.081	2.980
2	1.968	9.840	34.921	1.968	9.840	34.921	2.223
3	1.298	6.489	41.410	1.298	6.489	41.410	1.674
4	1.108	5.542	46.952	1.108	5.542	46.952	3.107
5	1.074	5.369	52.321	1.074	5.369	52.321	3.227

Figure 4.1 - Scree plot for Phase 1.1 indicating three factors for further utilisation in analysis of Phases 1.1, 1.2 and 1.3

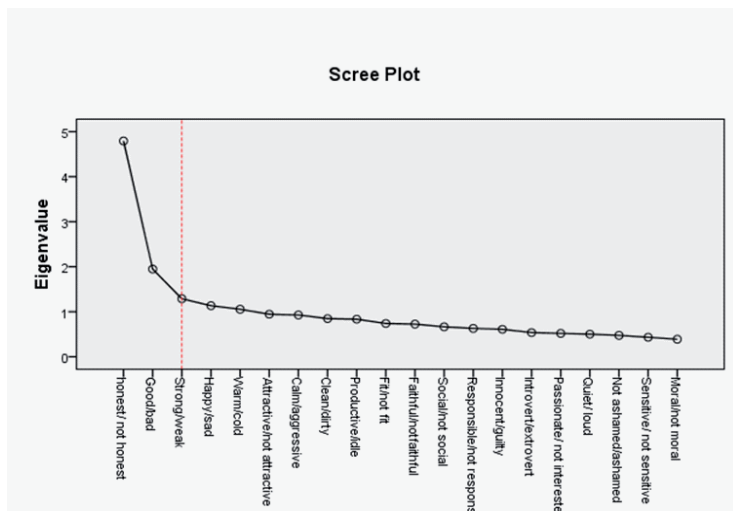


Table 4.7 - Results of oblimin rotation test Phase 1.1

P1: personal statements; R1: Personal responsiveness; R2: Personal reactions

	Pattern Coefficient Component P1	Structure Coefficient Component P1	Pattern Coefficient Component R1	Structure Coefficient Component R1	Pattern Coefficient Component R2	Structure Coefficient Component R2	Communalities
Honest -Not Honest	0.070	0.288	0.050	-0.052	-0.077	-0.088	0.475
Good-Bad	-0.002	0.264	0.191	0.054	-0.392	-0.385	0.636
Strong-Weak	-0.086	0.117	-0.086	-0.170	-0.082	-0.080	0.471
Happy-Sad	0.137	0.290	-0.060	-0.195	-0.712	-0.740	0.626
Warm-Cold	0.062	0.270	-0.181	-0.302	-0.588	-0.634	0.570
Attractive-Not attractive	-0.026	0.124	-0.531	-0.551	0.017	-0.062	0.355
Calm-Aggressive	0.536	0.631	0.185	0.046	-0.277	-0.315	0.555
Clean-Dirty	0.238	0.396	-0.248	-0.329	-0.027	-0.092	0.366
Productive-Idle	-0.012	0.183	-0.099	-0.139	-0.183	-0.241	0.454
Fit-Not fit	0.115	0.266	-0.343	-0.385	0.206	0.146	0.431
Faithful-Not faithful	0.667	0.719	0.026	-0.044	0.119	0.025	0.619
Social-Not social	0.130	0.272	-0.617	-0.645	0.135	0.032	0.523
Responsible-Not responsible	-0.055	0.198	-0.131	-0.158	0.217	0.162	0.560
Innocent- Guilty	0.537	0.635	-0.020	-0.098	0.209	0.136	0.546
Introvert-Extrovert	0.121	0.110	0.500	0.494	0.316	0.366	0.440
Passionate-Not interested	0.158	0.365	-0.461	-0.511	-0.058	-0.173	0.572
Quiet-Loud	-0.014	-0.033	0.665	0.670	0.160	0.236	0.521
Not ashamed-Ashamed	0.762	0.691	-0.140	-0.231	-0.217	-0.307	0.625
Sensitive-Not sensitive	0.005	0.208	0.152	0.108	-0.063	-0.093	0.520
Moral-Not moral	0.355	0.530	0.158	0.077	0.024	-0.033	0.600
Eigen values	5.016		1.968		1.298		
% of Variance	25.081		9.840%		6.489%		

Further analysis was conducted via an oblique test which provided a summary of the data set and supports a mathematical interpretability of exploratory data (Field, 2009; Tabachnick and Fidell, 2013). Field (2009, pg 638) states this is a “*psychometrically sound procedure*”. Correlation of the underlying factors to allow rotation of these factors was undertaken by an Oblimin method. The Oblimin rotation was utilised to ensure correlation of the components. The Oblimin method provided a ‘*unique representation*’ of the attributes maximising rotation within the results (Bryman and Cramer, 1994; Pallant 2007; Kinnear and Gray, 2009; Field, 2009; Tabachnick and Fidell, 2013). Tabachnick and Fidell (2013) stated that a sample size ≥ 300 is required to provide low communalities of 3-4 indicators within each component. This was appropriate for the analysis here as the sample size utilised of $N=472$. Field (2009) stated that a requirement of 10-15 cases per variable is required to provide an adequate sample for correlation and this requirement was met.

Further analysis was conducted of the pattern and structural matrix to ascertain the loadings of the components (*see Table 4.3*). The pattern matrix was used rather than the structured matrix as it demonstrates a unique and uncontaminated relationship between the components, easing the analysis of the results (Pallant, 2007; Field, 2009; Tabachnick and Fidell, 2013). *Table 4.7* shows loadings of ≥ 0.3 were considered as relevant to the components and these are clearly identified in bold and red within the comparatives in *Table 4.7*. Negative and positive values were also considered as the relevant attributional pairs held both a negative and positive connotation.

Field (2009) considers that communalities ≤ 0.45 should be removed to prevent skewing of the data. However, Tabachnick and Fidell (2013) and Pallant (2007) argued that an analysis point of ≤ 0.3 is acceptable. This was used, for example, attractive/not attractive but it was not removed as it was ≤ 0.3 (*see Table 4.3*). This was assumed within this study as all communalities exceeded this point (*Table 4.7*). The PCA analysis reduced the 20 original attribute pairs to three components (*Table 4.8*), which could be clearly renamed for further analysis.

Table 4.8 - Components identified through PCA analysis of the pattern and structural matrix.

Component 1 Personal Statements (P1)	Component 2 Personal Responsiveness (R1)	Component 3 Personal Reactions (R2)
Not ashamed/ashamed	Quiet/loud	Happy/sad
Faithful/not faithful	Social/not social	Warm/cold
Innocent/guilty	Attractive/not attractive	Good/bad
Moral/not moral	Introvert/extrovert	
	Passionate/not passionate	
	Fit/unfit	

4.3.2 Interpretation of the results (Phase 1.1)

Osgood *et al.*, (1957); Ajzen (2011) and Polit and Hungler (1999) stated that PCA would support an understanding of the world surrounding us, providing areas of overlapping and interlinking meanings demonstrated by an individual's use of attributes. Correlation of the attributes prevented a type 1 error through variable reduction (Oppenheim, 1992) and gave scope for later analysis of Phases 1.2 and 1.3.

Wittenbrink and Schwartz (2007) suggest an attitude scale is a suitable way for the participants to express stigmatising values. Corrigan and Fong (2014) stated that the undertaking of new work on the measurements of stigmatising values has been limited within the past two decades. Therefore, the development of a scale displaying twenty attributes assessed the participant's attitudes, beliefs and values, regarding potential stigmas attributed to the five disease groups bring an addition to knowledge in this area (*Appendices 3 to 7*).

The three components identified above can be further considered.

- **P1: personal statements**, was considered to be evaluative dimension. The PCA identified this first, component as being an evaluation of the healthcare worker within the descriptor (see Participants identified healthcare workers with a given disease

label as, ashamed/not ashamed, faithful/not faithful, innocent/guilty and moral/not moral (Table 4.8). The four attribute pairs indicate potential feelings and actions which can relate to the idea of 'blame'. The negative attributes grouped here, such as shame, not faithful, guilt and not moral, may indicate devaluing attitudes of the participants towards a diseased individual, potentially linking evaluations of blame to their lifestyle choices for example (Jones *et al.*, 1984; Shih, 2004; Weis, 2006; Hodgson, 2011). Macq *et al.*, (2005) argued that by assigning such attributes to an infected individual there is an internalisation of negative stigma which underpins their self-perception and reduces feelings of self-worthiness. Therefore, such personal statements demonstrate an evaluation which may be enacted stigma by the positively diagnosed individual. The attachment of such evaluative attributes may underpin the acceptance of an infected healthcare worker by others. Taylor (2001) argued that within society negative stigma attributes may lead to blame, anger and increasing isolation of an individual with increasing enacted, externalised and internalised stigma. It is considered that this supports hypothesis 1, indicating that the participants held negative evaluative attitudes towards healthcare workers with positive diagnoses in the chosen five disease groups studied and prior to commencement of the course.

- **R1: personal responsiveness**, which considered the expected responses of the healthcare worker to the personal statements demonstrated by the participants. Within this study the second component also demonstrated the consideration of risk felt by the healthcare worker to the initial evaluative assessment and personal statements experienced (Tables 4.7 and 4.8). Fazio *et al.*, (1986) argues that the evaluative dimension of the semantic differentiation scale is potentially the only domain required within the scale analysis. In this study R1: personal responsiveness provided the most attributes for consideration when reviewing the correlation

of the twenty variables. However, it should be noted that these were mixed negative and positive scores holding lesser values than those of the P1: personal statements (see Table 4.7). The use of the P1: personal statements (evaluative) dimension only was considered limiting to further analysis. Fazio *et al.*, (1986) stated that implicit attitudes are learnt early within cognitive development. This supports the first *hypothesis*. The participants in this study have entered into healthcare courses with both positive and negative attitudes towards positively diagnosed individual with one of the five diseases studied.

Analysis of attributes identified within R1, presented more physically based attributes affiliated with the healthcare workers responses to the personal statements (P1) (see Table 4.8). Paulhus (1991); Bradburn *et al.*, (2004); Wittenbrink and Schwarz (2007 and Ajzen (2011) argued that such responses could cognitively underpin the responsiveness seen to stigma by the positively diagnosed healthcare workers and considered it as the cognitive response to such statements. This would be the internalisation of the stigma they had experienced. Risk to the participant was a qualitative theme appearing to be a clear consideration within the findings of this study. However, within R1, it is suggested that response attributes are affiliated to the healthcare worker's responses to stigma attributes and the participants perceived view of this rather than the thoughts of personal risk, for example, they considered the healthcare workers sad.

Taylor (2001) identified that the family of a positively diagnosed individual experienced 'courtesy stigma' potentially underpinned by the statements attributed (P1) and the assumed responses from the healthcare worker (R1). This may be seen to add a further dimension to the potency previous identified by Osgood *et al.*, (1957). When reconsidering the links to the hypotheses this further supports hypothesis 1, demonstrating that at the beginning of the course the participants had preconceived ideas regarding the healthcare worker and disease described within the descriptor. However, the further three hypotheses could not be considered at this point until further analysis was undertaken.

- **R2: personal reactions** are considered by the participants as the perceived reactions of the healthcare worker to the initial statements (P1) and the considered responses (R1) affiliated to the disease diagnosis (see Table 4.7 and Table 4.8). Osgood *et al.*, (1957) defined the third dimension as that of 'activity'. This is the active or passive reaction of the stigmatised healthcare worker to individual to the initial statements. The results within this study supported this view and demonstrated the considered component three as; happy/sad, warm/cold and good/bad (see Table 4.7 and Table 4.8) These were all 'active' reactions to the statements and responses demonstrating what the participants would 'expect' as a reaction from the positively diagnosed healthcare worker within the descriptor. Asch (1946); Crocker and Major, (1989); Pinel (1999); Link *et al.*, (2001); Albon (2002); and Corrigan *et al.*, (2008); argue that stigmatising statements and attitudes support the stigmatiser assuming certain responses from the infected individual. These are supported by the presumed reactions which may define links between labelling, stereotyping, stigma and prejudice. This also supports hypothesis 1 demonstrating that certain previously acquired stigmatising attitudes are present at this first stage of data collection at the beginning of the course when discussing the implications.

4.4 Analysis of Variance (ANOVA) one run within each Phase (1.1, 1.2 and 1.3)

The ANOVA test analyses group means and determines the variations between them. The ANOVA interprets how much variability is explained by a linear model (Bryman and Cramer, 1994; Pallant, 2007; Kinnear and Gray, 2009; Field, 2009; Tabachnick and Fidell, 2013). Undertaking one ANOVA within each Phase (1.1, 1.2 and 1.3) reduced the type 1 error risk. The cause and effect of the study design can be *interpreted* from the analysis (Field, 2009; Tabachnick and Fidell, 2013). Within this study, it was noted there was scope to manipulate the attributes listed (Table 4.1), by the experiences available to students on

their education programme undertaken after Phase 1.1. Causal agents such as participants underlying values, theoretical education and clinical exposure were considered *when analysing* the results (Field, 2009).

The use of the three one way ANOVA testing on Phases 1.1, 1.2 and 1.3 provided interpretation of the F ratio (the ratio of variance between the groups to within the groups) and means for Phases 1.1, 1.2 and 1.3. A random sample selection was undertaken in Phase 1.1 only which was used to represent the population of student nurses which could be transferable to other groups (Field, 2009). Here students were randomly given a survey tool reflecting a specific disease process, ie tool 1 focused on PTB, tool 2 focused on *Chapter 3, Section 3.4.6*. Within Phase 1.2 and Phase 1.3 the individual participants received the same descriptor (e.g. PTB through phases 1.1, 1.2 and 1.3).

4.4.1 The Phase 1.1 ANOVA

The results of the ANOVA test for Phase 1.1 are shown in *Table 4.9*. The degrees of freedom (df) noted demonstrates the number of independent variable which were allocated to the distribution. It should be noted that this number altered for each Phase, to take account of missing data.

The F ratio interpretation (*Table 4.9*) reports the significance result indicating a successful manipulation within the study when analysing the group means (Pallant, 2007; Kinnear and Gray, 2009; Field, 2009; Tabachnick and Fidell, 2013). Significance was taken as $p=0.05$ (indicating a 5% error gradient) and values ≤ 0.05 were seen as significant (Field, 2009).

Homogeneity of variance was also analysed through the Levene's test. This tested the equality of variance within the five disease groups and investigates whether the population variances within the study were equal. This tests the null hypothesis by testing homogeneity of variance for two or more samples within this study (Field, 2009; Tabachnick and Fidell, 2013). It showed that with the three variables P1, R1 and R2 there was no significant difference between them and therefore continuance of use of these concepts was supported.

The Welch and Browns-Forsythe tests were undertaken to ensure the homogeneity of variance had not been violated. The test analyses the group variances and equality as shown in *Table 4.9*. Significance was seen with $P = 0.05$ in *Table 4.9* indicating a significance with P1 and R1. Further rigorous testing of the multiple comparisons was undertaken using the Bonferroni post hoc test, which is considered the most consistent analysis of significance in means by correcting the P values for the multiple comparisons (Pallant, 2007; Kinnear and Gray, 2009; Field, 2009; Tabachnick and Fidell, 2013). These tests were undertaken to show that the sample used for the ANOVA displayed no serious violations which would have caused a rejection of further testing for the data set.

Table 4.9 ANOVA and robust test for equality of means Phase 1.1

Attribute	Df	F	P	Robust test of equality of means	
				Welch	Brown-Forsythe
P1	4/469	2.15	0.074	0.83	0.074
R1	4/467	0.41	0.405	0.812	0.804
R2	4/467	0.86	0.863	0.431	0.486

The ANOVA for unrelated designs was conducted to establish whether the internal attributes of stigma-type affected each of the three components P1, R1 and R2. The standard 5% significance level ($p < 0.05$) and post-hoc tests (Bonferroni), where F values were significant at ≤ 0.05 (*Table 4.9*) a one way between groups analysis of variance was undertaken in Phase 1.1. The results were divided into disease groups HIV, PTB, MRSA, Diabetes type 2 and Hepatitis C, no statistical significance was between means at time Phase 1.1: P1: personal statements $F = (4/467) = 2.15$ $p = 0.074$; R1: personal responsiveness, $F = (4/467) = 0.41$ $p = 0.405$; R2: personal reactions, $F = (4/467) = 0.86$ $p = 0.863$.

Table 4.10 Descriptive table for the significance ($p < 0.05$) at Phase 1.1.

Three Components	Number of Participants (n)	Group mean responses from Participants (m)	Standard Deviation (SD)
P1 : Personal statements			
1. HIV	92	100.58	25.73
2. PTB	95	99.12	26.79
3. MRSA	105	91.09	29.98
4. Diabetes	97	93.47	27.18
5. Hep C	83	99.08	29.59
Total	472	96.45	28.05
R1: Personal responses			
1. HIV	92	-25.77	27.76
2. PTB	95	-29.26	30.66
3. MRSA	105	-24.90	31.55
4. Diabetes	97	-24.87	32.37
5. Hep C	83	-28.16	30.87
Total	472	-26.51	30.64
R2: Personal reactions			
1. HIV	92	-10.09	11.27
2. PTB	95	-7.89	8.63
3. MRSA	105	-8.69	10.19
4. Diabetes	97	-9.95	10.07
5. Hep C	83	-9.83	9.76
Total	472	-9.26	10.01

Table 4.9 shows the ANOVA indicated no significant differences within the components P1, R1 and R2 for any of the disease groups (HIV, PTB, MRSA, Hepatitis C and Diabetes type 2). However, further analysis of the means for

P1 vs each disease group (*Table 4.10*) indicated that HIV ($m=100.58$, $SD=25.73$) was considered more positively stigmatised than P1 personal statements than PTB, ($m=99.12$, $SD=26.79$); Hepatitis C ($m=99.08$, $SD=29.59$); Diabetes type 2 ($m=93.47$, $SD=27.18$) and MRSA ($m=91.09$, $SD=29.98$). This indicates that the participants considered HIV more ashamed, yet more faithful, innocent and moral than PTB, Hepatitis C, Diabetes type 2 and MRSA. This is summarised in *Table 4.11*. All the attributes considered were seen as positive stigmas by the participants. Interpretation found participants considered the personal statements (P1) related to the descriptor presenting a more negative stigma towards the diseases Diabetes type 2 and MRSA.

Table 4.11 Responses for ANOVA in Phase 1.1

P1: personal statements (P1/Phase 1.1)		R1: personal responsiveness (R1/Phase 1.1)		R2: personal reactions (R2/Phase 1.1)	
HIV	Ashamed Faithful Innocent Moral	PTB	Loud Not social Not attractive Not passionate Extrovert	HIV	Sad Cold Bad
PTB		Hepatitis C		Diabetes type 2	
Hepatitis C		HIV		Hepatitis C	
Diabetes type 2		MRSA		MRSA	
MRSA		Diabetes type 2		PTB	

In *Table 4.10*, R1: personal responsiveness was interpreted as PTB ($m=-29.26$, $SD=30.66$) being more negatively stigmatised than Hepatitis C ($m=-28.16$, $SD=30.87$); HIV ($m=-25.77$, $SD=27.76$); MRSA ($m=-24.90$, $SD=31.55$), Diabetes type 2 ($m=-24.87$, $SD=32.37$). On analysis the participants considered PTB as more, loud, not social, not attractive, extrovert, not passionate and unfit than Hepatitis C, HIV, MRSA and Diabetes type 2. The disease groups PTB, Hepatitis C and HIV were considered to respond negatively to perceived stigma statements, even if these had been attributed as positive by the participants. MRSA was considered to respond more negatively than Diabetes type 2. MRSA had a more negative stigma in P1. Analysis indicated that the

personal responses of positively diagnosed individuals will be more negative to the personal statements; ashamed, faithful, innocent and moral despite the positive connotations.

When analysing R2: personal reactions (*Table 4.10*) the means analysis showed HIV ($m=-10.09$, $SD=11.27$) as being more negatively stigmatised than Diabetes type 2 ($m=-9.95$, $SD=10.07$); Hepatitis C ($m=-9.83$, $SD=9.76$); MRSA ($m=-8.69$, $SD=10.19$); and PTB ($m=-7.89$, $SD=8.63$). Interpretation showed HIV to display more sad, cold and bad reactions than Diabetes type 2, Hepatitis C, MRSA and PTB. Within these findings healthcare workers indicate that HIV positive individuals are considered to react worse to the attached attributes than other diseases and this is seen as a follow on from their responses considered within R1. The non infectious Diabetes type 2 is more negatively valued than, Hepatitis C, MRSA and PTB. This may be due to previous contact with Diabetes type 2 or preconceived values due to media campaigns. The mean scores were identified as less negative than within the responses R1. It should be noted that there was no significance difference between means identified within R2 at the 5% level (*Table 4.9*).

This finding within Phase 1.1 ANOVA supports hypotheses 1 only as the participants at this point have not been on clinical placements and therefore not met any individuals within healthcare with positive diagnoses. The education programme has not been implemented and the participant's attitudes and values were assumed as they were at course commencement. Phase 1.2 was undertaken twelve months after this study and a second ANOVA undertaken at this time.

4.4.2 The Phase 1.2 ANOVA

The same tests were applied to the Phase 1.2 as described in *Section 4.4.1* for Phase 1.1. *Table 4.12* shows no significance in the components P1, R1 and R2 and these are in agreement with the Phase 1.1 results in *Table 4.9*. The results were divided into disease groups HIV, PTB, MRSA, Diabetes type 2 and Hepatitis C no statistical significance was between means at Phase 1.2: P1:personal statements $F=(4/418)=0.32$ $p=0.864$; R1: personal responsiveness, $F=(4/418)=1.57$ $p=0.197$ R2: personal reactions, $F=(4/418)=0.96$ $p=0.955$.

Table 4.12: ANOVA and robust test for equality of means Phase 1.2

Attribute	Df	F	P	Robust test of equality of means	
				Welch	Brown-Forsythe
P1	4/418	0.32	0.864	0.808	0.862
R1	4/418	1.57	0.197	0.181	0.199
R2	4/418	0.96	0.955	0.496	0.426

Table 4.13 shows that the second analysis of variance (ANOVA) undertaken at Phase 1.2 gave the same result as Phase 1.1 in that no significant differences in means within the dimensions P1, R1 and R2 for any of the disease groups (HIV, PTB, MRSA, Diabetes type 2 and Hepatitis C) was observed. Further analysis indicated for P1: personal statements, versus each disease group that PTB ($m=100.43$, $SD=20.71$), was considered more positively stigmatised than Hepatitis C ($m=99.10$, $SD=28.95$); MRSA ($m=98.53$, $SD=25.95$); HIV ($m=98.31$, $SD=29.28$); Diabetes type 2 ($m=95.77$, $SD=24.83$). In Phase 1.2 the personal statements attributed to the diseases presented PTB as more ashamed, faithful, innocent and moral than Hepatitis C, MRSA, HIV and Diabetes type 2. MRSA had been seen to generate more positive attributes than in Phase 1.1. HIV and Diabetes type 2 have become more negatively stigmatised. At this point within the curriculum, participants had received some education regarding the individual disease processes which may reduce potential stigma.

Table 4.13 Descriptive table for the significance ($p<0.05$) at Phase 1.2

Three Components	Number of Participants (n)	Mean responses from Participants (m)	Standard Deviation (SD)
P1 : Personal statements			
1. HIV	84	98.31	29.28
2. PTB	81	100.43	20.71
3. MRSA	97	98.53	25.95
4. Diabetes	73	95.77	24.83
5. Hep C	88	99.10	28.95
Total	423	98.49	26.14
R1: Personal responses			
1. HIV	84	-21.95	28.54
2. PTB	81	-29.97	27.50
3. MRSA	97	-21.85	25.97
4. Diabetes	73	-29.03	29.46
5. Hep C	88	-24.93	30.66
Total	423	-25.30	28.47
R2: Personal reactions			
1. HIV	84	-8.79	8.31
2. PTB	81	-8.92	88.17
3. MRSA	97	-9.12	9.59
4. Diabetes	73	-9.98	8.91
5. Hep C	88	-11.09	10.41
Total	423	-9.58	9.15

In Table 4.13 R1: personal responsiveness was interpreted as PTB ($m=-29.97$, $SD=27.50$) being more negatively stigmatised than Diabetes type 2 ($m=-29.03$, $SD=29.46$); Hepatitis C ($m=-24.93$, $SD=30.66$); HIV ($m=-21.95$, $SD=28.54$); and MRSA ($m=-21.85$, $SD=25.97$). On analysis the participants considered the responses from positively diagnosed healthcare workers with PTB as more, loud, not social, not attractive, extrovert, not passionate and unfit than Diabetes type 2, Hepatitis C, HIV and MRSA (Table 4.14).

Table 4.14 Responses for ANOVA in Phase 1.2

P1: personal statements (P1/Phase 1.2)		R1: personal responsiveness (R1/Phase 1.2)		R2: personal reactions (R2/Phase 1.2)	
PTB		PTB	Loud	HIV	
Hepatitis C	Ashamed	Diabetes type 2	Not social	Diabetes type 2	Sad
MRSA	Faithful	Hepatitis C	Not attractive	Hepatitis C	Cold
HIV	Innocent	HIV	Not passionate	MRSA	Bad
Diabetes type 2	Moral	MRSA	Extrovert	PTB	

No significance was identified between the means indicating the means were only marginally different for all disease groups (Table 4.13). The participants had accessed clinical placement within the previous year and been into contact with differing disease groups. The negative responses remain unchanged for Phase 1.2, yet the disease order was seen to alter.

Within Table 4.13 R2: personal reactions were interpreted as Hepatitis C ($m=11.09$, $SD=10.41$) being more negatively stigmatised than Diabetes type 2 ($m=9.98$, $SD=8.91$); MRSA ($m=9.12$, $SD=9.59$); PTB ($m=8.92$, $SD=8.17$) and HIV ($m=8.79$, $SD=8.31$). Interpretation showed Hepatitis C to display more sad, cold and bad reactions than Diabetes type 2, MRSA, PTB and HIV (Table 4.13 and Table 4.14). Diabetes type 2 remains more negatively valued as in Phase 1.1 and PTB more positively. Stigma education has been received by the participants, but indicates no changes to the individual's responses to Hepatitis C and Diabetes type 2. HIV has become more positive, but PTB and MRSA are considered to respond more negatively than at Phase 1.1.

In Phase 1.2 the participant group was 12 months post course commencement. Various differing clinical placements had been attended. An educational session on stigma had been provided within 6 weeks of Phase 1.1 with no standard content or delivery method. This may be attributed to the change in knowledge regarding the disease process or experience of the disease within the clinical

setting. On analysis of differences between each group mean for P1 between Phase 1.1 and Phase 1.2, the disease group means indicated more positive personal statements attributed to them except for the HIV group. This supports the hypothesis two that the educational input had made a difference for all disease groups. Hypothesis three was also supported as the participants had undergone varying clinical placements. This was not seen within the HIV disease group. Interpretation was that clinical placements and education may have some influence over the stigmatising attitudes and values of the participants Phase (1.3) was undertaken to provide comparative data at the three year point of the course attendance.

4.4.3 The Phase 1.3 ANOVA

The same tests were applied to the Phase 1.3 as described in Section 4.4.1 for Phases 1.1 and 1.2. *Table 4.15* shows no significance in the components P1, R1 and R2 and these are in agreement with the Phases 1.1 and 1.2 results in *Tables 4.9 and 4.12*. The results were divided into disease groups HIV, PTB, MRSA, Diabetes type 2 and Hepatitis C, no statistical significance was between means at Phase 1.3: P1: personal statements $F = (4/320) = 0.074$ $p = 0.74$; R1: personal responsiveness, $F = (4/320) = 0.41$ $p = 0.405$, R2: personal reactions, $F = (4/320) = 0.86$ $p = 0.863$.

Table 4.15 ANOVA and robust test for equality of means Phase 1.3

Attribute	Df	F	P	Robust test of equality of means	
				Welch	Brown-Forsythe
P1	4/320	2.15	0.074	0.83	0.074
R1	4/320	0.41	0.405	0.812	0.804
R2	4/320	0.86	0.863	0.431	0.486

Phase 1.3 participant groups were into their final year of training. The postgraduate course was at the point of qualifying. Clinical placements had been attended throughout. The participants were no longer comparable to the general population, but comparable to those attending and completing healthcare courses. Analysis of the ANOVA results in Phase 1.3 indicated no significant differences within the components P1, R1 and R2 for any of the disease groups (HIV, PTB, MRSA, Diabetes type 2 and Hepatitis C). See *Table 4.15*.

Table 4.16 - Descriptive table for the significance ($p < 0.05$) at Phase 1.3

Three Components	Number of Participants (n)	Mean responses from Participants (m)	Standard Deviation (SD)
P1 : Personal statements			
1. HIV	67	97.93	26.05
2. PTB	63	99.39	23.31
3. MRSA	67	95.89	24.57
4. Diabetes	66	93.72	21.39
5. Hepatitis C	62	97.29	26.57
Total	325	96.82	24.36
R1: Personal responses			
1. HIV	67	-20.78	25.65
2. PTB	63	-18.52	26.19
3. MRSA	67	-25.28	24.22
4. Diabetes	66	-29.88	26.42
5. Hepatitis C	62	-28.25	29.76
Total	325	-24.54	26.65
R2: Personal reactions			
1. HIV	67	-8.38	7.93
2. PTB	63	-9.26	8.88
3. MRSA	67	-10.74	10.03
4. Diabetes	66	-7.37	9.39
5. Hepatitis C	62	-10.39	9.52
Total	325	-9.21	9.19

Table 4.16 showed further analysis of the means indicated that PTB ($m=99.39$, $SD=23.31$) was considered more positively stigmatised with P1: personal statements than HIV, ($m=97.93$, $SD=26.05$); Hepatitis C ($m=97.29$, $SD=26.57$); MRSA ($m=95.89$, $SD=24.57$); and Diabetes type 2 ($m=91.09$, $SD=29.98$). This indicates that the participants considered PTB more ashamed, faithful, innocent and moral than HIV, Hepatitis C, MRSA and Diabetes type 2 have remained more negatively considered by the participants appearing not ashamed, not faithful, guilty and not moral (*Table 4.17*). However, these two disease groups were considered to be more positively stigmatised within Phase 1.2 and have returned to the P1: personal statements viewed at the data collection point in Phase 1.1.

Table 4.16 shows R1: personal responsiveness was interpreted as Diabetes type 2 ($m=-29.88$, $SD=26.42$) being more negatively stigmatised than Hepatitis C ($m=-28.25$, $SD=29.76$); MRSA ($m=-25.28$, $SD=24.22$); HIV ($m=-20.78$, $SD=25.65$); and PTB ($m=-18.52$, $SD=26.19$). On analysis the participants considered Diabetes type 2 were responding more, loud, not social, not attractive, extrovert, not passionate and unfit than Hepatitis C, MRSA, HIV and PTB. Within R1 at Phase 1.1 healthcare workers living with Diabetes type 2 are considered to have a more negative response to the perceived stigma. The participant's values and attitudes have returned to those seen at Phase 1.1. This was the same as at the beginning of the course for PTB and Diabetes type 2 becoming more negative for HIV and Hepatitis C. MRSA was again negatively stigmatised against. However, this was not seen to be as negative as within Phase 1.1 (*Table 4.10 and Table 4.11*).

Table 4.17 Responses for the ANOVA in Phase 1.3

P1: personal statements (P1/Phase 1.3)		R1: personal responsiveness (R1/Phase 1.3)		R2: personal reactions (R2/Phase 1.3)	
PTB		Diabetes type 2	Loud	MRSA	
HIV	Ashamed	Hepatitis C	Not social	Hepatitis C	Sad
Hepatitis C	Faithful	MRSA	Not attractive	PTB	Cold
MRSA	Innocent	HIV	Not passionate	HIV	Bad
Diabetes type 2	Moral	PTB	Extrovert	Diabetes type 2	

In Table 4.16 R2: personal reactions were interpreted as MRSA ($m=-10.74$, $SD=10.03$) being more negatively stigmatised than Hepatitis C ($m=-10.39$, $SD=9.52$); PTB ($m=-9.26$, $SD=8.88$); HIV ($m=-8.38$, $SD=7.93$); and Diabetes type 2 ($m=-7.37$, $SD=9.39$). Interpretation showed MRSA to display more sad, cold and bad reactions than Hepatitis C, PTB, HIV and Diabetes type 2 (Table 4.13). HIV and Diabetes type 2 were attributed to reacting less negatively to the stigma of a positive diagnosis. MRSA and Hepatitis C have returned to the stigmatising values indicated at the beginning of the course. PTB was seen to have a more negative reaction than at Phases 1.1 and 1.2.

Interpretation of Phase 1.3 indicated that the fourth hypothesis was disproved. On completion of the nursing course the participants stigmatising values and attitudes return to those expressed at the start of the course. Hypothesis two and three were also unsupported as the educational and clinical input delivered throughout the course has not altered the attitudes and values of the participants significantly from the course commencement in Phase 1.1. The results indicated that without further educational input a clear return to pre-course stigmatising values was observed. This indicates that the participants see the reactions of the healthcare worker as all the positively diagnosed healthcare workers in the descriptor as sad, cold and bad as they did pre-course. A further within subjects repeated measures ANOVA was undertaken to further explore the findings within Phases 1.1, 1.2 and 1.3.

4.5 Stage 3.0 A within-subjects repeated measures ANOVA

Analysis of the full data set incorporating the three Phases (1.1, 1.2 and 1.3) was undertaken using a within-subjects repeated measures ANOVA. The Phases ran over three years and were delivered in October each year to ensure that consistency was held within their clinical and educational programme (Bryman and Cramer, 1994; Polit and Hungler, 1999) Bowling, 2005; Pallant 2007; Kinnear and Gray, 2009; Field, 2009; Tabachnick and Fidell, 2013;. Puri (2002) stated that repeated measures are used to test the hypothesis formed by analysing the means of a dependant variable, on more than one occasion, for each subject. This differs from the one way ANOVA used within Phases 1.1, 1.2 and 1.3 as individual means rather than the disease group means were analysed (Field, 2009; Tabachnick and Fidell, 2013). The within-subjects repeated measures ANOVA provided a clearer analysis of results providing a greater power to the number of participants within the experiment (Kinnear and Gray, 2009).

The within-subjects repeated measures ANOVA provided a powerful test for interpretation of the systematic variance caused by educational manipulation within the study. Unsystematic variance was also considered as there were further unknown factors which could influence the results (Field, 2009). Within-subjects repeated measures provided analysis of sphericity (an equal variance between possible pairs or groups) and was less restrictive than compound symmetry by interpreting the means (Tabachnick and Fidell, 2013; Field, 2009). The tests analyse the variance of the individual participant's performances interpreting the effect of manipulation of the study by the researcher (educational input). It should be noted that differences between the disease groups may be present because of factors such as individual participant differences, differences with the delivery of the educational sessions, clinical experiences, or even chance which skews the results. This was analysed by interpretation of the F ratio, which provides a critical value enabling the avoidance of a type 1 error (Field, 2009; Tabachnick and Fidell, 2013). Therefore, an assumption may be drawn that the results were due to the manipulation (educational input) and would be transferable to the general population provided the same manipulation was applied.

4.5.1 The within-subjects repeated measures ANOVA Phases 1.1, 1.2 and 1.3

The within-subjects repeated ANOVA is susceptible to violation in the sphericity of the test (Tabachnick and Fidell, 2013; Field, 2009). As such, violation can cause a Type 1 error and the test may become too moderate (Polit and Hungler, 1999). The Mauchly's sphericity test was used to validate the results of the ANOVA by interpreting the variance of difference between conditions being equal. This showed a significance of $\leq p=0.05$ within R2: personal reactions only. P1 sphericity was not met (*Table 4.14*). P1: personal statements were considered equal indicating an acceptance of the null hypothesis within these Phases 1.1, 1.2 and 1.3 (Puri, 2002; Field, 2009). Therefore, Mauchly's test was undertaken to evaluate the sphericity of the study and indicated the sample size was considered adequate to stop violations of the sphericity being considered. However, Field (2009) noted that the sample size may effect the interpretation of results and as such further sphericity testing was required using the Greenhouse-Geisser test.

A further analysis of the Greenhouse-Geisser (*Table 4.18*) indicated the three components being closer to 1.00 were spherical rejecting the null hypothesis (Tabachnick and Fidell, 2013; Field, 2009). This test was applied to ensure there was no violation of the assumption of sphericity. The Greenhouse-Geisser was considered as it presented a more 'considerate' than the Huynh-Feldt. They are considered as a correction of the degrees of freedom within the data (Field, 2009; Tabachnick and Fidell, 2013). The Greenhouse-Geisser test has a higher p value after the degrees of freedom have been corrected (Bryman and Kramer, 1994; ; Field, 2009; Tabachnick and Fidell, 2013).

Table 4.18 Mauchly's Test of Sphericity

Component Measurement	Within subjects Effect	Mauchly's W	Approx Chi-Square	df	Sig			
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
P1:personal statements	TIME	0.996	1.151	2	0.56	0.996	1.000	0.500
R1:personal responsiveness	TIME	0.991	2.516	2	0.28	0.991	1.000	0.500
R2:personal reactions	TIME	0.403	249.88	2	0.00	0.626	0.648	0.500

Further analysis of R2: personal reactions within *Table 4.18* showed no significance within the Greenhouse-Geisser tests. The initial demographics of participant disease group, course studied (under graduate/post graduate), age (18-25, 26-65), centre attended (central/satellite), gender (male/female) and branch undertaken (adult nursing/other nursing) were also analysed and showed no significance. No significance was seen. Levene's equality of error of variance indicated a significance of $p=0.013$ within R2 in Phase 1.1, $p=0.021$ at Phase 1.2 within P1 and $p=0.038$ within Phase 1.2 within R1 indicating significantly inequality across these Phases within the analysis of these components. Interpretation of pair wise comparisons (participants within pairs of disease groups) between disease groups showed no significance not supporting the previously considered hypotheses. A final analysis of the three estimated marginal means was undertaken and the interpretation of the graphed results seen within the trends section.

The within-subjects analysis of variance was conducted assessing the impact of stigma and values of education on a participant group of student nurses ($n=286$) when considering three components P1: personal statements, R1: personal responsiveness and R2: personal reactions. The test was undertaken including all three Phases 1.1, 1.2 and 1.3 and the results are given in *Table 4.19*. This analysed the means and standard deviations using the same method of analysis as the individual Phases 1.1, 1.2 and 1.3. On interpretation no significance was seen within the mean scores at a 5% level ($p=0.05$) for P1: personal statements between Phases 1.1, 1.2 and 1.3: $F(2/552) = 0.007$,

$p = 0.993$. When interpreting the difference between the 3 Phases (1.1, 1.2 and 1.3) the following results were obtained:

- The two course groups of diploma and post graduate studies, no significance was seen for P1; $F(2/554)=0.975$, $p=0.378$.
- No significance was seen between the 3 Phases (1.1, 1.2 and 1.3) and the participants age groups (18-25, 26-65) for P1; $F(2/554)=0.252$, $p=0.777$.
- No significance was seen between the 3 Phases (1.1, 1.2 and 1.3) and the participants centre at which they attended (central or satellite) within P1; $F(2/554)=0.011$, $p= 0.989$.
- No significance seen over the 3 Phases (1.1, 1.2 and 1.3) between males and females within P1: $F(2/554)= 0.349$, $p= 0.706$.
- No significance was seen over the Phases 1.1, 1.2 and 1.3 between the two branches of nursing undertaken (adult nursing and other branches) within P1: $F(2/554)=1.345$, $p=0.261$.

Table 4.19 Descriptive table for the significance ($p=0.05$) for R2: personal reactions over the three Phases 1.1, 1.2 and 1.3

Three Components	Participant number (n)	Means (m)	Standard Deviation (SD)
R2 : Personal reactions			
Phase 1.1			
1. HIV	60	-10.9	11.52
2. PTB	59	-7.36	7.86
3. MRSA	62	-8.37	10.51
4. Diabetes	48	-7.99	7.71
5. Hepatitis C	57	-9.29	10.42
Total	286	-8.64	9.79
R2: Personal reactions			
Phase 1.2			
1. HIV	60	-96.74	27.44
2. PTB	59	-97.98	23.78
3. MRSA	62	-87.81	30.01
4. Diabetes	48	-91.38	30.93
5. Hepatitis C	57	-95.57	31.27
Total	286	-93.93	28.78
R2: Personal reactions			
Phase 1.3			
1. HIV	60	8.46	8.27
2. PTB	59	-8.66	8.81
3. MRSA	62	-10.39	10.31
4. Diabetes	48	-8.61	7.92
5. Hepatitis C	57	-10.12	9.51
Total	286	-9.28	9.03

No significance variance was seen with a within-subjects repeated measures between the 3 Phases and R1: personal responsiveness; $F(2/552) = 0.350$, $p = 0.705$.

- No significance was seen when considering the 3 Phases (1.1, 1.2 and 1.3) and the courses the participants attended (diploma or post graduate courses) within the R1 component: $F(2/552) = 0.325$, $p = 0.723$.
- On interpretation of the significance between the participants over the three Phases (1.1, 1.2 and 1.3) and the ages (18-25, 26-65) within R1, no significance was seen; $F(2/552) = 0.514$, $p = 0.598$.
- No significance was seen between the three Phases (1.1, 1.2 and 1.3) and the participants centre at which they attended (central or satellite) within R1; $F(2/552) = 0.053$, $p = 0.948$.
- No significance seen over Phases 1.1, 1.2, 1.3 between males and females within R1: $F(2/552) = 0.724$, $p = 0.485$.
- No significance was seen over the three Phases (1.1, 1.2 and 1.3), between the two branches of nursing undertaken (adult nursing and other branches) within R1: $F(2/552) = 0.831$, $p = 0.436$.
- A significance was observed within the mean scores at a 5% level for $p = 0.05$ over the three time points with R2: personal reactions in the Mauchleys test $p = 0.00$. Therefore, further analysis of the Greenhouse-Geisser was required. There was a significance found over the three Phases (1.1, 1.2 and 1.3) within R2: personal reactions; $F(1.25/552) = 21.589$, $p = 0.00$.
- No significance was seen when considering the 3 three Phases (1.1, 1.2 and 1.3) and the courses the participants attended (diploma or post graduate courses) within the R2 component: $F(1.25/552) = 0.229$, $p = 0.687$.

- On interpretation of the significance between the participants over three Phases (1.1, 1.2 and 1.3) and the ages (18-25, 26-65) within R2, no significance was seen; $F(1.252/552) = 0.265$, $p = 0.660$.
- No significance was seen between the 3 three Phases (1.1, 1.2 and 1.3) and the participants centre at which they attended (central or satellite) within R2; $F(1.252/552) = 0.057$, $p = 0.864$.
- There was also no significance seen over the three Phases (1.1, 1.2 and 1.3) between males and females within R2: $F(1.252/552) = 0.963$, $p = 0.346$.
- No significance was seen over the three Phases (1.1, 1.2 and 1.3) between the two branches of nursing undertaken (adult nursing and other branches) within R2: $F(1.252/552) = 0.254$, $p = 0.668$.

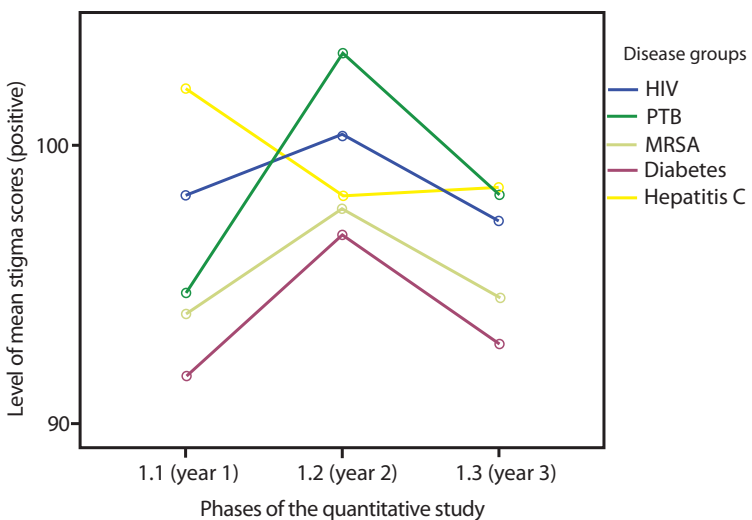
Further analysis of the pair wise post hoc tests for these groups saw no significance. Analysis of *Figure 4.2* shows no significance in mean differences between the three Phases 1.1, 1.2 and 1.3 in P1: personal statements. However, it can be seen that there was a more negative stigma addressed to Hepatitis C only at Phase 1.2, which was returned to a more positive value at Phase 1.3. The significance however was $\geq p=0.05$. On exploration the longitudinal (three year study), further individual means analysis (*Table 4: 19*) indicated that only personal reactions (R2) showed any significance ($\leq p=0.05$). On Further exploration of P1 at Phase 1.1 Hepatitis C was considered ashamed, faithful, innocent and moral than HIV, PTB, MRSA and Diabetes type 2 (*Figure 4.3*). On commencement the disease which was non infectious Diabetes type 2 appears to be more negatively stigmatised against (Anderson *et al.*, 1993; Browne *et al.*, 2013). Similarities can be drawn to the findings of the ANOVA at Phase 1.1. Diabetes type 2 appears more visible within the press and was identified as such within society. As the participants enter healthcare this was the area they show and more stigmatising attitudes towards. Further interpretation of the means shows Hepatitis C, HIV and PTB as more positively stigmatised. At Phase 1.2, P1: personal statements become more positive for PTB, HIV, Hepatitis C, MRSA and Diabetes type 2. There has been educational input for a two hour period at this point and as identified within literature this appears to have improved the overall stigmatising

values towards the disease groups. However, Hepatitis C becomes more negative indicating that further knowledge of the condition did not improve the personal statements considered by the participants (Carr and Kemmis, 1983; Joseph *et al.*, 2004). This may be due to clinical experiences or knowledge increases (Carr and Kemmis, 1983; Joseph *et al.*, 2004; Corrigan and Fong, 2014).

Within Phase 1.3, (Figure 4.2) in P1:personal statements HIV, MRSA and Diabetes type 2 return to the same stigmatising values seen at Phase 1.1. Intermittent programmes of education regarding stigma appear to work within the first year (Phase 1.1) and after 4-6 months no longer influence the participant’s values significantly. PTB at Phase 1.2, underwent the most positive stigma value change and although this has reduced by Phase 1.3 it has remained more positive than in Phase 1.1. Hepatitis C remains stable at Phase 1.3, with a more negative stigma considered than at Phase 1.1.

Figure 4.2 Within-subjects repeated measures P1: personal statements over the three Phases 1.1, 1.2 and 1.3

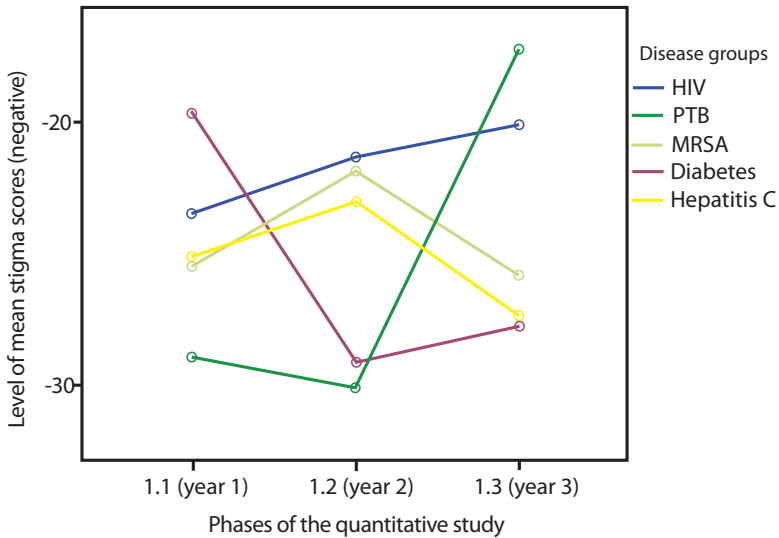
P1: personal statements comparative measurements of means over Phases 1.1, 1.2 and 1.3



Interpretation of *Figure 4.3* presented no significance in mean differences over Phases 1.1, 1.2 and 1.3. However, a more negative stigma value was seen at Phase 1.2 for both Diabetes type 2 and PTB. At Phase 1.3, the values for PTB were considerably less negative, for Diabetes they become less negative, but do not return to the less negative values expressed at the start of the course at Phase 1.1. Hepatitis C and MRSA become less negative at Phase 1.2, but return to a negative value at Phase 1.3, HIV becomes less negative over Phase 1.2 and Phase 1.3.

Figure 4.3 Within-subjects repeated measures R1: personal responsiveness over the three Phases 1.1, 1.2 and 1.3

P1: personal responsiveness comparative measurements of means over Phases 1.1, 1.2 and 1.3



R1: personal responsiveness was interpreted longitudinally over Phases 1.1, 1.2 and 1.3 and the analysis of the within subjects repeated measures ANOVA showed, participants negatively stigmatised PTB, MRSA and Hepatitis C as loud, not social, not attractive, extrovert, not passionate and unfit. Within this component MRSA and Hepatitis C were seen to have identical mean scores. HIV and Diabetes type 2 were less negatively stigmatised. The participants felt the responses expected from the healthcare worker would be negative. This supports the findings from analysis of the three ANOVAs. At Phase 1.2, after the delivery of the education session, PTB becomes more negatively stigmatised. Diabetes type 2 provides the greatest negative change to become the second most negatively stigmatised disease. This was explored further within Phase 2.0. The remaining three disease groups Hepatitis C, MRSA and HIV were seen to have a reduction in the negative stigmas placed.

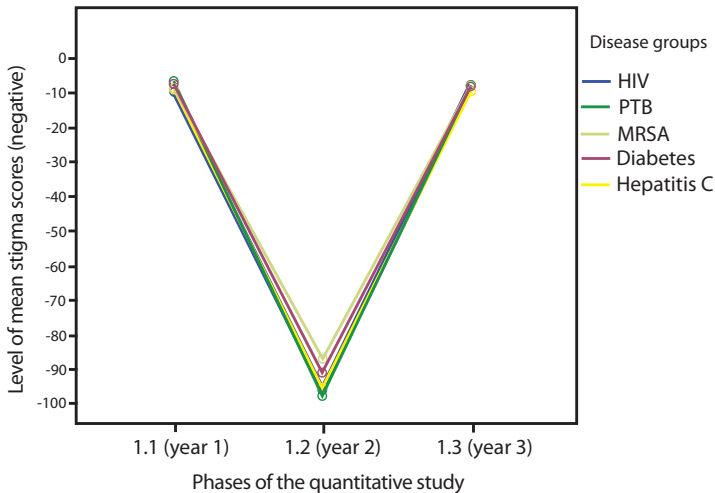
At Phase 1.3, the participants return their original stigmatising values for Hepatitis C and MRSA to the mean results seen at Phase 1.1. The HIV disease group were considered to be less negative in their responsiveness to the statements. Diabetes type 2 returned to a less negative value regarding responses but not to the original value at Phase 1.2. PTB became the disease group considered least loud, not social, not attractive, extrovert, not passionate and unfit with the biggest reduction in negative values. This contradicts the findings of the three ANOVAs in Phases 1.1, 1.2 and 1.3 as well as the results seen in the P1 repeated measures analysis. Potentially the education and clinical experiences have influenced the participants stigmatising attitudes and values. Asch (1946); Allport (1935); Maio and Haddock, (2010) and Festinger (1957) argued that such attitudes may be influenced by experience and knowledge and this may lead to, through education, the healthcare workers considered responses in particular disease groups returning to a more negative stance which was previously adopted. However, it should be noted that the influence of education may decrease at Phase 1.3 as the participants are seen to work within practice more and access education less as the courses progress.

On analysis of the third repeated measures ANOVA a significance ($p=0.00$) over the Phases 1.1, 1.2 and 1.3 was seen (*Table 4.14*). Interpretation of

Figure 4.4 presented significance within the three time points with R2: personal reactions seen at Phase 1.2. and indicated negative values for all participants on means analysis. Stigmatising values towards all disease groups return to a less negative stance within Phase 1.3. Analysis of R2: personal reactions showed all five disease groups were negatively stigmatised at Phase 1.1 and the healthcare workers with a positive diagnosis were considered as reacting to the stigma by being cold, sad and bad. At Phase 1.2, these all became considerably more negatively stigmatised Further exploration of the repeated measures ANOVA at Phase 1.3 showed the participants returned their values surrounding the personal reactions of the healthcare worker to that the same as those Phase 1.1. These were less negatively stigmatising than Phase 1.2. On further exploration of the groups no significance was seen at this point. This again supports the return to implicit values at the end of the course and is further explored within Chapter 6.

Figure 4.4 Within-subjects repeated measures R2: personal reactions over the three Phases 1.1, 1.2 and 1.

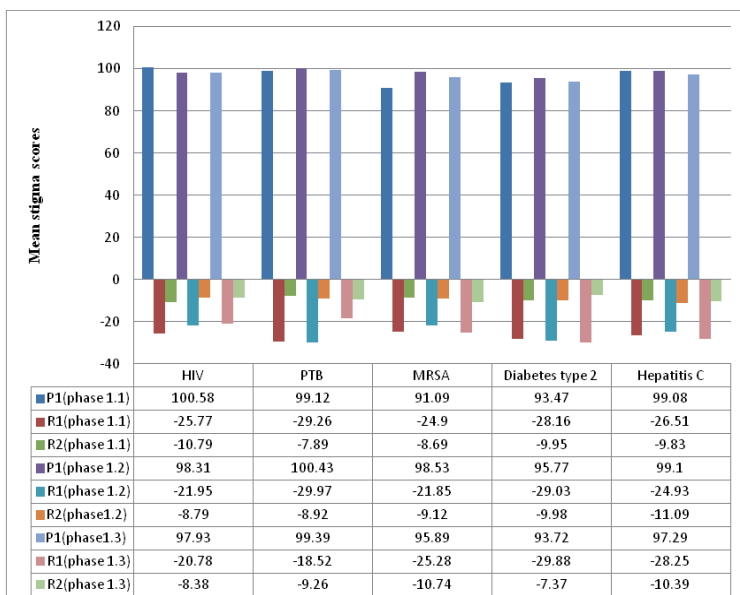
R2: personal reactions comparative measurements of means over Phases 1.1, 1.2 and 1.3



4.6 Synopsis of the findings

Lopez and Willis (2004) argued that interpreting the results can indicate how the participant’s values may go outside their concepts of their own experiences, demonstrating to the researcher attitudes, values and beliefs surrounding stigma that they are unconsciously portraying. The participants within Phase 1.1 may be portraying their expectant responses and reactions towards the attitude statements they have expressed based on their own experiences before entering healthcare. Analysis of the means of individual participants over the three time Phases 1.1, 1.2 and 1.3 was interpreted to show no significance in the changing of values at any time point for P1: personal statements and R1: personal responsiveness. R2 was seen to be significantly different at Phase 1.2 when analysing within-subjects repeated measures (Figure 4.5). The positive scores are positive stigmas and the negative scores are negative stigmas attributed to positively diagnosed individuals within the disease groups by the participants.

Figure 4.5 - Changes in means within the five disease groups over the three Phases 1.1, 1.2 and 1.3 for P1: personal statements, R1: personal responsiveness and R2: personal reactions.



Analysis of Phase 1.0 supported the hypotheses by:

- Identifying three components were established in Phase 1.1, which demonstrated the stigmatising attributes considered towards positively diagnosed healthcare workers. The components reduced the twenty attribute pairs to P1: personal statements, R1: personal responsiveness and R2: personal reactions which were used for further analysis (see *Tables 4.1 to 4.8 and Figure 4.1*). P1 component was seen to be positive attributes; R1 and R2 were seen to be negative. Analysis showed the participants held stigmatising values and attitudes drawn from experiences prior to the course commencement (Hypothesis 1).
- The three components were used for further analysis of three time points throughout the courses. These were Phase 1.1 (see *Tables 4.9 to 4.11*), Phase 1.2 (see *Tables 4.12 to 4.14*) and Phase 1.3 (see *Tables 4.15 to 4.17*). Three separate ANOVAs were undertaken to analyse and explore the longitudinal data generated from the three Phases. Contributing variables were considered to be the attendance at a formal stigma lecture within six weeks of Phase 1.1, further healthcare education and clinical placement attendance over the three Phases 1.1, 1.2 and 1.3. Analysis showed some changes in attitudes towards positively diagnosed individuals when considering P1, R1 and R2 (Hypotheses 1, 2, 3 and 4).
- A within-subjects repeated measures analysis was interpreted and significance was seen at $p=0.05$ for R2 only over Phases 1.1, 1.2 and 1.3; an increase in negative stigma was seen at Phase 1.2 when the participant indicated they expected negative reactions generated towards the personal statements and responses seen within all of the disease groups (see *Tables 4.18 and 4.19 and Figures 4.2, 4.3 and 4.4*). This was seen to return to the pre-course results in Phase 1.3. The participants had attended a formal stigma session in Phase 1.1 and undergone continuous clinical and educational input into healthcare and disease over Phases 1.1, 1.2 and 1.3.

- Stigmatising attitudes were observed towards positively diagnosed healthcare workers within all five disease groups. Phase 1.0 was considered to address four hypotheses. Hypotheses two, three and four, were not supported within these results for P1 and R1 for any of the groups analysed. Hypothesis one, two and three were supported at Phase 1.2 when considering R2: Personal reactions, within the age group and all groups for Interpretation of Phase 1.0 results rejects the null hypothesis. The attributes which generated the three components P1, R1 and R2 were embedded within a qualitative tool. The objectives of the study were achieved within this chapter by:
 - Continuing to review the literature surrounding the identified topics within Chapter 2 throughout the study duration (3 years). This will ensure a contemporary and comprehensive literature base for further analysis of the results (*Objective 1*).
 - The first study undertaken within the mixed methodology was the quantitative study. Analyses of the statistical findings of Phase 1.0 were commenced and the significance identified within the results determined that a qualitative study was required to further explore the findings, which is presented in Chapter 5, (*Objectives 2 and 3*).

4.7 Limitations

Within this study the occurrence of outlying cases were found to be in Phase 1.1 only. These observations were distant from the others and excluded from the data set to reduce the risk of error. Additionally, some attributes were seen to not have any measurements. These missing values were identified throughout Phases 1.1, 1.2 and 1.3. This data was identified and removed from the analysis to reduce the risk of bias or false results due to the missing values being analysed.

The use of PCA relies on the researcher to generate hypotheses surrounding the factors or components which have presented from the analysis (Bryman and Cramer, 1994; Pallant, 2007; Kinnear and Gray, 2009; Field, 2009;

Tabachnick and Fidell, 2013). Beliefs and biases may be considered when analysing the emerging factors. Within this research it has been noted that pure attributes were not seen. The emergence of three components was strongly supported within the literature review which was adopted for the hypothesis (Osgood *et al.*, 1957). The repeating of the study over two further Phases (1.2 and 1.3) identified further significance. Analysis was undertaken using the three components, P1, R1 and R2 the study was undertaken over a three year period, outlying and missing data was observed and removed leading to an end sample of $n=287$.

Bryman and Cramer (1994) stated that reliability of the results depended upon having a sample size larger than the attributes and even with missing data removed this was achieved. The researcher aimed to identify significant differences within the time points and not further obscure them as may be seen in factor analysis within social sciences (Tabachnick and Fidell, 2013; Katz, 2006; Field 2009). It was considered that no further replacement of missing data was required within Phases 1.2 and 1.3. Further limitations were that the participants remained the same over the three phases and therefore, had an identical test at the same three time points, to provide a reduction in type 1 error (Katz 2006; Pallant, 2007; Kinnear and Gray, 2009; Field, 2009; Tabachnick and Fidell, 2013). As this had been addressed prior to commencement then a mixed model and between subjects model was discounted.

5.0 The Results of Phase 2.0

5.1 Prologue

Phase 2.0 data collection was undertaken two weeks after Phase 1.3 had been completed. This was helped by the availability of the participants after an examination period. The collection and analysis of Phase 2.0 data was from ten participants who volunteered to undertake semi-structured interviews (*Chapter 3, Section 3.5.1 and 3.5.2*). This provided a framework to explore the potentially stigmatising attitudes of student nurses towards positively diagnosed healthcare workers with the infectious diseases PTB, HIV, Hepatitis C, MRSA and the non-infectious Diabetes type 2.

The structure of this chapter presents the findings as;

- **Section 5.2** explains the thematic analysis undertaken.
- **Section 5.3** explores the theme of stigma (Theme 1.0) investigating sub-themes of attributes (1.1), behaviour (1.2) and explicit and implicit experiences of stigma (1.3).
- **Section 5.4** explores the second coded theme of fear (Theme 2.0). This looks at the three emerging sub-themes of blame (2.1), contagion (2.2) and career (2.3).
- **Section 5.5** explores the third coded theme which emerged as professional responsibility (Theme 3.0) and the three sub-themes support (3.1), patient safety (3.2) and risk management (3.3).
- **Section 5.6** explores the fourth emergent coded theme of education and knowledge (Theme 4.0) and its sub-themes knowledge (4.1), ignorance (4.2) and professional communication (4.3).
- **Section 5.7** summarises the findings of the chapter and links these to the findings of Phase 1.0.

A transcript of one participant's interview may be seen in Appendix 13.

5.2 Thematic analysis of the transcripts

Interpretation of the qualitative data provided a platform for the researcher to consider the potential beliefs and attitudes underpinning the actions and statements of the participants (Garrick, 1999). Ten participants undertook the semi-structured interview (see Table 5.1). Of the ten participants, eight were female and two male. Seven of these were undertaking the undergraduate course and three the post graduate course. The centres were categorised into a main delivery campus (three responses) and four satellite centres (seven responses). Eight participants were from the adult branch of nursing and two from the other speciality branches that were non adult nursing (learning disabilities and mental health). No child branch students came forward for interview. Each of the participants expressed some personal contact with one or more of the five disease groups.

Table 5.1 Codes for the participants undertaking semi-structured interviews (Phase 2.0)

Code	Gender	Course	Centre	Branch	Age	Participants previous experience of stigmatised illnesses
01	Female	Undergraduate	Central	Non-Adult	18-25	Diabetes type 2 & HIV
02	Female	Undergraduate	Central	Non-Adult	18-25	Diabetes type 2
03	Female	Undergraduate	Central	Adult	18-25	HIV
04	Female	Undergraduate	Satellite	Adult	18-25	MRSA
05	Female	Undergraduate	Satellite	Adult	26-65	Diabetes type 2 & Hepatitis C
06	Female	Undergraduate	Satellite	Adult	26-65	Nil
07	Female	Post graduate	Satellite	Adult	26-65	Diabetes type 2, HIV & PTB
08	Female	Post graduate	Satellite	Adult	26-65	Nil
09	Male	Post graduate	Satellite	Adult	26-65	Nil
10	Male	Undergraduate	Satellite	Adult	26-65	Diabetes type 2

On completion of the semi-structured interviews, the scripts were transcribed and themes considered through a thematic analysis. This entailed the recording of data patterns which were seen by the researcher. The themes generated themes which were seen throughout the transcripts. Within these themes additional sub-themes were noted on the initial analysis of the transcripts which were mapped and re-analysed (Morse, 2008; Burnard, 1991; Creswell, 2007; Polit and Hungler, 1999). The themes were tabulated (see Table 5.2).

Table 5.2 Coding for Phase 2.0 data analysis.

Primary Themes	Sub theme developments
Feelings about working with infected healthcare workers	<ul style="list-style-type: none"> • Fear of contagion. • Professional responsibility. • Attributes.
You received a positive diagnosis in one of the disease groups	<ul style="list-style-type: none"> • Work Support/career progression. • Family/peer support. • Anger at others. • Fear for others and self. • Communication. • Self-perception.
What influences your attitudes and values	<ul style="list-style-type: none"> • Ignorance. • Knowledge. • Lack of education. • Family. • Guest Speaker /patient's interaction. • Own health perceptions.
Staff attitudes and reactions	<ul style="list-style-type: none"> • Talking/gossiping. • Fear. • Attributes. • Alienation.
Patient attitudes and reactions	<ul style="list-style-type: none"> • Fear. • Attributes. • Media influences. • Stigma. • Patient safety.
Healthcare management of infections	<ul style="list-style-type: none"> • Risk management: injuries at work. • Occupational Health involvement. • Policy/procedure/guideline. • Staff at work are cleared to be there. • Where you can work. • Training/education.

On further analysis of the data overlapping within the themes was noted. Fear was noted within four of the primary themes identified. These have been categorised within the results as four main sections, which sub-divide into a further three to four sub-themes (Table 5.3). Generation of these coded themes were undertaken from the initial analysis of the transcripts. The themes were coded and these were applied to the individual transcripts by the researcher on further analysis of each individual transcript. The data was then collated and the findings discussed for each of the themes. These themes were seen to interlink and this is demonstrated within Table 5.3.

Table 5.3 Mapping of the four main and sub-themes from data analysis with overlapping links

	Theme 1.0 Stigma	Theme 2.0 Fear	Theme 3.0 Professional Responsibility	Theme 4.0 Education and Knowledge
Sub-themes	Attributes (1.1) Linked to: ➤ Fear of the stigma condition (2.0). ➤ Education and knowledge (4.0). ➤ Behaviour (1.2). ➤ Blame (2.1). ➤ Contagion (2.2).	Blame (2.1) Linked to: ➤ Stigma (1.0). ➤ Professional Responsibility (3.0). ➤ Explicit/implicit experiences (1.3). ➤ Contagion (2.2). ➤ Career (2.3). ➤ Risk Management (3.3). ➤ Professional Communication (4.3).	Support (3.1) Linked to: ➤ Stigma (1.0). ➤ Education and Knowledge (4.0). ➤ Attributes (1.1). ➤ Behaviour (1.2). ➤ Explicit/implicit experiences (1.3). ➤ Risk Management (3.3). ➤ Knowledge (4.1). ➤ Ignorance (4.2). ➤ Professional Communication (4.3).	Knowledge (4.1) Linked to: ➤ 1.0 ➤ Fear of the stigma condition (2.0). ➤ Professional Responsibility (3.0). ➤ Attributes (1.1). ➤ Behaviour (1.2). ➤ Explicit/implicit experiences (1.3). ➤ Contagion (2.2). ➤ Support (3.1). ➤ Professional Communication (4.3).

	Theme 1.0 Stigma	Theme 2.0 Fear	Theme 3.0 Professional Responsibility	Theme 4.0 Education and Knowledge
Sub-themes	Behaviour (1.2) Linked to: <ul style="list-style-type: none"> ➤ Professional Responsibility (3.0). ➤ Education and knowledge(4.0). ➤ Attributes (1.1). ➤ Explicit/implicit experiences (1.3). ➤ Blame (2.1). ➤ Contagion (2.2). ➤ Risk Management (3.3). 	Contagion (2.2) Linked to: <ul style="list-style-type: none"> ➤ Stigma (1.0). ➤ Patient safety (3.2). ➤ Risk Management (3.3). ➤ Knowledge (4.1). 	Patient Safety (3.2) Linked to: <ul style="list-style-type: none"> ➤ Risk Management (3.3). ➤ Professional Communication (4.3). 	Ignorance (4.2) Linked to: <ul style="list-style-type: none"> ➤ Stigma (1.0). ➤ Fear of the stigma condition (2.0). ➤ Professional Responsibility (3.0). ➤ Attributes (1.1). ➤ Behaviour (1.2). ➤ Explicit/implicit experiences (1.3). ➤ Blame (2.1). ➤ Contagion (2.2).
	Explicit and Implicit experiences (1.3) Linked to: <ul style="list-style-type: none"> ➤ Fear of the stigma condition (2.0). ➤ Professional responsibility (3.0). ➤ Contagion (2.2) ➤ Attributes (1.1). ➤ Risk Management (3.3). ➤ Professional communication (4.3). 	Career (2.3) Linked to: <ul style="list-style-type: none"> ➤ Fear of the stigma condition (2.0). ➤ Professional responsibility (3.0). ➤ Blame (2.1). ➤ Contagion (2.2) ➤ Support (3.1). ➤ Professional communication (4.3). 	Risk management (3.3) Linked to: <ul style="list-style-type: none"> ➤ Stigma (1.0). ➤ Fear of the stigma condition (2.0). ➤ Education and knowledge (4.0). ➤ Behaviour (1.2). ➤ Blame (2.1). ➤ Contagion (2.2) ➤ Support (3.1). ➤ Patient Safety (3.2) ➤ Risk management (3.3). ➤ Knowledge (4.1). ➤ Professional communication (4.3). 	Professional Communication (4.3) Linked to: <ul style="list-style-type: none"> ➤ Stigma (1.0). ➤ Fear of the stigma condition (2.0). ➤ Professional responsibility (3.0). ➤ Contagion (2.2) ➤ Support (3.1). ➤ Patient safety (3.2). ➤ Risk management (3.3). ➤ Knowledge (4.1).

5.3 Theme 1.0: Stigma

The thematic analysis generated the first theme, stigma. Further interpretation demonstrated the development of three sub-themes: attributes (1.1), behaviours (1.2) and explicit and implicit experiences (1.3).

5.3.1 Sub-theme 1.1 Stigmatising attributes

Attributes, such as good/bad, weak/strong, applied by other healthcare workers were seen as underpinning the expression of stigmatising attitudes and values. Participants discussed influences such as the media and the perceptions of others, such as friends and family. They saw this as value forming, affecting behaviour of those experiencing stigma and attributional labels. The attributes discussed were predominantly negative and underpinned feelings of blame, anger and fear. Stigmatising attributes were considered to link to life style choices and seen as a cause of the disease contraction.

The semi-structured interviews yielded a plethora of valuable information regarding areas of perceived stigma; however, it was noted that the participants stated throughout the analysis that none of the sub-themes highlighted from the analysis influenced their own attitudes and values. This was not seen to be the case on analysis of the transcripts. It became apparent throughout analysis that there was an inherent tension in the views expressed by the participants. People may make apparently contradictory statements but it is part of human behaviour that our narrative explanations are an on-going discussion with ourselves and others which express ambivalence and tension between different perspectives and explanations (Olson and Zana, 1993; Rokeach, 1968; Katz, 1976; Katz, 2014). Participants of this research initially expressed no personal stigmatising values, but disclosed such values throughout the interviews by attaching attributes to the healthcare workers they discussed. The contradictory information is indicative of the participants own conflicts regarding their identification of attributes and stigmatising values. On further analysis the participant's family and friends had no influence on their own values at this point. They were stated as being so within the transcripts. They felt that stigma attributes introduced to

them through this forum were discarded and ignored. Yet, expansion of the discussion indicated family and friends were considered the foundation of their own values and attitudes. The attributes applied to diseases by family and friends were seen to influence the participants reactions to potential diagnosis of a disease. This was considered more influential than education, which was seen as the major requirement in reduction of stigma and attributional attachment to positively diagnosed healthcare workers.

"My education possibly.....I don't know, maybe it is my upbringing."
(Participant No. 02).

The participants felt their children benefitted from them imparting their own considered stigma attributes, therefore positive values could be instilled through this forum.

"It's just how I've been brought up, so how I bring my children up"
(Participant No.07).

Participants considered cross infection out of the work environment as a possibility and felt that this would be supported by the attachment of attributes and stigma. It was presented as being 'different' when impacting upon personal relationships. They felt that a positive diagnosis would not be accepted by society and would have the attachment of negative attributes.

"As long as my family are protected I am fairly liberal on anything to be honest. From a personal point of view I think that is a disgrace and a surprise to me as I thought society were more accepting these days"
(Participant No. 06).

Attributes affiliated to Diabetes type 2 were introduced as that of being of negative and stigmatising within society only and not within the healthcare environment. The participants uniformly considered that society did not have influence on their own opinions regarding the attributes presented, although, they discussed that positively diagnosed Diabetes type 2 individuals were considered as experiencing stigma. The participants expressed negative attributes throughout the interviews attached to this disease group. This was despite stating they were not concerned regarding contagion of this disease.

"I think it's wrong, but they're going on a witch hunt for everybody that falls within that theme of, you know, not exercising and poor diet. Not everybody can be judged just on their overweight appearance" (Participant No.05).

and

"You don't know the reasons behind the DiabetesI'm not talking about someone who stands in a pub knocking back 10 pints of beer a night, chugging on a cigarette.....that's fairly obviously their fault" (Participant No. 08).

Stigma attributes were demonstrated and applied throughout the semi-structured interviews. These were linked to each of the five disease groups used within the study. However, Diabetes type 2 appears to have the most diverse responses, with participants expressing contradictory personal values. Attributes were considered to underpin the behaviour of healthcare workers and therefore, this was addressed as the next sub-theme.

5.3.2 Sub-theme 1.2 Stigmatising behaviours

The participants felt that negative stigmatising behaviours were present within the National Health Service (NHS) and this had been experienced as being directed towards patients and healthcare workers with a positive diagnosis of a disease process.

"I think some of the staff would judge although, we are in a profession that is supposed to be non-judgemental. It happens....even I make a judgement" (Participant No.05).

The behaviour of healthcare workers was seen to be dependent on the considered attributes discussed in the previous section. Diabetes type 2, though not thought of as a personal risk due to its non-infectious route, presented attributes which were considered detrimental to the functioning of the healthcare providers and team. This underpinned a negative stigmatising label which lead to negative responsive behaviour;

“Because it would be wrong for the employee to think they could come crashing in, have that massive hypo in the middle of the ward because they’ve been out drinking all night..... Irresponsible” (Participant No. 05).

The participants, whilst discussing support for colleagues with Diabetes type 2, expressed that this could also be viewed as professionally negative if it impinged on the work environment,

“But if they’re not managing their Diabetes properly then they could be a liability on the shift making people behave differently towards them.” (Participant No. 01).

PTB and MRSA, were seen as,

“unlucky” and “not something you have gone out and got” (Participant no: 08).

It was considered that the life choices and behaviours of a positively diagnosed individual with MRSA were not the reason for the diagnosis. This was due to being in a hospital and behaviours of this individual were not to ‘blame’ for the diagnosis. This mirrored Diabetes type 2, they expressed beliefs that the disease was affiliated to life style choice and behavioural external factors. However, the attributes used to describe the disease such as ‘fat’ and ‘guilty’ present negative connotations and underpin the behavioural response considered by the participants.

“I think when you hear about MRSA ...people just assume that it’s something you catch in hospital. Yeah I suppose in some ways cause the stereotype is that you have caught it through hospitals cause hospitals are ‘dirty’ ...it’s a ‘dirty’ hospital so you have caught that” (Participant no: 01).

and

“If I did hear of someone who had MRSA on the ward, I think I would consider them as someone who got on with their work, because, I think it’s an unavoidable thing in many cases. Yes, we barrier nurse patients. We put them in the side room, but I think more than often MRSA is unavoidable. I would consider them as people who are getting on with their jobs and if they come into contact with it then it’s not their fault” (Participant No. 06).

Participants stated that attributes related to the contagion of MRSA were that of it being contracted in a 'dirty' environment, being a 'symbol of a hard worker' within this area and blamed the work environment. MRSA, appears to be considered as part of professional risk and therefore, may possibly not be expected to experience stigmatising behaviour towards infected individuals. Yet, although the disease was considered to be generated from a 'dirty' environment it was considered by another participant as:

"SanitisedIt's like Diabetes" (Participant No. 05),

The participants stated that experiences of stigmatising behaviour within the work environment were 'never' encountered towards a positively diagnosed diabetic,

"I don't think there is any form of prejudice with Diabetes that I have encountered" (Participant No. 09).

However, this was contradicted on further analysis of the transcripts;

"You obviously hear from other students and staff members about attitudes on wards and this kind of thing, but I can't say I have run into prejudice with the illness myself nor would I expect to encounter it" (Participant No: 10).

The disease process itself was also considered as pivotal to the presence of stigmatising behaviours. Within this study four of the diseases had an infectious pathway (HIV, PTB, MRSA and Hepatitis C) however, Diabetes type 2 was non-infectious and although highlighted as a stigmatised disease within the literature review, was not considered as a personal danger by the participants. They attributed the disease to behaviours which are more accepting of stigma. As previously stated this was not seen throughout the transcript analysis. Individuals with a positive diagnosis were considered as experiencing differing stigmatising behaviour patterns. These linked to the functioning as team members within healthcare. This supported the contradictory issues raised within the participants own perceived values.

“Diabetes because it doesn’t have the stigma attached it’s an open issue. Like the two student nurses both talked to me about it. Like one student nurse would do, you know, just do her insulin right in the staff room when we are all sitting around. I think the other infectious illnesses that do have the stigma attached, I think, definitely not. I don’t think people would be very open to talk to you about that. Healthcare worker or non-healthcare worker I don’t think that would be the case.” (Participant No. 02).

The participant’s behaviour was considered as grounded within their own beliefs of what stigma attributes were. They discussed the influences which affected the behaviour of the public and the healthcare workers to positively diagnosed individuals and stated changing this would be challenging.

“I think stigma of that type can be very difficult to change. I do not expect it in the Health Service, but it’s there, yet, the general public do still feel the same unless they encounter it, I would say it would be very difficult to change” (Participant No. 09).

All participants felt their perception of self was influenced by the considered potential of recovery from the disease and the behaviour encountered around a positive diagnosis. Participants considered HIV and Hepatitis C as ‘dangerous’ to themselves and others, describing these disease groups with negative attributes throughout the interview. The stigmatising attributes attached to the disease groups influenced the participants view for the disease severity and underpinned a desire for avoidance. This was supported by the length of time it took to become clear of the disease process and was seen an influencing factor for the encountering of stigmatising behaviour.

“PTB is something that would not bother me, because I think HIV can develop into AIDS and a lifelong condition I think that would upset me. People wouldn’t understand and avoid me. I mean, I already have type 2 Diabetes. I was upset when I was told I had Diabetes type 2...I thought this is lifelong and I am going to have to be on medication for my whole lifetime so I am going to have to watch what I eat and behave! It does change your perspective on things” (Participant No. 07).

Stigmatising behaviour was seen to be underpinned by the considered explicit and implicit values when meeting a positively diagnosed individual. This was not thought of as disease specific. As a result, this was placed as the third main theme within the stigma section.

5.3.3 Sub-theme 1.3 Explicit and implicit experiences

In relation to HIV, participants discussed the origin of the infection as being linked to the attachment of labels, the development of self-perception (implicit) and experienced behaviours (explicit). Contraction of the disease through a needle stick injury was a primary concern. This presented a personal and professional issue. Both implicit and explicit thoughts and feelings were considered and all participants linked this diagnosis to one of blame, even if stated otherwise throughout the interview. The sample of participants who took part in Phase 2.0 stated that it was perceived to affect the behaviour of others towards the individual and presented assumptions of life style choice, even though it was obtained by accidental infection.

"I suppose if I caught HIV through something, or say I had a needle stick injury and got something, then you've got it haven't you? At the end of the day it doesn't matter how you got it you've got it I suppose!"
(Participant No. 08).

Participants felt labels given to individuals with a positive HIV diagnosis by patients, relatives and NHS staff influenced their attitudes towards a healthcare worker with a needle stick injury from a HIV infected patient. They formed negative stigmatising attitudes towards the individual due to potential infection routes despite their knowledge of the potential contagion route. This underpinned the experiences of positively diagnosed individuals and the implicit value formation of the affected individual. This held attributes which were negative.

"They do tend to think differently but, that's your average person, they will think that you're 'dirty', it's your 'fault', sort of they won't give you time to explain yourself they just don't want to know, hear that word and it just sort of overtakes who you are and that sort of puts like a 'barrier' in front of you and the person, so I think that's how I felt..... like I was just

constantly talked about as the 'HIV girl' or the, you know, not the person potentially with it" (Participant No. 03).

Misconceptions of a disease process underpinned negative explicit stigma and was seen to depend upon the self-perceptions of the illness and the attributes attached to it. A perception of self-image may be generated by experienced explicit stigmatising behaviour.

"HIV is linked to things like sex and stuff like thata bit taboo....so people think it's a bit dirty you know, you have caught it from your own acts and things like that.....and if you hadn't have done it, you wouldn't have caught it..... but I don't think like that" (Participant No. 02).

and

"Because I know that some of those infections are associated with, what.....are wrongly associated withpoor life style choices and what's considered to be like 'dirty'....you know like HIV, Hepatitis C , you automatically think of intravenous drug users, or somebody who's promiscuous. (Participant 03)

Participants felt HIV, Hepatitis C and PTB may potentially be caught by healthcare workers because of personal behaviour and this would increase the explicit behaviour. A positive diagnosis and the healthcare workers opinions of contagion routes, were considered influential to other members of the team. Participants expressed that although contagion routes were known, healthcare workers do attribute 'blame' and present explicit stigmatising behaviours which can implicitly affect the individual with a positive diagnosis;

"But I think if it was someone like that you might assume they got it in their personal life" (Participant No. 01).

Professional stigmatisation of positively diagnosed staff, described by participants, was grounded within fear and anger. Their experiences showed that this explicit stigma occurred when healthcare workers were considered potentially unable to do their job. The rest of the team members felt anger towards them and stigmatised the individual. The explicit treatment towards them was not considered fair by the participants, but stigmatising. This appears to have pre-empted the stigmatising

values that were disclosed by the participants. It contradicts the initial view of stigma and attributes expressed by the participants. Further questions and interpretation depicted that contrary to the belief that Diabetes type 2 stigmas were affiliated to the disease, explicit stigma was actually experienced by the individual. This appeared to be again directed at the development of issues regarding team work.

"I don't think on either occasion it was,the negativity was due to them having the particular illnesses I think it was simply because, other people feeling that they were taking time off and they were having to cover for them. I don't think that the illness itself even came into question. In fact I'm not entirely sure, that the chap that had got MRSA, I am not entirely sure, that they even knew about it or not" (Participant No. 04).

Hepatitis C was considered to have provoked stigmatising behaviour. This was based around the fear of contagion by the individual and others. The participants felt that explicit values were negative and prevented a team support, underpinning explicit stigmatising behaviours and increasing the implicit beliefs of the positively diagnosed individual.

"They might have gone there and thought I ain't gonna work with her, there's no way I want her around!" (Participant No. 02)

Diabetes type 2 also led to professional stigmatising behaviour. This again was projected as negative, providing poor team support and cohesion.

"She suffers from Diabetes and I know that she sort of faced a lot of um, animosity from other staff members because, she would sometimes come in quite late, um saying that she'd hypo'd in the morning and so, I think people, because it happened quite regularly I think people thought that we're using it as an excuse to bunk off work. So and there was a lot of talking behind her back. I don't think anyone said anything to her face" (Participant no: 06).

MRSA, however, provoked explicit stigma dependent upon time off work and perceived 'laziness' rather than a fear of infection. This appeared to foster further attributes underpinning a negative response from the team.

"I think that it was related to the time off work and if I recall rightly it was sort of winterit was er an elderly ward, there was a lot of patients and of course him having time off meant people couldn't have their annual leave that they necessarily wanted toso that I think that the negativity he received was quite possibly due to people finding that they were covering his work load, as opposed to the fact that he had got the MRSA" (Participant No. 03).

The participants recognised that this may increase implicit stigma;

"I think some people keep it private for fear of condemnation from others" (Participant No. 02).

Professional stigmatising behaviour does not appear to differ from personal behaviour. It potentially originates from feelings of an inability to manage risk, both professionally and personally. This was highlighted for all diseases or infections seen as impinging on the assumed aspects within team work. The explicit stigma was also influenced by the media and campaigns surrounding the causes of MRSA.

Participants felt that the media was influential to stigmatising values and implicit stigma experienced from this may underpin behaviour changes, particularly for patients and their stigmatising values towards HIV and MRSA which were seen as influenced mostly by media reports.

"MRSA is not as prevalent really as I thought it would be before I started the course, because of the media and everything, I thought it would be ten a penny, but I did not see it as frequently as I thought it would" (Participant No. 03).

However, PTB was seen as less well explained within the media. It provided areas of ambiguity as to contagion route PTB, which was considered to increase explicit stigma.

"Cause I think the media doesn't really talk about what it is, they just say what is going round or the increased or whatever so they don't really explain what it is" (Participant No. 01).

Experiences of explicit stigma were thought to be linked to HIV attributes and were considered as being present through the medium of film and television. It was felt that this conduit had highlighted the plight of people with the disease. Interestingly though, this medium was not health information programmes, but that of a general soap operas and movies.

"We have films about it. Tom Hanks had it for God's sake..... so it's got to be alright!" (Participant No. 05)

and

"When Mark Fowler was on Eastenders or something" (Participant No. 06).

Participants considered the media as an influential, educational, forum which provided information regarding the disease groups, underpinning the formation of stigmatising values and behaviours towards positively diagnosed individuals. The participants, felt that these conduits may not challenge their own preformed values surrounding stigma and a disease process, as they could be misunderstood with false stigmatising information. They were concerned that the media's influence may also 'reach' more individuals and aid in raising awareness through inaccurate or incomplete stigma attributes attached to a disease process. Participants felt that knowledge acquisition may influence the development of explicit and implicit stigmatising values and behaviours.

The development of the three sub-themes demonstrated the participant's consideration of the cause and formation of stigmatising values towards other healthcare workers as being highlighted with the use of attributes (1.1). The participants discussed stigma attributes whilst stating they had no personal stigmatising opinions to other healthcare workers with diseases. This was not seen on analysis within the results. Behaviours (1.2) were presented as the way in which the participants conducted themselves towards positively diagnosed healthcare workers. On analysis of the data, participants discussed avoidance and removal of themselves and other healthcare workers from social interaction with positively diagnosed individuals. Explicit and implicit experiences (1.3), presented that the participants use of grammar to demonstrate that the positively diagnosed healthcare worker may experience stigma by other individuals which is influenced

by others, such as the media. This was thought to increase the internalisation of stigma for healthcare workers and was confirmed by their experiences of labelling of within healthcare.

Stigmatising behaviour and experience was considered to underpin the reactions seen to the five disease groups and individuals who had a positive diagnosis. Throughout the analysis of the transcripts, stigma was linked to fear and therefore, this was considered as the second theme in the next section.

5.4 Theme 2.0: Fear

This section introduces the participant's perceived fear of disease for self, healthcare workers, relatives and patients. Blame was emergent as underpinning fear. Participants felt it would be for other individuals, as well as one's self. Blame was underpinned by explicit and implicit stigmatising values and provided the generation of attributes. They expressed fear and anxiety for their families and themselves when considering contact with positively diagnosed healthcare workers and individuals.

On further analysis of the data three sub-themes, blame (2.1), contagion (2.2) and support (2.3) emerged.

5.4.1 Sub-theme 2.1 Blame

Blame, potentially attached to a positive diagnosis, underpins fear. Participants considered that disease contagion would provide an area of self-blame when explicit stigmatising attributes were heard or experienced.

"Knowing that you'd got itI think you would just be very angry, blaming yourself, I think I would feel angry towards my line workers for putting me in that position and the medical professionals that are above you, that you would feel are more protecting of 'their' staff. I would probably be angrier towards them for putting their staff and colleagues in that positioning..... Patients and others, they seem to have anger attached to that, blaming us, considering the way we caught it and its misguided" (Participant No. 06).

and

"I think if it was one of the others, PTB, HIV, or Hepatitis C, I think I would hope I would treat them exactly the same as I normally would, but in my mind I'd probably have questions, like how did they get this? Like, what have they been up to get it, you know, because there are ways to get things like that that aren't necessarily good behaviours. You know. So I'd question that, but I'd never ever say anything to them" (Participant No. 07).

On contraction of a disease from a patient, blame is directed at ward management rather than an individual patient. Fear of a personal positive diagnosis may be underpinned by a consideration of blame regarding life choices, which may have caused this. Stigma and, blame, make it difficult for the participants to consider working within healthcare environments.

"I think I'd be scared that I wouldn't be able to work in this environment again, especially as this is all I want to do. I think I would be worried about the stigma and everything attached to it and I'm not sure I'd be able to carry on working in that environment knowing that people would think negative of me. Even though certain people might not..... I think the majority of people would think "I'm not working with you" especially patients and clients I don't think their families, if they knew, would want me in contact with their family. I just think that it's all like drugs and sex and you know, your dirty and it's your sort of fault for it all and I don't think anybody straight....., well most people, don't straight away think 'oohh well actually it might not be'" (Participant No. 02).

and

"I don't know you'd be upset that you got it, but I wouldn't say that personally it's the patients fault. Depending on how you caught it. Because if you knew that the patient had that and you followed that to the letter, then it's probably your fault" (Participant No. 06).

Diabetes type 2 was indicated as being negatively stigmatised against introducing a stigmatising value which indicated that, although a non-infectious process, a positive diagnosis of Diabetes type 2 had blame attributed to life style choices, as earlier expressed in Section 5.2;

"They are bariatric now or quite big, you know you hear people comment on that he's only got it because of his weight" (Participant No. 04).

When considering the positive diagnosis of PTB, participants felt a personal and professional responsibility to prevent infection of self or others. There was also a belief that blame cannot always be apportioned to others when receiving a positive diagnosis. There was sense of personal responsibility which highlighted the participant's professional values; however, this contradicts earlier points surrounding the participants concerns of blame, in that the individual may not be at 'fault'. It also highlights for the four infectious diseases, a belief that infection is not always considered to be work or life style choice, but can be by innocent contact with infected individuals.

"Again if you have not taken the appropriate measures to protect yourself, you only have yourself to blame, so you can come across people with PTB anywhere. You can't just directly say its cause I've nursed someone and you can be next to somebody in the supermarket and have the same sort of contact. So yeah, I think to a certain extent you have got yourself to blame if you caught it! If you had a patient with PTB it would be your sort of professional role, responsibility, to make sure you knew what the risks were and ways to protect yourself. You have got to take that responsibility you can't expect the patient to sort of point you in that direction, so I think to a certain extent you've got yourself to blame" (Participant No. 04).

Patients and relatives were described as having 'viewpoints' similar to that of the participants by the interviewees. Fear and anxiety are the areas which the participants highlighted as being linked to blame. All participants stated HIV caused the most personal and professional fear. They considered this to be closely linked to explicit stigmas which confirmed blame regarding contagion routes and possible assumptions on life style choices,

"More people would be worried more about HIV and PTB and things like that. I think because they are the ones that people know about and probably have heard more about and probably see them as being more detrimental to their health than others. Possibly MRSA, because, I think that scares patients as well." (Participant No. 10).

Although expressing concern regarding the potential blame affiliated to positive diagnosis of the disease groups, the participants felt that potential contagion of themselves, friends, family and other healthcare workers was the area which apportioned more fear and attributed blame.

5.4.2 Sub-theme 2.2 Contagion

Interpretation of the transcripts presented a fear of contagion and a significance of stigma, from infected patients or healthcare workers as a potential concern to the participants. They felt a minimal fear of contagion when precautions were followed and risks were then minimised. Participants were less concerned about contracting HIV and Hepatitis C than PTB or MRSA. Diabetes type 2 held no fear of contagion, but was still classified as a disease carrying stigma regarding its contraction.

"If you live with that, I think it's more than stigma, so I don't think I want to get that myself and I'd be a bit scared" (Participant No. 03)

and

"Probably more worried about PTB, because, I know that that's contracted through spores, where as I know that HIV's sort of other body fluids, so.... because I'm aware of the transmission routes,..... but, before I learnt more about HIV, I would probably be more worried about a HIV healthcare worker than the healthcare worker with PTB" (Participant No. 04).

Participants felt 'treatable' diseases, such as PTB and MRSA, were not as contagious as HIV and therefore, did not hold as much fear as those which were considered more 'terminal' such as the bloodborne Hepatitis C and HIV. Their knowledge of transmission routes was seen as important to actually reducing the concerns of contagion of particular diseases;

"I think more so if they had HIV. I think I would be a bit more scared of that person if.....more than if they had MRSA or like tuberculosis or anything." (Participant No. 01),

and

"We had been told from the doctors she might have PTB and we need to barrier her. So we were automatically thinking 'Oh God!' you know at the possibility that we might get this!" (Participant No. 08).

Participants felt healthcare workers may remove themselves from an infectious environment, compromising care, because of fear and perceived stigma if contagion occurred. This was considered more acute within HIV care,

"I have not seen much of it happening but, you see it in the general population and you see to some degree with healthcare workers and I have seen them freaking out about taking blood from people with HIV, so if they are getting freaked out about that what else are they frightened of?" (Participant No. 07).

and

"I would say HIV is the worst! People are always anxious about HIV. PTB I think peoplestaff, assume it has gone and they do not think about it so much, whereas if they knew about it they might freak out about it more, unless they know about the two different types and whether it was active and open or not they might well then say 'Oh! If you've got that I might catch it" (Participant No. 08).

The fear discussed by the participant reflected that of the other sections, demonstrating the insidious growth of stigma from ignorance of disease contagion routes. Participants, felt anxious regarding staff conversations and attitudes towards infected individuals and healthcare workers, which are seen to influence and foster fear. This was seen when considering PTB;

"I'd be worried about passing that....going home and then passing that on to my family" (Participant No. 01).

A further consideration highlighted by the interviewees was that of fear surrounding career progression within healthcare if a positive diagnosis was experienced within the disease groups. They felt that this may be an area which was compromised if they became infected with PTB, HIV, MRSA, Hepatitis C or developed Diabetes type 2.

5.4.3 Sub-theme 2.3 Career

This section reviews the support from employment areas considered necessary for the infected healthcare worker by the participants. Further analysis of the themes indicated participants felt that healthcare workers and managers within the NHS gave differing support levels. This led to a perceived fear of potential career capping if positively diagnosed with a disease. Family and friends were considered pivotal to support of the healthcare workers and yet again the fear of a lack of support, blame and cross infection meant participants had experienced poor support for career continuation. Fear of contagion, meant that the participants considered this a potential restriction on relationships, impacting on the life style choices they could make. They felt that it also impacted greatly upon a person's career, restricting movement within the health service between clinical areas and even preventing employment.

"I don't know I would probably be shattered....I mean it depends really what I gotum ...PTB, I wouldn't really be concerned about it, because I know I can sort of treat it. MRSA, not worried about that, but something like you know Hepatitis C or HIV probably, ... because it would have a massive impact on everything around you then, like insurance and mostly part of you enjoying your work" (Participant No. 08).

They felt that contracting a disease would mean that they could return to work providing a comprehensive support system was present. The fear and experience revealed they felt disease contraction was considered detrimental and possibly expected when considering a career in healthcare. The sub-theme, blame (2.1) indicated that the participants considered poor life style choices made by healthcare workers with a positive diagnosis, as supporting the perception of blame for the infection as one of self and potentially others. Contagion (2.2), as the infection of self, or possibly others, was seen to underpin the implicit and explicit stigma. Participants expressed anxiety if receiving a positive diagnosis of an infection, coupled with their perceived fear of the reactions of others. The third theme, support, demonstrated how the participants debated the potential effects of support stigma reduction within the healthcare environment. They considered professional responsibility to lie within their own developing careers, with regard to stigma reduction and management. They also felt that healthcare

workers had a responsibility to offer support to others within the profession.

5.5 Theme 3.0: Professional responsibility

From *Table 5.3* the third theme that emerged was not as professional responsibility towards infected healthcare workers within the five disease groups. Professional responsibility and duty of care states that an infected healthcare professional must confide to occupational health any infections that place patients and co-workers at risk of contagion (Department of Health, 2013). This was addressed by the participants as an area of concern. On analysis the professional role theme, three further sub-themes emerged, Support (3.1), Patient Safety (3.2) and Risk Management (3.3).

The participants felt that professionalism and professional guidance supported the communication of a positive diagnosis to Occupational Health. This provided a forum for support from colleagues. Compliance with risk management protocols ensured not only the support of the healthcare worker, but a reduction in the risk of contagion.

“I think I’d have to tell them. I wouldn’t want to if I knew that people would be a bit I don’t want to work with you, I think I’d have to and it’s my responsibility to face that, no matter what. And I think I would try my best to explain, you know, what it is..... the best I could really, but I think I’d have to add that” (Participant No. 06).

5.5.1 Sub-theme 3.1 Support

Analysis of the transcripts indicated that participants expressed that the experiences of power and separation from others when positively diagnosed, came not only from the infection but also, within the health service. The participants felt that as student nurses they were seen as less important individuals by other healthcare workers when considering potential infection risks. This was felt to be compromising professionally and compounded stigma in healthcare environments reducing the likelihood of support.

“No one told me that they were infected with it, but I actually became infected with it myself,.... um... and I had to take I think it was two or three days off work. Um.....I phoned up to say that I was sick and I’d

been infected with the D and V and how you know they said to me "ooh," They thought I was a different Rx.....calling , they thought I was the staff nurse Rx..... calling and they said "Oh you're going to have to send a stool sample in, ummm sorry it's really difficult for us to say that you are going to have to do this." And I was like "oh God really? "and you know" I'm leaving in a few weeks" you know trying to get a response. They said "Oh is it a student nurse" and I was like " yeah", they said " oh you don't need to worry then" (Participant No. 03).

Participants discussed that healthcare workers have a professional responsibility to support an individual. This was also seen as corporate. The participants had experienced staff discussions regarding people with a positive disease diagnosis and heard use of attributes attached to the individual. This was considered an accepted behaviour, with no apparent consideration to the professional issues surrounding stigmatising behaviours. It has been perceived by the participants as a form of power, supporting the aspects of stigma.

"I could see certain people using that as a bullying tool on someone else, because nursing is rife with bullying... Horizontal bullying" (Participant No. 05).

Non-compliance with guidelines (N.M.C., 2010) was discussed as a potential issue within healthcare towards patients and healthcare workers alike. Experiences of negative professional attitudes prevent the exposure of a positively diagnosed healthcare worker within the professional environment. The participants have expressed disillusionment and distrust, leading to a belief that lack of trust or belief that support would be given;

"I think it would depend upon what I had, how I got it and how well I knew my colleagues and how they would react" (Participant No. 08).

and

"you work with a wide spectrum of people and you work on the ward and some of the people they're horrible! You know, there's no wrapping it up. I came into nursing assuming everyone had a common caring thread, how mistaken was I ?" (Participant No. 05).

Participants occasionally experienced positive support for a potentially infected individual. They felt that professional guidelines ensured that discussions around such an individual were supportive, but could be seen as “chit chat” and therefore non reportable as stigma. Professional values were considered to be seen “behind the backs of others” and appear as something participants had experienced. Such “chit chat” left participants feeling vulnerable and unsure of staff motivations;

“People do like to pry and people do like to know the ins and outs and everything and for some it’sIt just seems like a curiosity that they can’t hold back from” (participant no; 04).

Analysis of the data showed that despite some negative attributes to healthcare workers, participants felt general support would be forthcoming from the ward area. Participants, held expectations of access to counselling and staff support from other healthcare workers. However, this was highlighted as being theoretical, within education and not what they now saw within the clinical environment. Their experience and expectations however, were areas of some personal and professional concern for them, particularly when considering cases such as PTB.

“Yeah I think this meeting was all really, really, good what support they were planning and everything, but nothing came of it, it left me with feelings of stigma and negativity towards infected individuals” (Participant No. 07).

The participants stated that the support experienced differed between condition, the ward environments and even if it was a healthcare worker or a patient.

“I think the staff I was working with were really supportive. But, I think you can have some that can be quite negative about it as well and they can actually be quite prejudice towards it and be like, I don’t want you to come near me and sort of things like that. It depends on what environment you’re in and the type of people, nurses that you’re working with” (Participant No. 10).

and

*“Nurses seem to talk amongst themselves and not include me”
(Participant No. 02).*

On further discussion, the general consensus was that the support was always viewed a ‘personal’ or ‘individual’ experience, not as a collective. Negative views of support from other healthcare workers did not seem to prevent the participants considering it as an important part of working within healthcare. However, there was an understanding that support was dependant on the individual’s knowledge and education around the disease process;

“I would like to think there was more support at work because you are working with people who should be educated more and know about these things..... As people at home ... well, there might be an element of fear like none of my family work in the health service and are not ignorant by any means, but they wouldn’t necessarily know all of the information. You would hope that the people at work were more educated in this and hopefully have a clue about these things and understand how difficult things might be and that you need a bit of extra support to come back” (Participant No. 01).

Participants felt the support was closely linked to knowledge and as such the employment environment offered a more robust support system than the home environment.

The general consensus was that support was the same at work as within society. They stated their life choices, even attendance on a healthcare course would lead to differing attitudes and support, supporting hypotheses four. However, it was felt that support was linked to general feelings about the relationship between the participant and their chosen profession.

“You know we have all had friends in our life who we thought have been really good friends and when the chips are down they actually disappear” (Participant No. 05).

and

*“Amongst the students I have found that there is a lot of support as some of the students too have problems.....like Diabetes. I have never felt that there is anything other than support if anyone has a problem”
(Participant No. 10).*

The professional role of the nurse was expected as one of support to any infected individual. This appeared to alter when considering the fear of contagion. Patient safety and protection from contagion was seen as vital to the professional behaviour of healthcare workers and this is further discussed within the next section.

5.5.2 Sub-theme 3.2 Patient safety

Patient safety is addressed clearly within guidance and codes of conduct (Nursing and Midwifery Council, 2015). Participants discussed this from two differing perspectives, the healthcare workers and the relatives of a patient who may be cared for by an infected healthcare worker. The participants were unclear at which point within a disease process that they were to inform the patient, if at all. In previous sections participants related this to the disease process and the expectations of the staff rather than the patient. However, they identified a clear concern for safety, especially with immunosuppressed patients. Yet, this extended to the uninfected disease process of Diabetes type 2 when considering potential danger to patient care.

“They could be doing something clinical or whatever, something clinical, that could cause harm to the patient. Well you think....it’s only Diabetes! But where do you draw the line?” (Participant No. 05).

The participants stated that healthcare workers living with HIV, Hepatitis C or PTB should be permitted to return to work, in some form, providing this is a non clinical role with minimal contact with others. MRSA was not considered an issue for patient safety as it was almost an expected consequence of healthcare work and considered prevalent throughout the healthcare system within the UK.

“Well haven’t nearly all of us have this on our skin already !!! It’s just whether we have actually been diagnosed with it or not. Really you need to treat everyone with something that can be passed on, as we then don’t give it to our patients” (Participant No. 04).

Although there was recognition of safety for healthcare workers and clients this was not seen to be considered at great lengths. The participants felt that these issues were the concern of the institution and the individual should be more concerned with personal risk.

5.5.3 Sub-theme 3.3 Risk Management

The participants all agreed that the risk management was the responsibility of differing groups. Occupational Health was seen as an area which had a contractual obligation to ensure staff safety and compliance with risk management models. Whilst disease contraction was considered to occur through different avenues, the actual responsibility of an infected individual returning to work was considered that of the Occupational Health Department to ensure support for this process and patient safety,

“Obviously they are aware of the occupational health screen prior to them getting it anyway so obviously if there’s a risk to either the staff or the patients they won’t be there in the first place” (Participant No. 03).

Participants felt that some, but not all, of the responsibility was also that of the individual, with notification and responsibility to self and others being important. Professional risk was accepted; not linking to the experience of stigma, but this was seen as part of the working within healthcare systems.

“It’s like a fireman being upset that he is burnt or something. You put yourself within that risk and you know that the risk is there” (Participant No. 06).

The professional risk of contagion was accepted by all the participants, believing the employers responsibility was to keep them ‘safe’. Poor education and communication underpinned any experienced stigma and fear. This was considered to ostracise the individuals concerned and therefore, disrupt patient care.

There were differing views from the participants regarding the return to work of infected staff. This was in line with the Department of Health (2013) report on HIV infected healthcare workers. The expression of a positive diagnosis was considered as acceptance of a mark and then identified as an area of power and control which was given to the employer and others, experiencing the implementation of stigma. However, participants disagreed with the guidance and felt that restrictions should be placed on healthcare workers as to which clinical environment can be accessed post diagnosis of HIV/Hepatitis C or PTB;

“With PTB I think they should be taken out of the clinical environment, but with any of the other diseases I don’t think it should matter or make

a difference" (Participant No. 02).

Despite PTB being considered as not as infectious or as stigmatised as HIV or Hepatitis C by the participants, it was seen that the infection risk for PTB was increased when working within the NHS and as such the infected healthcare worker should be removed from clinical placement. Participants felt that the healthcare worker may not wish to return to the clinical environment where they contracted the disease, as it may be felt that its '*traumatic*' and potentially '*psychologically damaging*'. However, participants stated that to have experienced an infection made an individual staff member '*empathetic*' to the conditions and treatments of others. This may encourage the healthcare worker to move into a clinical speciality as seen in the times of staffing of sanatoriums, thus reducing the risk of cross infection and potential stigma. The use of infected staff within an environment was seen to reduce the element of risk for the patient.

The themes identified three areas which participants saw as professional considerations when presented with potentially positively diagnosed healthcare workers. The professional support (3.1) provided to the positively diagnosed healthcare workers by other professionals was addressed as an expectation if they found themselves as positively diagnosed within the work environment. Patient safety was seen as professionally and morally important within the NHS. The professional responsibility of disclosure was expected when positively diagnosed with one of the five disease groups. The risk of infection was also highlighted as being one of professional accountability when working with a positively diagnosed individual or obtaining a personal positive diagnosis. The reduction of risk and fear for patients, relatives and other healthcare workers was considered to be reduced significantly by education. The participants expanded upon this area. And so after analysis of the transcripts the fourth theme of education emerged.

5.6 Theme 4.0: Education

On interpretation and analysis, education, knowledge, ignorance and professional communication appeared as sub-themes. The participants stated that attitudinal change can be encouraged with the introduction of education

regarding disease processes and the experiences of the positively diagnosed individual. The three emerging sub-themes were Knowledge (4.1), Ignorance (4.2) and Professional Communication (4.4).

Participants felt that professional responses to diseases were an educational opportunity;

"I think they should give advice out about it, but not in a negative way. So, if they knew I'd got MRSA, you know, they should probably tell the staff how to treat me and also right ways to go about it instead of, you know 'if you've got any questions come to me or whatever and things like that instead of being behind my back and trying to find out" (Participant No. 09).

This would reduce the negative stigmas and support the participant's feelings of communication and knowledge being minimising factors for reduction in negative stigmatising attitudes. The participants felt that the infectious diseases were more likely to be discussed in a non-professional, stigmatising context by other healthcare workers and this would reduce knowledge rather than support formal education was considered an unsupported, non-evidence route of education and had detrimental effects to value change. The participants felt that education of staff would open up forums of communication with infected healthcare workers or patients and enable less informal supposition of life style choice and behaviour;

"He didn't mention the potential HIV and I thought once on a roll I think he would probably have disclosed that they were testing for HIV as well but,....I have to question whether or not he was actually consented for that, but, yeah there was a lot of people sitting around questioning if he'd been going with prostitutes or not.....this quiet married man!" (Participant No. 03).

This was reflected within all of the other disease groups, leaving participants feeling uncomfortable and even pressurised to participate in nonprofessional reactions to positive diagnoses.

Education and formal training in the management of healthcare infections was seen as important by all of the participants. They reflected that additional information regarding disease processes and management would be beneficial both within the courses and the clinical environment. The participants, felt continuance of post qualification training in stigma would be beneficial to avoid task orientation and neglect of basic infection control. This would then underpin a continuum of knowledge to reduce stigma;

"If they could potentially harm somebody, basically if they are educated and they are educated in ways to prevent that, ... definitely that's right" (Participant No. 01).

Further education was highlighted by participants as a way to ensure support. Areas of clear clinical education underpinned feelings of support and felt it was the reason minimal stigma had occurred;

"I wonder if because of the environment and you had a very educated group of nurses and healthcare assistants, because that was our job there was so much support for her?" (Participant No. 03).

The participants considered that the clinical education was expected from the Occupational Health Department with a participant's expectations being that of fulfilment of promised support. Environments with no additional support and education were seen to increase anxiety and stigma, encouraging staff to become more alienated from the infected individual;

"I mean they were brilliant, they were putting all these plans in place and how they were going to do an information leaflet. Send it to the ward and, you know, get it all sorted. But it was all talk. That was like about a month, if not more, before I finished, I saw nothing more of it" (Participant No. 08).

Additional education put into place by a specialist team was seen to be pivotal to reducing anxiety, stigmatising values and behaviours of healthcare workers.

Patient input and interaction with healthcare workers as guest speakers within the curriculum was introduced as very beneficial. However, despite this being highlighted as an area for improvement, further analysis showed that participants

demonstrated higher expectations of guest speakers than the same healthcare worker within a clinical environment;

"Unfortunately some of the comments he made were rather negative"
(Participant No. 09)

and

"I thought from a professional point of view it was good for me to know"
(Participant No. 10).

The participants felt the experience of education from guest speakers was beneficial offering areas for further discussion around stigma and disease processes.

"People like guest speakers that come in just open attitudes" (Participant No. 04).

Clinical experience with patients altered some attitudes, despite all of the participants stating they were not stigmatising, they did pass some negative comments regarding their experiences within clinical settings. This did not support hypothesis number three disputing the effects of clinical placements being stigma reducing;

"Lots of people that I've met with Diabetes and ill controlled Diabetes you can't help but think why are you doing this? Like if it can be controlled and you cannot have to lose your leg because of you know, because of your Diabetes. But people that are having their insulin every day but still scoffing loads of sweets. I can't help but think you could just help yourself so much more if you'd just made the right choice" (Participant No. 06).

It was also considered that the education of patients would also influence stigma of infected healthcare workers regarding the disease process.

"Patient wise there is still much education needed" (Participant No. 08).

A sub-theme emerged from the analysis of the transcripts and this was knowledge. This was gained from many areas, supporting education within the classroom and the clinical area.

5.6.1 Sub-theme 4.1 Knowledge

An increase in knowledge was considered to reduce the stigmatising values associated with disease groups and positively diagnosed healthcare workers. With HIV fear was related to the amount of acquired knowledge and ideas unsupported by evidence were seen as detrimental to the reduction of stigma;

“That’s the first person I had ever come across that was HIV positive, so all I knew about it was you know the myths, I was worried about it” (Participant No. 01).

The fear of contagion, without knowledge of routes and exposure, was a concern for the participants. It was highlighted as having ramifications for not only stigmatising behaviours, but also the potential contagion risk of family and friends. Knowledge was seen as key to the reduction of fear. This was linked to the amount of knowledge that had been acquired regarding the disease transmission route’s progression throughout the training and clinical attendance. Participants highlighted this as a potential issue and commented that risk is not only within the hospital environment;

“I think I’d probably be worried, not perhaps so much about myself, but with PTB I’d be worried about passing it on to someone at home, but if I got Hepatitis C, again like HIV, because I know how its transmitted, I know it’s if I cut myself or anything like that, unprotected sex etc. , it’s just going to be confined to myself” (Participant No. 09).

Participants expressed the presence of occasional fear for family contagion, self-concern regarding career and life style restriction.

“Provided I have got the right knowledge for what I can do to keep myself and my family and my children safeSo that I am not taking anything off the patient” (Participant No. 05).

The participants were more concerned regarding family and friends within the more mature group, who all indicated this was because they were parents themselves. The non-adult branches group expressed a lack of knowledge and education within their course route as an issue and felt this exacerbated the fear of contagion.

"Maybe for the younger ones who haven't really experienced....not all of them, but some may have come straight from school. They've got their peers opinions, they've watched the films and all the rest of it and I think once they have been around other people, I think yeah maybe. I think for some that's it their minds are made and that's just the way they are" (Participant No. 07).

Pre-course tacit knowledge may influence formation of attitudes and values towards diseases. Participants stated that knowledge gained on the course did not really influence their attitudes towards disease. It was more based within experience. This countered earlier comments made throughout the interviews disagreeing with such points.

"I don't think that my attitude has necessarily changed, but I think that my knowledge has and that must have changed it to some degree" (Participant No. 10).

Even though experience appears to be knowledge gaining, the participants, clearly identified educational knowledge as a way to counteract ignorance and reduce negative stigmas.

"I just think education and knowing more about things changes your opinion." (Participant No. 01)

Ignorance linked to fear and stigmatising attitudes towards disease processes were performed before course commencement. A participant felt that the lack of knowledge was the key to why stigma occurred differently with each disease;

"I think stigma, like the lack of knowledge of what and how they could catch them....I think that some people think if they are in the same building as HIVI think peoples attitudes to something like Diabetes are different to HIV because they don't think they are gonna just catch it" (Participant No. 02).

The disease process was thought to be a primary influence. Stigma was dependant on the knowledge of contagion routes. The education of healthcare professionals was seen as a basis for participants to learn about disease processes, then providing value free healthcare within practice. Participants

recognised some anomalies within the education delivery, between the adult and non-adult branches.

"I think it's just the way we are. I think we just get taught differently and I think our nursing care is much different cause we don't do much of the infections and actually health things" (Participant No. 02).

The recognition that practice was influenced by further knowledge regarding certain topics was considered as being supportive towards the formal education and lectures. Yet it was felt that not enough access to knowledge in either forum was found;

"I think there ought to be a lot more nurse training with regard to these diseases as there is not enough" (Participant No. 01).

and

"I do not think there is enough information given" (Participant No. 03).

It was felt that further education of the disease process, within all curriculums, would reduce ignorance, improve the care and reduce stigma.;

"If healthcare workers were given more training about the diseases they might be more careful in what they are doing, how they treat their patient and how they act with them. Not only for their own safety, but the patient as well" (Participant No. 07).

Participants identified some further differences between the theory and the practical experience that was seen on their courses;

"No I did feel there were some differences with the teaching and practice. I thought that practice is more enlightening" (Participant No. 09).

The knowledge was considered to be much more 'useful' from clinical placements. The curriculum of the sample was delivered across centres by differing lecturers, with non-standardised sessions. A longitudinal delivery was seen to be more beneficial with support from clinical facilities. The lack of knowledge was seen as ignorance and the participants considered this as an area which supported people's stigmatising behaviour throughout healthcare.

5.6.2 Sub-theme 4.2 Ignorance

Ignorance of disease processes was blamed for stigmatising values, behaviours, poor treatment, fear and avoidance of potentially infected healthcare workers and reduced patient contact. Participants considered ignorance as being pivotal to acceptance and access of treatment, discussing a dependence on explicit stigma.

"Oh I think there'd be a lot of stamping of feet and people saying I am not working with her or and um, a lot of ignorance maybe" (Participant No. 05).

The countenance of professionalism was also considered;

"Some individuals have got that stigma, or ignorance about it that creates the stigma on the whole. I do not think the attitude is as necessarily as positive on the professional side. Not as good as it could be" (Participant No. 07).

An identification of ignorance stemming from different educational curriculums was addressed by the participants accessing the non-adult branch education programmes. These participants stated they have less education based around diseases and transmission processes, only regarding that of 'certain' behaviours deemed as deviant to society. They therefore, expressed ignorance as being a major component of an evolving stigma:

"Ignorance they just don't know...Being in Mental Health we do not go into detail only touches on the subject, but as related to things like drug and substance misuse.... because it's prevalent. But it's not gone into in detail so they are still ignorant as to how they can 'touch' these diseases" (Participant No.01).

and

"Cause I obviously knew about Diabetes before she first had a hypo, um I didn't understand what's happening and when I started to tell the rest of the student nurses about it, they've adult branch and they obviously know more about it and you started sharing information....." (Participant No. 02).

Ignorance was seen as underpinning stigma and shared informal discussion, regarding knowledge acquisition, reduced what was considered to be the underpinning factor of prejudice and stigma;

“When people have a lack of understanding and things, you know, people just make things up about certain things.” (Participant No. 06).

The “*lack of understanding*” of the disease and infection process was highlighted in participants as being an major concern to them, forcing ‘*bad*’ and ‘*negative*’ reactions to infected individuals. The perception of ignorance being linked to fear and avoidance was a repetitive theme, which emerged within analysis stating “*ignorance breeds fear*”.

It was considered that professional communication and adherence to guidelines and policies may reduce ignorance and consequently stigmatising behaviour within healthcare, which is explored further within the final sub-theme.

5.6.3 Sub-theme 4.3 Professional communication

The participants stated clear communication of a potential infection route or suspected infected individual was professionally paramount to support and acceptance within healthcare. It is not always possible to achieve:

“Well my initial thing is like how they addressed it to senior staff obviously. Say I was working in A and E and someone came and told me they had HIV. I found that no one knows, I would be quite concerned and I would tell her that you have to be safe and that you have to go and say. Just because they would be putting themselves and everyone else at risk..... if occupational health knew, that was different” (Participant No. 10).

Support of infected healthcare workers should be improved to ensure their continuing employment. There was an expression of concern raised amongst the participants regarding the privacy of communication and the potential lack of consideration for the individual’s personal feelings. Policy and guidance would support the disclosure of an infection and have been put in place to prevent stigma;

“It would have to be because it’s such a serious thing....I don’t think you can

keep things like that private and not tell anybody” (Participant No. 03).

Personal concern and fear may be seen as more important than procedural guidance within the participants demonstrating empathy;

“I wouldn’t probably talk to them about it because I wouldn’t know what to say and I don’t think even though, yeah, I think my knowledge is more than it used to be, I don’t think I have enough knowledge to embark on a whole conversation with them about it. And I don’t know, I wouldn’t know if they’d want to talk about it. I would think that I was being nose-y that... so I don’t think I would initiate that conversation” (Participant No. 06).

The disclosure of diagnosis (even if professionally expected and requested) was seen to be an obstacle when looking to address communication because of fear of being ‘marked’. Participants have seen knowledge as an underpinning foundation of their values throughout the analysis. They do, however, feel that the open communication of a diagnosis is paramount to gaining support both professionally and personally.

All participants recognised that following correct procedures and protocols was an area of professional responsibility:

“I don’t like putting all the gloves and the aprons and everything on just to go in there and say hello to them and have a chat to them because I think it makes them feel bad!” (Participant No. 08).

Recognition that the protocols were for risk management and contagion prevention, not stigmatisation was important. A participant considered the infection protocol was only to be actioned if they were positively diagnosed and not at point of potential risk.

“We both had to be checked out. If he did have something, I did think we all had to go through the correct protocol” (Participant No. 07).

Protocols and policies, whilst seen as a precaution to prevent catching infections, were identified as a two way protection system between healthcare workers and patients.

"I understand the need for precautions for invasive procedures, but they shouldn't be stopped from doing them just take the extra precautions that everyone needs to" (Participant No. 07).

The participants were clear that protocols and guidelines were in place for infected staff support and prevention of further contagion. Knowledge was seen as a conduit for the changing of values through an open and informative channel with ignorance supporting negative stigmatising values which were experienced by the participants. To gain knowledge the participants considered professional communication as the way to gain knowledge through clinical environments and healthcare workers communication. It was supported by the use of protocol and guidelines which assisted and supported the care of an infected individual.

5.7 Synopsis

The qualitative analysis presented the emergence of four clear themes; Stigma; Fear; Professional Responsibility, Education and Knowledge. Sub-division of these themes (*as shown in Table 5.2*) meant that at times analysis presented overlapping areas. This is seen in the linked sections of the sub-themes in *Table 5.3*. Theme 1.0 indicated that stigma was experienced within healthcare. The implicit and explicit experiences of the participants demonstrated how stigmatising attributes and behaviours were provided towards healthcare professionals with positive diagnoses of the five diseases (*Section 5.2*). These experiences supported their expression of fear surrounding the contraction of one of the diseases. The participants expressed that although contagion was an expected risk, the fear of a positive diagnosis could be seen to be affiliated the individual healthcare worker, blaming them for contagion routes and life style choices. This may lead to a capping of career prospects within healthcare (*Section 5.3*). The professional responsibility highlighted by the participants provided expectations of support from family, friends as well as colleagues and managers. However, the awareness of patient safety and risk was linked to fear, blame and career (*Section 5.4*). Results also indicated that stigma reductions were considered to be linked to knowledge, minimising ignorance through communication and support (*Section 5.5*).

Analysis of the data linked to the overall objectives of the study;

- Phase 2.0 used a thematic analysis of the data to identify the four themes (stigma, fear, professional responsibility, education and knowledge) and the sub-themes (*Table 5.2*) supported further exploration of the data generated from the participants semi-structured interviews (*Objectives 2 and 3*).
- Analysis of the findings of Phase 2.0 provided further results to compare with the first quantitative study (*Objectives 2 and 3*).
- Reflecting on the results of Phase 2.0 and comparing with the hypotheses set within the *Chapter 1*, (*Objective 3*).

Reflecting on the results found within this chapter the following conclusions were drawn;

- Theme 1.0: Stigma

Participants provided qualitative data on their experiences of stigmatising values towards healthcare workers positively diagnosed with the five disease groups. Within healthcare, the home environment, family and friends stigmatising attitudes were experienced. On analysis the stigmatising values were addressed to all five disease groups, whether infectious or non-infectious. Despite the participants expressing minimal influence from these areas they articulated stigmatising attitudes which differed from those they felt were professionally expected of them. This evolved throughout the semi-structured interviews with the participants expressing initial positive stigmatising attitudes which then changed to more negative attitudes as they proceeded through the interviews (Hypothesis 1).

- Theme 2.0: Fear

Fear of both the illness contagion and the attached stigma to a positive diagnosis was seen within all four themes and on analysis highlighted the participants experiences of blame within healthcare due to potential contagion of the disease. The participants feared

the '*blame*' which was being linked to experiences with healthcare workers expressions of their stigmatising values, family and friends beliefs, personal and professional behaviour and life style choices. Yet, although participants denied this held influence over formation of their own views, the opposite was seen throughout the semi-structured interview process (Hypothesis 1).

Phase 2.0 data analysis indicated that the participants expressed that their own fear of contagion could be reduced by knowledge and education. The results indicated that the participants felt that '*blame*' or '*fear*' expressed throughout the course had been minimised through education and that at the end of the courses their stigmatising values were positive. Participants highlighted that contagion may be considered career limiting. As such a fear of contagion strengthened their experiences of stigma. The participants expressed that they did not consider this to be influential to the formation of their own stigmatising attitudes and values, but contradicted this over the course of the interviews (Hypothesis 2).

- Theme 3: Professional responsibilities

Analysis of the data highlighted their own professional responsibilities as pivotal to the reduction of stigmatising attitudes within healthcare. The participants experiences were that risk management and patient safety protocols and guidance provided a basis for non-judgemental care. The support experienced for positively diagnosed healthcare workers was also highlighted as being paramount to this process. Yet, they experienced negative and unsupportive environments and reactions which emphasised healthcare workers use of personal rather than professional attitudes. They demonstrated a personal '*fear*' of being ostracised within the healthcare environment of non-compliant to the attitudes of their colleagues towards positively diagnosed individuals (Hypothesis 3).

- Theme 4.0: Education and knowledge

Participants commented that the acquisition of knowledge throughout the nursing course supported their development of positive attitudes towards diagnosed individuals within the five disease groups. They expressed that ignorance underpinned negative attitudes, which through professional support and communication supported their development (Hypotheses 2 and 3).

Both experiences within education and clinical placements supported their attitude development ensuring they became less stigmatising (Hypotheses 2 and 3).

Analysis showed that this was often not supported by their statements (Hypotheses 1 and 4).

Conclusions of this interpretation showed that although the participants felt their values were underpinned by knowledge and professional judgements, they appeared to be more complex than this. Many participants stigmatising attitudes and values became more prevalent throughout the interviews as they demonstrated comfort with the procedure. They displayed more negative values over time, battling with their own perceptions of stigma and that seen within others behaviours. Influential areas emerged as to stigma attributes, fear, education and professional issues. Further expansion of this within the discussion *Chapter (6.0)* may be seen drawing the two methods together to provide considerations of the findings.

6.0 Discussion of the findings

6.1 Prologue

This chapter considers the findings from the research reported in Phase 1.0 and 2.0 studies and consider the extent to which the overall aim of study has been met.

The overall aim of the project was to determine to what extent student nurses held stigmatising attitudes towards healthcare workers with PTB, HIV, Hepatitis C, MRSA and Diabetes type 2. This was seen as important because, it is reasoned, if nurses did hold such views it could have negative effects not only on positively diagnosed healthcare workers but also the delivery of healthcare to their patients.

A review of the literature indicated little was known about the attitudes held by healthcare staff towards colleagues with five conditions (PTB, HIV, Hepatitis C, MRSA and Diabetes type 2) that may, for a range of reasons, carry a stigma. Authors have previously debated the debilitating economic and social effects of such stigma upon the individual with mental health issues, (Link *et al.*, 1997; Sayce, 1998; Link and Phelan, 2001; Smith, 2002; Corrigan and Wassel, 2008; Mitchel, 2009; Hannigan and Allen, 2011; Corrigan *et al.*, 2012; Punter, 2012), physical disabilities, (Jones *et al.*, 1984; Mason *et al.*, 2001; Davey and Seale, 2004; Green, 2009) and disease (Weiner *et al.*, 1988; Sontag, 1990; Pryor *et al.*, 2004; Chapple *et al.*, 2004; Marq *et al.*, 2008; Sengupta *et al.*, 2011; Corrigan and Fong, 2014; The World Health Organisation, 2014). Given that learning about such diseases and the impact of holding stigmatising views, may be considered from entry to healthcare education. It was felt that keeping the focus on student attitudes would give an insight into the impact an education programme may have on any possible stigmatising attitudes held by this group. Moreover, as professional education programmes for nurses last over a prescribed time period there was opportunity here to explore changes in attitude towards positively diagnosed healthcare workers through a longitudinal study over a three year period.

A mixed methods approach was adopted providing scope for a sequential study comparing and contrasting the data obtained from both a quantitative (Phase 1.0) and a qualitative study (Phase 2.0). Phase 1.0 surveyed the participants at 3 points over 3 years of their programme, using a semantic differential tool and Phase 2.0 using in-depth interviews. The findings from each Phase are presented in detail in Chapter 4 (Phase 1.0) and Chapter 5 (Phase 2.0).

This chapter aims to discuss the findings of this study.

- **Section 6.2** interprets and discusses the overall findings and the extent to which the research question was answered.
- **Section 6.3** considers the objectives of the study.
- **Section 6.4** summarises the limitations of the study.
- **Section 6.5** discusses potential areas for further research.
- **Section 6.6** considers the research approach.
- **Section 6.7** presents a synopsis of the chapter.

6.2 Overall findings

The key question was to what extent student nurses hold stigmatising attitudes and values towards positively diagnosed healthcare workers with PTB, HIV, Hepatitis C, MRSA and Diabetes type 2. To explore this in Phase 1.0 of the study four working hypotheses were set:

Hypothesis 1: Student nurses draw on previously acquired stigmatising values which underpin their attitudes towards PTB, HIV, Hepatitis C, MRSA and Diabetes type 2.

Hypothesis 2: Educational input regarding PTB, HIV, Hepatitis C, MRSA and Diabetes type 2 will reduce the stigmatising values of student nurses towards healthcare workers with the diseases.

Hypothesis 3: Clinical placements will influence the stigmatising attitudes and values of student nurses towards healthcare workers with PTB, HIV, Hepatitis C, MRSA and Diabetes type 2.

Hypothesis 4: Student nurses, on completion of a pre-registration course will present less stigmatising attitudes and values towards healthcare workers living with a positive diagnosis of PTB, HIV, Hepatitis C, MRSA and Diabetes type 2.

In-depth interviews in Phase 2.0 enabled further exploration of issues raised in the quantitative analysis in Phase 1.0.

6.2.1 Previously acquired stigmatising attitudes and values.

The findings in Phase 1.1 indicated that three components were considered by the participants. These were P1 (personal statements), R1 (personal responsiveness) and R2 (personal reactions). These three components were found to be indicative of the participants considered statements about the infected individual (P1), the expected responsiveness from the stigmatised individual to such statements (R1) and the reactions of the stigmatised individuals (R2) (see Chapter 4, Section 4.3). The findings reported in Chapter 4 indicated that, at the beginning of their education programme, students held views that could be seen as *'stigmatising'*. Data analysis indicated this pattern continued throughout their programme although, by the last point of data collection (Phase 1.3), at the end of the programme they were more negative towards the infected healthcare worker.

In analysing the data, students holding a *'positive stigma'* view were considered to be less disapproving of the infected healthcare workers and the *'negative stigma'* attitude more disapproving. The five disease groups, whilst all present in today's society, have differing contagion risks portrayed within the media, health promotion agencies and the NHS. In Phase 1.1 HIV was considered as having the most positive attitude affiliated with it, indicating the participants had more constructive stigmatising views in comparison to the other four diseases. Shilts (1988) and Fowler (2014) argued that health promotion campaigns in the 1980's ensured high visibility of HIV considering infliction through an

individual's poor lifestyle choices, leaving them incurable. Analysis of Phase 2.0 indicated that participants, although aware of media influences, felt that an increase in knowledge underpinned their attitudes and values and provided a basis for their opinions. This was despite such negative connotations attached to the disease (*Chapter 5, Section 5.3.3*).

In Phase 1.0, Diabetes type 2 (non-infectious) and MRSA (infectious) were also more stigmatised against than Hepatitis C and PTB. News reports were prevalent of these diseases (Daily Mail, 2014; The Guardian, 2014; Daily Mail, 2014; British Broadcasting Company, 2014; ITV, 2014) and there is a possibility that exposure to this level of media reporting may play a part in impacting on student views. The analysis undertaken in Phases 1.1, 1.2 and 1.3 (*Chapter 4*) indicated participants considered the personal responsiveness (R1) and personal reactions (R2) as more negative than the positive personal statements (P1). In other words participants were more likely to rate a positively diagnosed healthcare worker constructively, but held an expectation of negative responses and reactions from the healthcare worker despite their positive attitudes.

This was potentially drawing upon learnt values, stigmatising behaviours and attitudes. As noted in *Chapter 4, Section 4.5.1*, at the midpoint of the longitudinal study, the participants indicated they expected more negative reactions from the infected healthcare workers. These were seen to return to the pre-course values at the end of the course. The reactions may have been previously experienced and the participants previous experiences seen to support the development of such beliefs and attitudes (Goffman, 1959; Ajzen, 2011). Boogardus (1931); Allport (1935); Asch (1946); Campbell (1950); Festinger (1957); Ajzen (1988); Hayes (1998); Maio and Haddock, (2010) and Ajzen (2011) argued situational memory has an influence over the participant. The experiences before course commencement or clinical experience at this point of the course may have been considered an influencing factor on stigmatising values seen on analysis in Phase 1.0.

It was possible to further explore these trends at a personal level in Phase 2.0 study involving face-to-face interviews with a small number of participants

(Chapter 5). Here the indications from participants were that family and education experiences were primary influences surrounding the development of their stigmatising values. Johns *et al.* (1984) stated that the infection of an individual within a family may influence society's responses to them all. Interpretation of Phase 2.0 data indicated that participants felt fear of contagion and blame attributed to lifestyle choices. This was influenced by family values underpinning a negative attitude towards individuals. The formation of such attitudes were attributed by participants as being formed before the course by the media portraying diseases as being self-inflicted (Taylor, 2001; Bos *et al.*, 2013, Corrigan and Fong, 2014; Fowler, 2014).

Comparing the findings of Phases 1.0 with those of Phase 2.0 participants were seen to express formed and expected stigmatising attitudes and values towards the healthcare workers within the descriptors, despite denying the existence of such attributes. Boogardus (1931); Allport (1935); Asch (1946); Festinger (1957); Campbell (1950); Ajzen (1988); Hayes (1998); Maio and Haddock (2010) and Ajzen (2011) stated education and knowledge reduces stigmatising values and as such their development may not only be attributed to situational memory. However, Ajzen (2011) argued that the attributes are only relevant at the point of time that they have been presented and as such may alter with further external influences. Analysis supported this.

Diabetes type 2 is currently becoming the most endemic disease in middle and lower income societies and as such is presented with a negative media campaign, addressing the economic and health burden to these social environments (Roglic *et al.*, 2005; WHO, 2009; WHO, 2013). Within Phase 2.0 (Chapter 5). participants expressed, that Diabetes type 2 held no contagion fear. Blame for contraction was clearly attributed to life style choices supporting the findings of Browne *et al.*, 2013. The non-infectious disease had a strong life style choice connotation and as such negative attributes were presented. The participants stated that they held no negative stigmatising attitudes towards Diabetes type 2, but analysis of both Phase 1.0 and 2.0 indicated that the participants felt that disease development was attributed to poor diet and lack of exercise and so may reflect a 'stigmatising view' as individuals with this

condition could have done something about it. Pryor *et al.*, (2004) and Teixeira and Budd (2010) argued that such attitudes reflected previously learnt behaviour towards the disease and this was supported by the findings within this study (*Chapter 5, Section 5.3.2*).

The participants stated that the development of a disease would be considered differently by the groups of family, friends, healthcare workers, relatives or patients. They argued that the family, although afraid of both its impact on the family and individual as well as the contagion risk, would offer a sound supportive and safe environment (*Chapter 5*). Taylor (2001) argued that the level of support might be influenced the potential of courtesy stigma and as such be a consideration for the family affecting the formation of support networks and stigmatising attitudes and values. Analysis indicated that the support generated by the family was influential to the formation of participants values and attitudes (*Chapter 5*) The potential of a positive diagnosis was thought to increase family support, but provided the basis for learnt behaviour, fear and blame (Taylor 2001; Bos *et al.*, 2013). Rajeswari *et al.*, (1999) and Albon (2002) stated that financial constraints potentially suffered with stigma may occur post diagnosis, this being the most vulnerable time for both the healthcare worker and the family.

Interpretation of Phase 2.0 (*Chapter 5*) indicated that such family values influenced pre-course attitudes and values. Participants felt that if blame or stigma was experienced from family towards an individual's positive diagnosis when working within healthcare it would not be attributed to poor lifestyle choices. It was implied that there may be a more positive ethos generated by the fact that a disease had been contracted at work, making them appear more positive towards a hard working employee. Thomas (1999) supported the notion that many healthcare workers express the risk of caring for positively diagnosed individuals was worth taking. This may be why the participants highlighted positive personal statements (P1) and negative expectant personal responses (R1) and reactions (R2). They felt that the contraction of disease was seen to be a risk affiliated with being a caring, hard working healthcare worker and as such attributed positive statements to this. However, they felt the positively

diagnosed healthcare worker would respond and react more negatively to any attributes, positive or negative.

Analysis of Phase 1.0 and 2.0 indicated that participants considered family and friends, media and work as influential on their stigmatising attitudes and values throughout the course. They also attributed this to knowledge and education stating that knowledge acquired on the course provided a basis for a less negative attitudes. However, the participants did not consider the acquisition of knowledge pre-course as being as influential as family and friends.

Analysis of Phase 2.0 was required to expand upon the findings of Phase 1.0. Goffman (1963) and Steward *et al.*, (2008) stated that personal perceptions and stigma may be internalised, developing from experience of social mistreatment and recognition of stigma attributes and as such provide pre-course attitudes and thus, in this study maybe, values that are unchangeable by other factors. Mueller (1986) and Ajzen (2011) felt that potential situational factors could influence stigmatising values and beliefs surrounding a disease process and contagion routes. *Chapter 5* provided further exploratory data indicating family and friends, the behaviours of infected individuals and attached attributes (*Chapter 5, Section 5.3*); the fear of blame, contagion and career restrictions (*Chapter 5, Section 5.4*); the professional responsibilities linked to risk management, support from others and patient safety (*Chapter 5, Section 5.5*) and the amount of education and knowledge is provided within healthcare to reduce ignorance and improve professional communication (*Chapter 5, Section 5.6*). On consideration of the results from Phases 1.0 and 2.0 it was seen that the participants held certain values which were influenced, as discussed above by external conduits such as family, friends, colleagues but also by education and knowledge.

6.2.2 The relevance of education

The literature review (*Chapter 2*) indicated that knowledge acquisition is paramount to the reduction of stigma, (Eliason, 1993; Ryan, 1993; Leasure *et al.*, 1995; Renè and Dubos, 1996; Sepkowitz, 1996; Lee, *et al.*, 2002;

Joseph *et al.*, 2004; Sherman, 2007; Downing and Kawuma, 2008; Wilfinger, 2009; Yiu *et al.*, 2010; Corrigan and Fong, 2014; Corrigan, 2014). Knowledge generated from the taught component of a nursing course, the 'formal' education programme, is considered to be generated from both theory and practice (Jaramillo, 1999; Macq *et al.*, 2005; Macq *et al.*, 2006; Ilya *et al.*, 2008; Pickles *et al.*, 2009; Radovic *et al.*, 2008; Moore *et al.*, 2009; Prodanovska-Stojcevska *et al.*, 2010; Hassan and Wahsheh, 2011; Rosenberg *et al.*, 2012; Corrigan and Fong, 2014). This may have been an influence in the data from the Longitudinal study where the analysis showed a change in attitudes Phases 1.2 and 1.3 (*Chapter 4, Section 4.5.1*). Undertaking Phase 2.0 study provided opportunity to elaborate the reasons behind the change in attitudes at this point.

At Phase 1.2 of the study, respondents presented different values after the educational input to portray more negative views on the reactions (R2) to all five-disease groups. At this point of the educational programme, there had been some educational input into stigma and disease processes. There were no further formal lectures on this topic offered between Phases 1.2 and 1.3. This may be seen as a potential influencing factor for the return to the pre- course values identified at Phase 1.1. The participants attitudes may have been influenced by knowledge and education surrounding the disease process at Phase 1.2. reflecting the points made by Pickles *et al.*, (2009), Prodanovska-Stojcevska *et al.*, (2010), Hassan and Wahsheh (2011), Rosenberg *et al.*, (2012) and Setia *et al.*, (2013) who all stated that education and knowledge was influential to stigmatising and formation of values.

Katz (1960), Oppenheim (1992), Wittenbrink and Schwarz (2007) and Maio and Haddock, (2010) stated that to change an attitude, a strong incentive or motivator was required. The attributional based attitude interpreted in Phase 1.0 can be considered close to our inner self-beliefs and resistant to change. Therefore, the possibility of influencing preconceived attitudes and values at a single point and the longevity of this change may be difficult to achieve without regular educational support. The implementation of robust, longitudinal, education programmes, interjected with specialist experience and service user

lectures (patients who have a positive diagnosis) may provide a reliable base for the development of knowledge, underpinning value and attitude formation (Eliason, 1993; Anderson *et al.*, 1993; Moore *et al.*, 2009; Pickles *et al.*, 2009; Happell and Cutcliffe, 2011; Doyle and Cruickshank, 2012; Sikorski *et al.*, 2013). This may influence the healthcare workers negative stigmatising values. Moreover, the stigma and values that are encountered by positively diagnosed individuals may also be reduced (Anderson *et al.*, 1993; Eliason, 1993; Moore *et al.*, 2009; Pickles *et al.*, 2009; Happell and Cutcliffe, 2011; Hassam and Wahsheh, 2011; Doyle and Cruickshank, 2012; Sikorski *et al.*, 2013).

The mixed methods approach used here helped identify issues behind the responses to the longitudinal survey. In Phase 2.0, participants considered education and knowledge were as influencing factors for development of attitudes. This supported the findings of Eliason (1993); Leasure *et al.*, (1995); Downing and Kawuma (2008), Wilfinger (2009), Yiu *et al.*, (2010) and Winkley *et al.*, (2014) with participants stating that the more education and knowledge acquired, the less they held negative attitudes towards positively diagnosed healthcare workers (*Chapter 5*). Education delivered throughout the courses differed between fields of practice. This should be a consideration for future curriculum planners who should also note that course content may need to be focused specifically to different fields of practice

Scrambler (2009), Felt (2012) and Bos *et al.*, (2013) argued that fear of infection and blame was compounded by poor communication between healthcare workers and underpinned preconceived ideas of contagion. Yet, as noted above, the participant's attitudes and values were primarily identified in Phase 2.0 as generating from external influences such as family and friends. The environment and previous exposure to positively diagnosed individuals considered to only partially influence their values and attitudes and this was supported here (Bos *et al.*, 2013; Roe *et al.*, 2014).

Fear was presented as a pre-requisite to avoidance and development of stigmatising values when considering the potential risk of contagion of a disease,

a point considered in some depth in the literature (Eliason, 1993; Moriya *et al.*, 1995; West *et al.*, 1996; Downing and Kawuma, 2008; Pickles *et al.*, 2009; Wilfinger, 2009; Juniarti and Evans, 2011; Bos *et al.*, 2013; Dijker, 2013; McGarry and Aubeeluck, 2013). Participants stated fear reduced as stigma and disease management education was delivered. The learning as education was delivered regarding stigma and disease management. The learning about diseases and disease management was a factor in increasing insight and so, perhaps, impacting on the way they saw the disease, thus influencing attitudes. Fear and avoidance of positively diagnosed individuals was thought to stem from attitudes developed through a lack of knowledge and all groups stated this would reduce if an education base was offered as a continuum throughout the course.

Stigma and avoidance was considered by the participants as a way of self-protection from the disease contagion. Another aspect identified in the literature (Eliason, 1993; Moriya *et al.*, 1995; West *et al.*, 1996; Pryor *et al.*, 2004; Downing and Kawuma, 2008; Pickles *et al.*, 2009; Wilfinger, 2009; Juniarti and Evans, 2011; Manganye *et al.*, 2013;). Pryor *et al.*, (2004) defined stigma as learnt and instinctive, supported by the avoidance of an infected individual and grounded in fear. Analysis of Phase 2.0 data indicated that the participants expressed fear as being compounded and even generated from other healthcare workers (*Chapter 5*). Mason *et al.*, (2001), Jones *et al.*, (1984), Goffman (1963), Scrambler (2009), Cianelli *et al.*, (2001), Felt (2012), Bos *et al.*, (2013) and Corrigan (2014) argued that ignorance and fear would underpin expectant personal responses and reactions due to the internalisation of the attributed stigma.

Whilst all participants agreed that the acquisition of knowledge was paramount to the reduction of stigma the actual route which facilitated this differed throughout the group. All participants felt that knowledge of disease processes would reduce stigma through acceptance of symptoms and a consequential reduction in the fear of personal risk. However, Phase 1.0 findings indicated the participants own stigmatising values changed and became more negative over time, even though knowledge was ongoing (Leasure *et al.*, 1995). Given opportunity to explore this further in Phase 2.0, it appeared ignorance of disease processes

underpinned the development of stigma and experienced an improvement over the course duration reducing their own stigmatising values (*Chapter 5, Section 5.6*). Given that this was not supported by the findings of Phase 1.0 there is a need for further work to consider this issue in more depth.

Phase 1.0 indicates that participants expect reactions from infected healthcare workers to be more negative throughout the course (*Chapter 3*). Analysis of Phase 2.0 shows that education is considered by the participants as influential to their acquisition of knowledge and reduction of stigmatising attitudes (*Chapter 5*). This was not longitudinally supported, therefore negative attitudes were seen to develop after further clinical practice and a return to course commencement attitudes at Phase 1.3 (*Chapter 4*). The need for longitudinal educational, clinical, institutional and structural application of policies and knowledge would provide a sound base for the recognition and understanding of all healthcare workers stigmatising attitudes both the student and the mentor (Moore *et al.*, 2009; Hannigen and Allen, 2011; Doyle and Cruickshank, 2012;).

The findings of Phase 1.0 alone provided minimal explanation for the changing results and significances, yet the addition of Phase 2.0 provided further exploration of the attitude and value formation (Polit and Hungler, 1999; Creswell and Plano Clark, 2007; Creswell, 2013) (*Chapter 5, Sections 5.2 to 5.5*).

6.2.3 The relevance of clinical experiences

Angermyer (2004) and Link and Phelan (2006) argued that workplace stigma can be experienced by a positively diagnosed individual from employers, work colleagues and patients compounding the experience of explicit stigma. Participants may have experienced positively diagnosed healthcare workers and patients who may have decided to decide to 'pass' or 'conceal' a diagnosis as they had encountered reactions to potential stigma which was negative (Felt, 2012). Jones *et al.*, (1984) and Crocker and Major, (1989) argued that positively diagnosed healthcare workers who have attempted to conceal a positive diagnosis have an inability to control the situation which may increase an individual's stress, presenting a potentially damaging physical and psychological situation.

The Phase 2.0 study aimed to explore the participants' feelings towards positively diagnosed healthcare workers they had met. However, of the conditions explored in this study, all participants had only had met those positively diagnosed with Diabetes type 2 who were considered 'loud' and openly disclosing of their 'mark' (Chapter 5, Section 5.3). It was noted that as the participants discussed this more in the semi-structured interviews they became less positive and more negative reflecting the findings in Phase 1.0 data.

Participants described the fear of experiencing such stigma if positively diagnosed themselves (Chapter 5). Wilfinger (2009) stated that the fear of infection from another infected individual would increase stigma and exposure would reduce this. Yet analysis of Phase 2.0 data indicated (Chapter 5, Section 5.5) that although they had been exposed to all disease groups Diabetes type 2 and MRSA were the more negatively stigmatised groups with more regular exposure.

Participants presented their own professional responsibilities as pivotal to the reduction of stigmatising attitudes within healthcare (Chapter 5, Section 5.5). They experienced risk management (Chapter 5, Section 5.5), patient safety protocols and indicated guidance provided a basis for minimising stigmatising attitudes within the clinical area (Doyle and Cruickshank, 2012). Their experience of negative and unsupportive environments (Chapter 5, Section 5.5) underpinned the expectant responses and reactions from positively diagnosed individuals and demonstrated the enacted stigma stemming from 'fear' of being ostracised within the healthcare environment (Chapter 5, Section 5.4) (Mason *et al.*, 2001; Shih, 2004; Felt, 2012;).

Although a student role is clinically based, support in the reduction of risk was not considered as being fully provided for by any of the participants (Chapter 5, Section 5.5). Identification of this as an area of concern meant that none of the participants felt they could address this at a clinical level. They expressed the blame of infection (Chapter 5, Section 5.4) as lying with the individual rather than the employer, expressing concern regarding inadequate knowledge of disease routes leaving healthcare workers vulnerable both professionally and personally (Chapter 5, Section 5.6). This reflected views by Hallak, *et al.*,

(1999), Gershan *et al.*, (2004), Richeldi *et al.*, (2004), Diel, *et al.*, (2005), Lee (2009) and Felt (2012). Felt (2012), NMC (2015) and King *et al.*, (2007) who stated that a professional responsibility to ensure the reduction of contagion risk was paramount in healthcare workers. Attitude formation may cause stress and concern to the positively diagnosed individual when considering the exposure of the 'mark' to a professional body. This may be considered as stigmatising (Goffman, 1963; Jones *et al.*, 1984; Gerhan *et al.*, 2004; Department of Health, 2013).

Contagion between healthcare workers, patients, relatives, family and friends, underpinned many areas of anxiety for participants (*Chapter 5, Sections, 5.3 and 5.4*). Whilst they recognised a clear professional responsibility to minimise the contagion risk and stigma, there was a lack of clarity as to whose responsibility this was (Thomas *et al.*, 2009; Felt, 2012). Sepkowitz (1994) argued this could be reduced by prompt and supportive reporting channels. Participants felt that the professional responsibility was undermined by a fear of personal contagion transferable to family. They felt that the infection of other healthcare workers was primarily the concern of Occupational Health to provide support and educational guidance to reduce risk (Department of Health, 2013). However, the accountability of the healthcare worker remained paramount to prevention of infection. This could be countered by the need for dignity and privacy in an individual that has been infected rather than blame and fear.

Therefore, clarity of where the professional boundaries lie within their experience would be beneficial. The interview data suggested that participants lacked clarity in guidance on the nature of professional boundaries. They had to work with patients known to have infectious diseases and their clinical experience helped them understand the reality of managing that risk. They were able to discuss this with colleagues and clinical mentors, but still had an underlying fear of contagion. The findings from this work showed the participants expressed experiences of clinical practice, mentor opinions, the meeting of positively diagnosed patients and healthcare workers supported their expectations, compounding their own fear of contagion. This supports hypothesis 3. Following from above, such fears caused them to consider how contagion may result in

lowering of an individual's status, the experiences of negative discrimination and labelling from other healthcare professionals within clinical practice (Link and Phelan, 2001; Juniarti and Evans, 2011). The implementation of a clearly recognised anti stigma policy may worsen the experience of enacted stigma rather than improving it (Schulze and Angermeyer, 2003). Moore *et al.*, (2009) argue that such implementation may be the only way to prevent stigmatising attitudes being developed within an organisation. This would be an important consideration for healthcare workers who are afflicted with a disease seen as carrying risk of stigmatisation.

6.2.4 Participants attitudes and values at course completion

The longitudinal study provided data from the commencement of the course to the completion. Hypotheses 1-3 considered the potential influences on student nurses stigmatising attitudes and values towards positively diagnosed healthcare workers with PTB, HIV, Hepatitis C, MRSA and Diabetes type 2. Whilst the hypotheses were not supported in the Phase 1 study (*See Chapter 3.3, Section 3.3.1*), insights from Phase 2.0 indicated that there are many potential influences and these may have an effect on the participants at the completion of their courses. In relation to both phases of the study Situational memory has been seen to alter what people learn and perceive (Allport, 1935; Asch, 1952; Festinger, 1957; Maio and Haddock, 2010). Repeated exposure over time to an object will develop attitudes surrounding it (Hayes, 1998). Thus, raising this issue in the course of this study may be seen to have influenced the beliefs of the participants over time, with exposure to positively diagnosed patients, the opinions encountered from clinical staff working within the NHS in conjunction with more formal educational programmes as identified by others (Eliason, 1993; Gillespie and Davies, 1996; Sadow *et al.*, 2002; Pickles *et al.*, 2009; Yiu *et al.*, 2010; Doyle and Cruickshank, 2012; Waller *et al.*, 2012; Manganye *et al.*, 2013).

Phase 2.0 bought the opportunity to probe issues further and introduced an anomaly between the perceived stigmatising values of the participants and their actual ones reflecting views supported by Allport, (1935); Asch (1946); Festinger (1957) and Maio and Haddock (2010). Interview data

showed that participants stated initially they were more positive to the disease groups, but throughout the interviews, attributes that are more negative were introduced. There appeared to be minimal blame attributed to diseases most considered by society to have been underpinned by life choices, for example HIV, associated with sexual transmission. It may be that this was because the majority of the participants were younger than 25 and have experienced a less intense multimedia approach to health education for HIV in the past two decades (Fowler, 2014). This may reflect changing attitudes towards sexually transmitted diseases in society, alongside increased awareness of other modes of transmission. Equally, it is possible the views reflect that they have had less experience of conditions such as HIV, PTB or Hepatitis C.

Ilya *et al.*, (2008) stated that although healthcare workers had knowledge regarding a disease remained negative and stigmatised bloodborne disease groups, which supported these findings. For others however, the development of negative attitudes has been seen to be dependent on the route of infection e.g. blood transfusion or sexual contact (West *et al.*, 1996).

Diabetes type 2 was brought into this study as a non-infectious disease that may carry a stigma as individuals with the disease may be seen as carrying some responsibility for it, due to poor diet and lifestyle choices (*Chapter 5, Section 5.3.1*). It was interesting to find in this study that it was stigmatised against within both Phases (*Chapters 4 and 5*). The participants noted they have had more exposure to this disease through clinical placements and health campaigns presenting negative views which they attribute to the development of the disease and the individual's life style choices (Buxton and Snethen, 2013; Daily Mail, 2014; The Guardian, 2014; Daily Mail, 2014; British Broadcasting Company, 2014; ITV, 2014). However, participants indicated that MRSA, whilst an infectious disease, was newly introduced within healthcare in comparison to HIV, PTB and Hepatitis C and was considered more as a risk from the healthcare environment rather than the individual (*Chapter 5, Section 5.2 to 5.6*).

The influence of expected professional behaviours and values underpin the personal statements. It was seen that the participants consider the disease groups not to be initially stigmatised against, but that their own values apportion no blame or influence to this (*Chapter 5, Section 5.4*), later this was not presented. Further interpretation of Phase 2.0 data indicated that the participants experience enacted stigma and even began to display these views themselves (*Chapter 5, Sections 5.2 to 5.6*). Participants were aware that their professional behaviour should not support a stigmatised view but that their own values were in conflict with this.

The four main themes identified in Phase 2.0 (stigma, fear, education/knowledge and professional boundaries) are not evolutionary themes, remaining paramount to potentials in the reduction of stigma to date (Cianelli *et al.*, 2001). This has been identified within other literature. However, further exploration of this is required (Corrigan, 2014). Stigmatisation, fear and blame are still reported within the home and workplace (Wilfinger 2009; Chirwa *et al.*, 2009; Pickles *et al.*, 2009; Juniarti and Evans, 2011). The perspectives are important and underpin the findings from both Phases of this study that indicate that education alone may not be depicted as a sole solution in clinical practice, learnt attitudes and values are also influential (Hodgson, 2011). Development of education and support packages are nothing new within stigma reduction, yet an acceptance of the doctrines appears sparse (Diesel *et al.*, 2012; Felt, 2012; McGarry and Aubeeluck; 2013). Hodgson (2011) felt that despite individual support, the paradigm of stigma was linked to disease control as a form of restricting contagion. This leads to a nurturing of fear and reluctance to engage in it (Joseph *et al.*, 2004). These considerations are important when planning new ways of working with future healthcare workers who are learning about disease, disease management and the risks of stigma in both healthcare and society.

In this study, fear experienced by the participants was seen as justification for stigma and avoidance and as such reduced the risk of contagion (*Chapter 5, Section 5.4*). Rejection of 'norms' within society and the reduction of enacted and courtesy stigma is required to allow the development of robust supportive

mechanisms for the positively diagnosed individual. There is a perceived common ground created by the individuals to allow power implementation, thus reducing institutional control over healthcare workers who are positively diagnosed (Hodgson, 2011). This was supported by the findings found within Phase 2.0 (Chapter 5) as participants expressed that fear and blame can be reduced by the support of other healthcare workers and an increase in knowledge.

By the end, the study participants had undertaken their professional education programme and experienced both theoretical input and clinical practice. They had met other healthcare workers and worked within the mentor system giving them the support of qualified nurses throughout their clinical placement. They noted the formal education programmes have more influence than the clinical 'experiential' education programmes. However, the latter may be an influential area for their value formation (Doyle and Cruickshank; 2012; Waller *et al.*, 2012).

The final hypothesis used to inform data analysis in Phase 1.0 of this study stated that, on completion of a pre-registration course, student nurses will present less stigmatising attitudes and values towards healthcare workers living with a positive diagnosis of PTB, HIV, Hepatitis C, MRSA and Diabetes type 2 (*Chapter 3, Section 3.3.1*). Findings indicated that whilst there was some shift in attitudes at the midpoint of the programme (*See Chapter 4, Section 4.5.1*) there was a return to the original negative value at the end point, indicating a return to stigmatising values despite interventions throughout the educational programme (Diesel *et al.*, 2013). Whilst Phase 2.0 study, completed after the data collection for Phase 1.3, helped give insights into these measures, more work is required to understand why this pattern occurred. Societal beliefs that a disease is incurable underpin fearful beliefs, thus supporting that the prejudice and stereotyping of an infected healthcare worker is based on fear, rather than anger or blame (Goffman, 1959; Jones *et al.*, 1984). Therefore, the changing of attitudes by education would reduce the prejudicial and stigmatising responses and beliefs of individuals, providing a robust knowledge base rather than the individual being dependent upon hearsay and unfounded educational sources.

In support of this, using the example of PTB, Macq *et al.*, (2005) suggests that the way forward to irradiate stigma within the disease group PTB is to engage the community. This is important as it appears that present methods of educational input are not adequate to change the attitudes of healthcare professionals, a view supported by many authors (Eliason, 1993; Sadow *et al.*, 2002; Chirwa *et al.*, 2009; Moore *et al.*, 2009, Wilfinger, 2009; Teixeira an Budd, 2010; Hassan and Wahsheh, 2011; Happell and Cutcliffe, 2011; Diesel *et al.*, 2012; Doyle and Cruickshank, 2012; Punter, 2012; McGarry and Aubeeluck, 2013; Sikorski *et al.*, 2013). Healthcare professionals are in a position to act as a barrier breaker for the reduction in healthcare and social stigma through attitudinal change. The participant student nurses in this study were undertaking the formal education programme which underpinned professional qualification and conduct expectations and as such, are required to treat all individuals as equal despite personal attitudes and values (N.M.C., 2015). Analysis indicates that this was not achieved within this group in nurse education. This raises a concern, for if healthcare workers hold stigmatising views towards other positively diagnosed healthcare workers, then there is an expectation that patients may also experience this.

6.3 Meeting the objectives of the study

In order to achieve the main aim of the study, four key objectives were set (Chapter 1). Objective 1: was to investigate existing literature to ascertain if student nurses draw on previously acquired stigmatising values which underpin their attitudes towards PTB, HIV, Hepatitis C, MRSA and Diabetes type 2. The extensive literature review (*Chapter 2*) which addressed areas of stigma, attitudes, values and beliefs indicated that positively diagnosed healthcare workers were at risk of social and professional stigma (Department of Health, 2013). The literature review considered the implications of potential discrimination, labelling, stereotyping and prejudice of positively diagnosed healthcare workers. There was a dearth of information related to equality in healthcare and avoidance of stigma to individuals and within society in nurse education programmes. This indicates there would be value in undertaking research into potential stigmatising attitudes held by student nurses. A decision was made to focus around a range of conditions that reflected varied modes of infection , PTB, HIV, Hepatitis C, MRSA as well as lifestyle choices, Diabetes type 2 (*Chapter 2*).

This led to Objective 2, which was *'To explore student nurses views of disease and stigma'*. This was achieved by developing and utilising a sequential mixed methods exploratory approach that included a longitudinal study collecting quantifiable data, using a semantic differential scale at 3 time points from the beginning to the end of the programme with a sample group of 482 student nurses (*Phases 1.0, Chapter 4*). Phase 2.0 (*Chapter 5*) followed this and was an in-depth study involving semi-structured interviews of ten student nurses at the end of their programme.

The final Objective 3 was to *'To reflect upon the findings, providing conclusions drawn for the data, to make further recommendations'*. The discussion above (*Section 6.2*) reflects upon the findings from this study. The following sections present the overall conclusions and further recommendations.

6.4 Limitations of the study design:

Prior to drawing the conclusions, it important to identify a number of limitations in the study.

These are summarised in Table 6.1 where those specific to Phases 1.0 and 2.0 are indicated. The PhD is a learning process in which the research skills evolve with the project in a prescribed time frame resulting in limitation that may otherwise have been avoided. Key to recommendations for any future work, is the need to acknowledge this and to address the key limitations in research design and generalisability of the findings.

Table 6.1 Identified limitations using mixed methods methodology within this study.

Limitations	Phase 1.0	Phase 2.0
A full pilot study of the survey tool used prior to the longitudinal study commencing may have helped simplify the approach to data collection and analysis.	√	
Use of a semantic differential scale at different time points may lead to test fatigue and even 'response pattern bias', within the participants.		
The participants were taken from the same year groups in one University thus limiting wider generalisability of findings.	√	√
Attrition from the courses and inter centre movement over the period of three years reduced the sample size..	√	
Tracking of participant movement Phase 1.2 and Phase 1.3 was time consuming.	√	
Some participants failed to attend prearranged interviews which compounded the practical, time and financial constraints.		√
Investigate participants within the work place of the researcher leads to questionable balances of power and may involve potential risk for the researcher, site and participant.	√	√
Practical time and financial constraints meant that the study would be restricted to a local accessible group of participants and limited scope to follow up findings in more depth.	√	√

6.5 Conclusions and Recommendations

This section briefly summarises the key findings noted above and outlines some future actions that may arise from this work.

As indicated above, (see Section 6.2) the work reported here indicated that when using the semantic differential scale, student nurses responding to Phase 1.0 in this study, enter their professional educational programme with a range of attitudes that may be seen as 'stigmatising' towards healthcare workers living with a positive diagnosis of PTB, HIV, Hepatitis C, MRSA and Diabetes type 2. At the midpoint of the programme it looked as if measureable attitudes may be changing, but by the end of their studies students had reverted to the original negative value indicating the same stigmatising values as on entry to the programme.

The sequential mixed methods approach used in this study enabled further exploration of student views. In Phase 2.0, a smaller sample was able to consider in some depth the issues which impacted upon stigmatising attitudes towards healthcare workers with the health conditions noted above. This gave added insights into their views and factors influencing development of their values including further consideration stigma and fear associated with this and the impact of education and/knowledge helping to inform their own practice and professional boundaries. Overall, in conclusion, it cannot be said that the educational programme did not influenced student stigma views in a measurable way but the qualitative data does indicate a number of issues for further consideration.

As noted above, there are some limitations that may have contributed towards this finding but, as an exploratory study, it has raised a number of factors for further consideration. The first point to note is that this work was undertaken in one location in England. It may be that, rather than the in-depth look at one cohort presented here, a larger study with a random sample across the UK may yield different findings. Moreover, further research would offer the opportunity to refine and further validate the tool used in the work reported here. It would also allow exploration of other conditions and differing disease groups, which are contracted by healthcare workers and may impact on the extent to which colleagues may hold stigmatising views of them in their work. Insights such as these may help nurse educators consider how the nursing curriculum could be developed to help professional staff manage the stigmatising attitudes they may hold towards certain conditions. This may include a focus on health problems such as back injury, (falling into the same theme as Diabetes type 2 that may be seen as a self inflicted problem for failure to follow guidance) or infectious conditions such EBOLA that bring great fear, because of the rapid transmission, ease of contracting and potentially frightening outcome of rapid death (Matanock *et al.*, 2014). The ideas behind this study that health workers can be stigmatised if they suffer from certain health problems remains of real concern.

Another area of enquiry could focus on the wider healthcare team. This study focused on nurses as the largest group of health professional in the health service today. However, nurses work as part of a team and it is important that areas of development in stigma awareness should be reflected in the whole team so that high professional standards in one group are not undermined by negative attitudes in another.

At a practice level, the work reported here was located in one institution and so the findings have direct relevance to that organisation. A key recommendation will be to use the findings to consider how the issues raised in this study about stigma in general and in relation to working relationships with colleagues, is addressed in the curriculum. The data collected here will provide useful baseline data to monitor how future students address issues of stigma in their professional practice.

6.6 Reflection on the Methodological Approach

The potential value of a mixed methods approach was presented in *Chapter 3 Section 3.7*. It was argued that an enriched data set is created by use of varied methods and would help inform the analysis and conclusions drawn from (Bryman, 2006) and providing support for the validity and robustness of the findings (Polit and Hungler, 1999; Long and Johnson, 2000; Johnson *et al.*, 2007; Zohrabi, 2013). The sequential staging approach with mixed methods did help add to the insights gained here. It is evident in the analysis that had the study been constrained to the longitudinal survey that the key findings would be that the student attitudes and values remained unchanged at the beginning and end of the programme. There would have been no way of exploring the different rating found at the mid point or bringing in the insights into the thinking and experiences behind the data that the qualitative study allowed.

For future work however it is worth noting that there may be alternative research methods that may help address the question explored here. For example, at the outset of this study consideration had been given to the use of Q methodology as a means of exploring attitudes within education. This approach would also

have provided a way of combining the quantitative and qualitative line of enquiry (Cross, 2004; Dziopa and Ahern, 2011). This idea was not developed here for a combination of reasons, including time constraints and the fact that it was a relatively new method in nurse education at the outset of the study, limiting supervisory support potential. However, Q methodology may be considered for further studies within the area of stigma, healthcare and education.

6.7 Synopsis

This chapter has focused on the collective findings of the sequential mixed methods study presented in this thesis. As an exploratory study, it has yielded a range of insights in student nurses attitudes and values in relation to stigma. Some consideration has been given to the limitations of the study and recommendations for future research and practice are presented. The notion of exploring issues related to stigma in healthcare education and practice is important to help inform future practice and reduce stress to those burdened with diseases that may be seen to carry the burden of stigma.

7.1 Concluding remarks

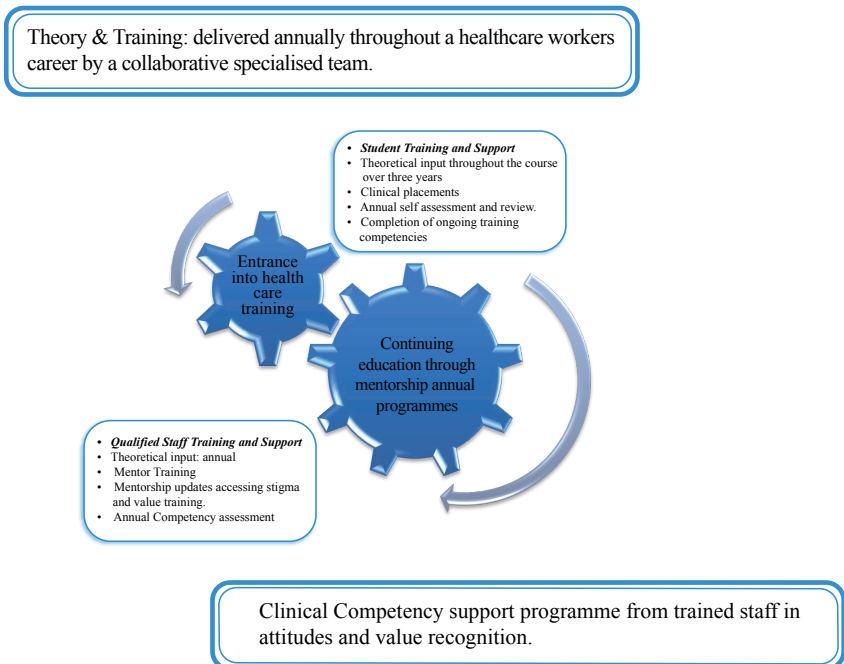
Poverty and overcrowding, war, poor nutrition, drug abuse, sexual exploitation, unprotected sexual intercourse, migratory workforces, ignorance and poor education, underfunded research, poor access to healthcare systems, stigma, prejudice and marginalisation of populations were all recognised issues seen as threats to global disease control. They may undermine the acceptance and management of the diseases, providing platforms for escalating infection rates and symbiotically escalating rates of stigma (Noah, 2006). Therefore, to simplify the reduction of stigma to purely education would be doing a disservice to these areas (Downing and Kavuna, 2008; Leasure *et al.*, 1995; Eliason, 1993; Prodanovska-Stojcevska *et al.*, 2010; Yiu *et al.*, 2010). Pickles *et al.*, (2009) argued that to overcome stigma an international perspective must be adapted to include knowledge, education, policy and standard development within healthcare.

This study found, many areas influence stigma, therefore, it may prove difficult to claim to be able to eradicate this from healthcare workers attitudes and values. Moore *et al.*, (2009) supports this view stating that population and peer education are presently the pivotal areas of knowledge acquisition and this undermines the clinical and theoretical education provided through traditional education facilities. As stigma remains a complex area, the changing of negative attitudes to positive may become an impossible task (Punter, 2012). Though the attitudes and values of healthcare workers can be altered through new and innovative educational routes. McGarry and Aubeeluck (2013) advocated collective groups of differing disciplines within healthcare training being given opportunities to work collaboratively on art based education, producing sketches and dance. They found this reduced stigmatising attitudes making students more aware of their own values. Happell and Cutcliffe (2011) argue the need for clinical specialist input into education as a vital part of ensuring a reduction in negative attitudes towards positively diagnosed individuals. This should be supported by practicums and simulation throughout the educational course (Prodanovska-Stojcevska *et al.*, 2010; Yiu *et al.*, 2010; Doyle and Cruickshank, 2012; Eliason, 1993; Sadow *et al.*, 2002). The inclusion of

structured self-reflection for identification of stigmatising attitudes towards positively diagnosed individuals should become part of healthcare workers continuing professional development, highlighting their values and attitudes at regular intervals (Teixeira and Budd, 2010).

The data analysis and interpretation within this study advocates the introduction of a model for longitudinal support and education in the recognition and prevention of negative stigmatising attitudes towards positively diagnosed healthcare workers (*see Figure 7:1*). This would provide theoretical input on values and stigma to ensure that this area is highlighted continually for the healthcare workers (Teixeira and Budd, 2010). It enables the healthcare worker to consider their influences and promotes situational awareness to the reactions and responses of other infected healthcare workers.

Figure 7:1 Bi-fold Approach to longitudinal stigma education



The author advocates the development of two generically based educational programmes, which should be cascaded to healthcare workers through pre-registration education and the existing mentorship programme using collaborative working, specialist input and self-reflection to raise awareness of attitudes and values. The mentor holds a greater responsibility to educate and support a student healthcare worker and ensures the development of that individual both professionally and personally (Royal College of Nursing, 2014; Nursing and Midwifery Council, 2015). However, it has been recognised within this study that inherently stigmatising attitudes within healthcare towards positively diagnosed individuals underpin the delivery of care and education of new and existing members to a team (Chirwa *et al.*, 2009; Manganye *et al.*, 2013). Therefore, the development of an ongoing education and competency achievement record would enable annual recognition of these values within healthcare through self-assessment, from the initial commencement of training until retirement. This should be supported by the robust mentor systems identification of healthcare workers who have displayed and been recognised to not present stigmatising values within healthcare.

It is recognised that codes of conduct (NMC, 2015) support the delivery of non-stigmatising care with guidance as to healthcare workers behaviour to others. However, this is unachievable without a more robust, dual approached education and support system within the NHS. The introduction of annual reviews, which promote recognition of negative stigma and the potential to support new initiatives for a more compassionate health service is advocated (Francis, 2013). This should be influenced by robust education programmes and continual supportive open environments. Improvements in knowledge and exposure to positive individuals can influence healthcare workers, reducing the cross cultural impact of disease and stigma. The self-recognition of negative stigma through self-reflection and clinical supervision should be commenced to enable the development of strategies for reduction in such stigma. The caring professions should not be afraid to recognise such failings within the health delivery system and build upon them enabling support of each other and consequently patients with such disease groups as focused upon within this study.

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Formation of five groups for Phase 1.0:

Groups	Sub-group coding for statistical analysis
Gender:	1.0 = male participants 2.0 = female participants
Age:	1.0 = 18-25 years 2.0 = 26 - 65 years (mature students)
Course:	1.0 = Diploma in Nursing (undergraduate) 2.0 = Other (Postgraduate nursing courses).
Centre:	1.0 = Rural 2.0 = Urban
Branch:	1.0 = Adult branch 2.0 = Disability, child and mental health branches
Year of study	1.0 = First year of study 2.0 = Second year of study 3.0 = Final year

Formation of the group for Phase 2.0:

Groups	Sub-group coding for qualitative analysis
Gender:	1.0 = male participants 2.0 = female participants
Age:	1.0 = 18-25 years 2.0 = 26 - 65 years (mature students)
Course:	1.0 = Diploma in Nursing (undergraduate) 2.0 = Other (Postgraduate nursing courses).
Centre:	1.0 = Rural 2.0 = Urban
Branch:	1.0 = Adult branch 2.0 = Disability, child and mental health branches
Year of study	1.0 = First year of study 2.0 = Second year of study 3.0 = Final year

Phase 1.0 descriptor for group 1: HIV

Participants Biographical Details

Age:

18-21

22-25

26-30

31-35

36-40

41-45

46-50

51-55

56-60

61-65

Gender:

Male

Female

Year of Study:

One

Two

Three

Branch of Study:

Adult Nursing

Mental Health Nursing

Child Nursing

Learning Disabilities

Centre:

Derby

Nottingham

Lincoln

Mansfield

Boston

Activity

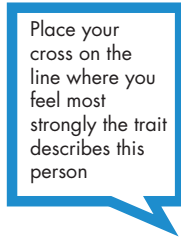
It is impossible to process all the information with which we are confronted every day. To simplify the social world and this massive amount of information, we automatically place individuals into cognitive categories such as male/female, friendly/hostile, and adult/child. Please can you read the information below and complete the descriptor:

Guidelines

On your own:

Read through the description on the attached handout and rate the person described on each of the given scales. Place an **X** on the line towards the trait which you feel is descriptive of Sam. There are no right or wrong answers.

Example 1:



Kind  Cruel

In your opinion, the trait **Cruel** describes Sam slightly **more than** Kind

Example 2:

Kind  Cruel

In your opinion, the trait **Kind** describes Sam slightly **more than** Cruel

Please continue with any additional information on the back of the sheet. Thank you for your time and participation.

Activity

Interview protocol : Please continue with any additional information on the back of the sheet. Thank you for your time and participation.

Descriptor: Sam is a 38 year old healthcare worker, who is single and lives in a maisonette on the outskirts of a major city. Sam drives a red metro and doesn't like public transport. Sam enjoys eating out in restaurants, and visits the local Chinese twice a week. Sam enjoys spending time at the local fitness centre. Sam's colleagues at work describe Sam as a good worker, appears cheerful, but often unpunctual. Sam is an optimistic and positive character. Sam is HIV positive.

Exercise:

Honest	_____	Not honest ?
Good	_____	bad ?
Strong	_____	weak ?
Happy	_____	sad ?
Warm	_____	cold ?
Attractive	_____	not attractive ?
Calm	_____	aggressive ?
Clean	_____	dirty ?
Productive	_____	idle ?
Fit	_____	unfit ?
Faithful	_____	not faithful ?
Social	_____	not social ?
Responsible	_____	not responsible ?
Innocent	_____	guilty ?
Introvert	_____	extrovert ?
Passionate	_____	not interested ?
Quiet	_____	loud ?
Not ashamed	_____	ashamed ?
Sensitive	_____	not sensitive ?
Moral	_____	not moral ?

- Also suggest **one more** personality characteristic (trait) for Sam which you have considered

Additional trait:

Phase 2.0 descriptor for group 2: PTB

Participants Biographical Details

Age:

18-21

22-25

26-30

31-35

36-40

41-45

46-50

51-55

56-60

61-65

Gender:

Male

Female

Year of Study:

One

Two

Three

Branch of Study:

Adult Nursing

Mental Health Nursing

Child Nursing

Learning Disabilities

Centre:

Derby

Nottingham

Lincoln

Mansfield

Boston

Activity

It is impossible to process all the information with which we are confronted every day. To simplify the social world and this massive amount of information, we automatically place individuals into cognitive categories such as male/female, friendly/hostile, and adult/child. Please can you read the information below and complete the descriptor:

Guidelines

On your own:

Read through the description on the attached handout and rate the person described on each of the given scales. **Place an X on the line towards** the trait which you feel is descriptive of Sam. There are no right or wrong answers.

Example 1:

Place your cross on the line where you feel most strongly the trait describes this person

Kind X Cruel

In your opinion, the trait **Cruel** describes Sam slightly **more than** Kind

Example 2:

Kind X Cruel

In your opinion, the trait **Kind** describes Sam slightly **more than** Cruel

Please continue with any additional information on the back of the sheet. Thank you for your time and participation.

Activity

Interview protocol : Please continue with any additional information on the back of the sheet. Thank you for your time and participation.

Descriptor: Sam is a 38 year old healthcare worker, who is single and lives in a maisonette on the outskirts of a major city. Sam drives a red metro and doesn't like public transport. Sam enjoys eating out in restaurants, and visits the local Chinese twice a week. Sam enjoys spending time at the local fitness centre. Sam's colleagues at work describe Sam as a good worker, appears cheerful, but often unpunctual. Sam is an optimistic and positive character. Sam is Pulmonary Tuberculosis positive.

Exercise:

Honest	_____	Not honest ?
Good	_____	bad ?
Strong	_____	weak ?
Happy	_____	sad ?
Warm	_____	cold ?
Attractive	_____	not attractive ?
Calm	_____	aggressive ?
Clean	_____	dirty ?
Productive	_____	idle ?
Fit	_____	unfit ?
Faithful	_____	not faithful ?
Social	_____	not social ?
Responsible	_____	not responsible ?
Innocent	_____	guilty ?
Introvert	_____	extrovert ?
Passionate	_____	not interested ?
Quiet	_____	loud ?
Not ashamed	_____	ashamed ?
Sensitive	_____	not sensitive ?
Moral	_____	not moral ?

- Also suggest **one more** personality characteristic (trait) for Sam which you have considered

Additional trait:

Phase 1.0 descriptor for group 3: MRSA

Participants Biographical Details

Age:

18-21

22-25

26-30

31-35

36-40

41-45

46-50

51-55

56-60

61-65

Gender:

Male

Female

Year of Study:

One

Two

Three

Branch of Study:

Adult Nursing

Mental Health Nursing

Child Nursing

Learning Disabilities

Centre:

Derby

Nottingham

Lincoln

Mansfield

Boston

Activity

It is impossible to process all the information with which we are confronted every day. To simplify the social world and this massive amount of information, we automatically place individuals into cognitive categories such as male/female, friendly/hostile, and adult/child. Please can you read the information below and complete the descriptor:

Guidelines

On your own:

Read through the description on the attached handout and rate the person described on each of the given scales. Place an **X** on the line towards the trait which you feel is descriptive of Sam. There are no right or wrong answers.

Example 1:

Place your cross on the line where you feel most strongly the trait describes this person

Kind X Cruel

In your opinion, the trait **Cruel** describes Sam slightly **more than** Kind

Example 2:

Kind X Cruel

In your opinion, the trait **Kind** describes Sam slightly **more than** Cruel

Please continue with any additional information on the back of the sheet. Thank you for your time and participation.

Activity

Interview protocol : Please continue with any additional information on the back of the sheet. Thank you for your time and participation.

Descriptor: Sam is a 38 year old healthcare worker, who is single and lives in a maisonette on the outskirts of a major city. Sam drives a red metro and doesn't like public transport. Sam enjoys eating out in restaurants, and visits the local Chinese twice a week. Sam enjoys spending time at the local fitness centre. Sam's colleagues at work describe Sam as a good worker, appears cheerful, but often unpunctual. Sam is an optimistic and positive character. Sam is an MRSA carrier..

Exercise:

Honest	_____	Not honest ?
Good	_____	bad ?
Strong	_____	weak ?
Happy	_____	sad ?
Warm	_____	cold ?
Attractive	_____	not attractive ?
Calm	_____	aggressive ?
Clean	_____	dirty ?
Productive	_____	idle ?
Fit	_____	unfit ?
Faithful	_____	not faithful ?
Social	_____	not social ?
Responsible	_____	not responsible ?
Innocent	_____	guilty ?
Introvert	_____	extrovert ?
Passionate	_____	not interested ?
Quiet	_____	loud ?
Not ashamed	_____	ashamed ?
Sensitive	_____	not sensitive ?
Moral	_____	not moral ?

- Also suggest **one more** personality characteristic (trait) for Sam which you have considered

Additional trait:

Phase 1.0 descriptor for group 4: Diabetes type 2

Participants Biographical Details

Age:

18-21

22-25

26-30

31-35

36-40

41-45

46-50

51-55

56-60

61-65

Gender:

Male

Female

Year of Study:

One

Two

Three

Branch of Study:

Adult Nursing

Mental Health Nursing

Child Nursing

Learning Disabilities

Centre:

Derby

Nottingham

Lincoln

Mansfield

Boston

Activity

It is impossible to process all the information with which we are confronted every day. To simplify the social world and this massive amount of information, we automatically place individuals into cognitive categories such as male/female, friendly/hostile, and adult/child. Please can you read the information below and complete the descriptor:

Guidelines

On your own:

Read through the description on the attached handout and rate the person described on each of the given scales. Place an **X** on the line towards the trait which you feel is descriptive of Sam. There are no right or wrong answers.

Example 1:

Place your cross on the line where you feel most strongly the trait describes this person

Kind  Cruel

In your opinion, the trait **Cruel** describes Sam slightly **more than** Kind

Example 2:

Kind  Cruel

In your opinion, the trait **Kind** describes Sam slightly **more than** Cruel

Please continue with any additional information on the back of the sheet. Thank you for your time and participation.

Activity

Interview protocol : Please continue with any additional information on the back of the sheet. Thank you for your time and participation.

Descriptor: Sam is a 38 year old healthcare worker, who is single and lives in a maisonette on the outskirts of a major city. Sam drives a red metro and doesn't like public transport. Sam enjoys eating out in restaurants, and visits the local Chinese twice a week. Sam enjoys spending time at the local fitness centre. Sam's colleagues at work describe Sam as a good worker, appears cheerful, but often unpunctual. Sam is an optimistic and positive character. Sam has Diabetes type 2.

Exercise:

Honest	_____	Not honest ?
Good	_____	bad ?
Strong	_____	weak ?
Happy	_____	sad ?
Warm	_____	cold ?
Attractive	_____	not attractive ?
Calm	_____	aggressive ?
Clean	_____	dirty ?
Productive	_____	idle ?
Fit	_____	unfit ?
Faithful	_____	not faithful ?
Social	_____	not social ?
Responsible	_____	not responsible ?
Innocent	_____	guilty ?
Introvert	_____	extrovert ?
Passionate	_____	not interested ?
Quiet	_____	loud ?
Not ashamed	_____	ashamed ?
Sensitive	_____	not sensitive ?
Moral	_____	not moral ?

- Also suggest **one more** personality characteristic (trait) for Sam which you have considered

Additional trait:

Phase 1.0 descriptor for group 5: Hepatitis C

Participants Biographical Details

Age:

18-21

22-25

26-30

31-35

36-40

41-45

46-50

51-55

56-60

61-65

Gender:

Male

Female

Year of Study:

One

Two

Three

Branch of Study:

Adult Nursing

Mental Health Nursing

Child Nursing

Learning Disabilities

Centre:

Derby

Nottingham

Lincoln

Mansfield

Boston

Activity

It is impossible to process all the information with which we are confronted every day. To simplify the social world and this massive amount of information, we automatically place individuals into cognitive categories such as male/female, friendly/hostile, and adult/child. Please can you read the information below and complete the descriptor:

Guidelines

On your own:

Read through the description on the attached handout and rate the person described on each of the given scales. Place an **X** on the line towards the trait which you feel is descriptive of Sam. There are no right or wrong answers.

Example 1:

Place your cross on the line where you feel most strongly the trait describes this person

Kind **X** Cruel

In your opinion, the trait **Cruel** describes Sam slightly **more than** Kind

Example 2:

Kind **X** Cruel

In your opinion, the trait **Kind** describes Sam slightly **more than** Cruel

Please continue with any additional information on the back of the sheet. Thank you for your time and participation.

Activity

Interview protocol : Please continue with any additional information on the back of the sheet. Thank you for your time and participation.

Descriptor: Sam is a 38 year old healthcare worker, who is single and lives in a maisonette on the outskirts of a major city. Sam drives a red metro and doesn't like public transport. Sam enjoys eating out in restaurants, and visits the local Chinese twice a week. Sam enjoys spending time at the local fitness centre. Sam's colleagues at work describe Sam as a good worker, appears cheerful, but often unpunctual. Sam is an optimistic and positive character. Sam is Hepatitis C positive.

Exercise:

Honest	_____	Not honest ?
Good	_____	bad ?
Strong	_____	weak ?
Happy	_____	sad ?
Warm	_____	cold ?
Attractive	_____	not attractive ?
Calm	_____	aggressive ?
Clean	_____	dirty ?
Productive	_____	idle ?
Fit	_____	unfit ?
Faithful	_____	not faithful ?
Social	_____	not social ?
Responsible	_____	not responsible ?
Innocent	_____	guilty ?
Introvert	_____	extrovert ?
Passionate	_____	not interested ?
Quiet	_____	loud ?
Not ashamed	_____	ashamed ?
Sensitive	_____	not sensitive ?
Moral	_____	not moral ?

- Also suggest **one more** personality characteristic (trait) for Sam which you have considered

Additional trait:

E-mail for qualitative study participant recruitment

Dear All,

Thank you for your participation in the last two studies I have undertaken with your cohorts for my research study. The results have yielded a lot of useful information regarding the topic I am studying.

Further to this, I would like to undertake some interviews allowing me to look at certain aspects in more depth. The interview will be for one hour and will be held in a confidential and private room within your present centre.

This process is completely voluntary and confidential. If you wish to be involved in this research further could you please reply to this email and I will contact you to arrange a convenient time.

Regards

Nichola von Fintel

School of Nursing, Physiotherapy and Midwifery,

Semi-structured interview protocol

Time of the Interview:

Date: Place.....

Participants Biographical Details

Age:

18-25 26-65

Gender:

Male Female

Year of Study:

Two Three

Branch of Study:

- Adult Nursing
- Mental Health Nursing
- Child Nursing
- Learning Disabilities

Centre:

- Derby
- Nottingham
- Lincoln
- Mansfield
- Boston

(Briefly describe the project and the additional information. Ensure consent is understood and signed)

Interview commenced:

Interview ended:

(time allocation 1-1.5 hours)

Questions:

1. What are your experiences with health care workers infected with PTB and/or HIV, MRSA, Diabetes, Hepatitis C ?

Prompts

have you met any?

- Was it discussed ?
- What kind of people were they ?
- What specific role /occupation healthcare workers would you assume them to be? (Dr / manager/ nurse/ HCA)

2. How do you feel about working with healthcare workers infected with PTB?

- HIV ?
- Hepatitis C ?
- MRSA ?
- Or diabete ?

Prompts:

- Your patients ?
- For yourself ?
- The HCW ?

-
-
3. If you are working with a HCW and they disclose they have a positive diagnosis how does this make you feel?

Prompts:

- For your patients or yourself ?
- The HCW ?
- Do you feel that HCW's who have a positive diagnosis of HIV, PTB, Hep C should be able to work in the health care system? :
- Where should they work ?
- Should they be made to move away from the clinical environment ?
- Should they receive further training ?

4. What if you looked after a patient and then received a positive diagnosis in any of the conditions ?

Prompts:

- How would you feel ?
- Should you work ?
- Would you tell anyone ?
- What support should you have ?
- Do you think its a private issue ?
- Do you feel home / work would support you differently ?

5. Have you encountered/heard of any healthcare professionals who have worked with others infected with:

- PTB ?
- HIV ?
- Hep C ?
- MRSA ?
- Or diabetes?

6. What were their attitudes towards these infected healthcare workers ?

Prompts:

- Professionally ?
- Personally ?

7. How did that make you feel ?

Prompts:

- About the infected health care worker ?
- About the uninfected health care worker ?
- About yourself ?

8. What would influence/ affect your encounter with an infected HCW with ?

- PTB ?
- HIV ?
- Hepatitis C ?
- MRSA ?
- Diabetes type 2 ?

Prompts :

- Your friends ?
- Your colleagues ?
- Your upbringing/ beliefs ?

(Thank the individual for their participation and reiterate the confidentiality of all the information collected.)

Ethical approval: Information sheet

UNIVERSITY xxxxxxxx MEDICAL SCHOOL ETHICS COMMITTEE

Information sheet for Normal Healthy Volunteers

University xxxxxxxx, School of Nursing, Midwifery and Physiotherapy

Address of Unit

Xxxxxxx interview

xxxxxxxxxx

Title of the Project: To ascertain the beliefs of student nurses in relation to different disease entities.

Name of Investigators: *Nichola von Fintel*

Healthy Volunteer's Information Sheet

Invitation paragraph

You have been invited to take part in a research study. Before you decide whether to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with friends and relatives if you wish to. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part or not. If you decide to take part you may keep this leaflet. Thank you for reading this.

Background

This study will be investigating the views of healthcare workers regarding a hypothetical person – the sort of person you might encounter in everyday life. The aim of the study is simply to record your first impressions of this person there are no right or wrong answers.

What does the study involve ?

You will be given an interview containing questions about a healthcare person. You will be asked consider this person, based on what you think this person is like. Please give your first thoughts – do not deliberate too long. There are no right or wrong answers; I simply want to capture your opinions. The interview will take around one hour.

Why have you been chosen ?

The sample will be multi-centred covering all five School of Nursing sites. This will allow the sample to be adequate for the data to be relevant, and to allow a view at the contrasting views between the participants. The participants studied will be up to ten in number and will be from the O901 cohorts including all courses and branches. Participants will be male and female.

Do you have to take part ?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. If you decide you do not wish to participate please let the interviewer know verbally at any time. Anyone wishing to abstain from this research will not be penalised in any way, and will be unidentifiable.

What do I have to do ?

You will be completing an interview. You will be given questions by the interviewer. You will be asked to assess these hypothetical questions, based on what you think. Please give your first thoughts – do not deliberate too long. The interview will be informal and held within a private room within your centre of Nursing. The interview will last for one hour.

What are the side effects of any treatment or procedures received when taking part ?

None

What are the possible disadvantages and risks of taking part ?

None

What if something goes wrong /Who can I complain to ?

In case you have a complaint on your treatment by the investigator or anything to do with the study, you can initially approach the lead investigator. If this achieves no satisfactory outcome, you should then contact the Ethics Committee Secretary.

Will my taking part in this study be kept confidential ?

All information which is collected about you during the course of the research will be kept on a password protected database and is strictly confidential. Any information about you which leaves the research unit will have your name and address removed so that you cannot be recognised from it. The interview recording will be transcribed and is also completely anonymous, so that you cannot be identified.

What will happen to the results of the research study ?

The results will be presented as a chapter in the PhD and form the basis of a publication. You will be informed when the results are available and you can obtain a copy of the results from the investigator at School of Nursing, Midwifery, and Physiotherapy xxxxxxxx

Who is organising and funding the research ?

The project is organised by Nichola von Fintel, Lecturer in Critical Care, School of Nursing, Midwifery, and Physiotherapy,

Who has reviewed the study ?

The study has been reviewed and approved by the University of Nottingham Medical School Ethics Committee.

Contact for Further Information

Nichola von Fintel,
Lecturer in Critical Care,
School of Nursing, Midwifery, and Physiotherapy,

Thank you for your time and participation.

Research volunteers will be given a copy of the information sheet and a signed consent form to keep.

Consent form for both the quantitative and qualitative studies

Nursing, Midwifery and Physiotherapy

Title of Project:

To ascertain the beliefs of student nurses in relation to different disease entities.

Name of Investigators: Nichola von Fintel

Healthy Volunteer's Consent Form

(Please refer to the next page)

Healthy Volunteer’s Consent Form

Please read this form and sign it once the above named, has explained fully the aims and procedures of the study to you.

- I voluntarily agree to take part in this study.
- I confirm that I have been given a full explanation by the above named and that I have read and understand the information sheet given to me which is attached.
- I have been given the opportunity to ask questions and discuss the study with the above investigators on all aspects of the study and have understood the advice and information given as a result.
- I agree to the above investigators contacting my teaching or university authority if appropriate, to make known my participation in the study where relevant.
- I agree to comply with the reasonable instructions of the supervising investigator and will notify him immediately of any unexpected unusual symptoms or deterioration of health.
- I authorise the investigators to disclose the results of my participation in the study but not my name.
- I understand that information about me recorded during the study will be kept in a secure database. If data is transferred to others it will be made anonymous. Data will be kept for 7 years after the results of this study have been published.
- I understand that I can ask for further instructions or explanations at any time.
- I understand that I am free to withdraw from the study at any time, without having to give a reason for withdrawing.
- I confirm that I have disclosed relevant medical information before the study.

Name:

Address:

Telephone number:

Signature:

Date:

I confirm that I have fully explained the purpose of the study and what is involved to:

.....

Summary of the tests undertaken in Phase 1.0

Tests	Phase	Reason undertaken
Principle Component Analysis	1.1	Investigate for type ½ errors and data reduction.
Correlation Matrix	1.1	Correlation of the variables with themselves.
Bartlett's test	1.1	Support for the correlation matrix
Means analysis	1.1	Data description.
Standard deviation	1.1	The amount each member differs from the mean value for the group.
Trimmed 5% mean	1.1	Reduction of type ½ errors by largest/smallest means being discarded.
Skewness	1.1	Where most results sit in comparison to the mean distribution.
Kurtosis	1.1	Peak distribution.
Outliers	1.1	Identification and removal.
Missing data	1.1, 1.2 & 1.3	Removal of incomplete, empty, spoiled papers for all groups.
Eigenvalues	1.1	Factor extraction.
Scree plot	1.1	Draw out the factor extraction within PCA.
Oblique test	1.1	Supports the mathematical interpretability of exploratory data
Oblimin test	1.1	Rotates the factors with themselves to test correlation.
Pattern matrix and structure matrix	1.1	Demonstrates the unique uncontaminated correlation between variables
ANOVA	1.1, 1.2 & 1.3	Analyses the group means.
ANOVA test	1.1, 1.2 & 1.3	Significance result $p \leq 0.05$
Levene's test	1.1, 1.2 & 1.3	Investigates if the population variances are equal in the studies.

Tests	Phase	Reason undertaken
Welch and Browns-Forsythe test	1.1, 1.2 & 1.3	To ensure the homogeneity variance is not violated
Bonferroni Post Hoc tests	1.1, 1.2 & 1.3	Double check the significance of the ANOVA results
Within subjects repeat measures	1.3	Individual rather than group means.
Sphericity	1.3	An equal variance between pairs/graphs.
Mauchley's test	1.3	Observing the variance difference between conditions. Evaluates the sphericity /sample size.

Transcript of semi-structured interview Participant 05

(Quotations highlighted in blue text are found in Chapter 5.0)

N Ok thank you so much for coming. If you could just please tell me your name?

5 XXXXXXXXX.

N And your centre ?

5 XXXXXXXXXXXXX

N Lovely Ok. I am just going to ask you a few questions. If you just answer them with the first things that come into your head really. As honestly as you can. Right ...um...this is on the back of the questionnaires....I haven't been over to Boston again I come again in November, so its on the back of that really....um ...What I am interested in really is what are your experiences with certain diseases ? Health care workers that have potentially got certain diseases. And Ill separate them out one by one um...and I just wondered if you have ever met anybody that has told you that they have got, or have heard of anybody, that has got ...er...TB ? or Pulmonary TB? Or HIV ?

N As in patient or worker ?

N Worker

5 No.

N No. Never heard of anybody ?

5 No

N What about MRSA ?

5 No

N Never heard of anybody within the NHS MRSA ?

5 No. No one's ever said to me they have got MRSA.

N Ah. Have you ever heard of anybody on the wards that's got it ?

or ?

5 Well, obviously lots of patients. No staff.

- N No staff! What about Hepatitis C ?
5 NO
- N What about diabetes ?
5 Yes
- N Ah right ok. Did they discuss that openly with you?
5 Well they just having a biscuit and um I said "oh, you feeling peckish?" and she said "no I'm diabetic". So....
- N Ah right, so that is justis that a member of staff that worked on the wards or ?
5 Yes. Yes it is.
- N Not anybody within the cohort or anything like that ?
5 No.
- N Ok. Did you work with her a lot or did you just meet her on one shift or?
5 Umm, To be honest I can't really remember. Its a while ago. It was on one ward about 18 months ago.
- N Ok. So nobody else then ?
5 No
- N Ok. Umm, what kind of person was she ?
5 Ummm.
- N I say she it might have been a he.
5 It was a she (laughter) umm. No nothing memorable, just average.
- N An average person? Ok Um...so if you did come into, this is all hypothetical now, came into contact with healthcare workers that had got, and I'll go through the diseases again separately....?
5 Umm

- N Um I just wondered how you would feel about that ? Start with diabetes one.
How did you feel about meeting someone with diabetes? What was the first thing that sprung into your mind ?
- 5 Nothing, just nothing. Just you know its like saying the sun's shining, its just the way it is.
- N Ok. What about if you met somebody who'd got MRSA ?
- 5 Um, I don't really have much pre-conception I don't think. I think being older as well, you know , you just take it. That's life isn't it ? you know.
- N What about somebody with Hepatitis C ?
- 5 Its like everything isn't it? Provided if you, if you're aware that you have something like that that you know is communicable to other people, then provided your taking the right precautions and you make aware, you know, I think anyone who needs to know , then it's not a problem to me. I don't know ...it's probably a bit random, but I know...
- N No
- 5 It wouldn't be a problem to me provided they're dealing with their life and how they should be dealing with it.
- N What about somebody you met with pulmonary TB? Or HIV?
- 5 Again, see what the scary thing is that if you. Well people are very scared of things like that and I think you could be standing next to someone in Sainsbury's who's got this. You know?
- N Ummm, would you feel? Obviously you're discussing how you feel in relation to you....
- 5 Yeah
- N What about in relation to working with patients. with any of those diseases? Do you think that would affect working with patients?
- 5 No I'm not saying I wouldn't be oh right I need to double check what I need to do. Knowledge is a good thing. So provided you know what you should be doing to keep yourself safe and to make sure that your still giving that patient the right care I think its really important that um..., for me as a person I don't like to feel I am victimising someone.

N Ok

5 So for me, **provided I've got the right knowledge for what I can do to keep myself and my family and my children safe, so I'm not taking anything off this patient** and you know. Provided that I don't think I have a problem with it. I think I've just got one of those sort of hippy attitudes. (laughter)

N Hippy attitude?

5 For want of a better word. Yeah.

N So if you were, so you've said about yourself, how do you feel health care workers would respond to somebody on the ward who had one of those diseases?

5 As a patient? As a patient on the ward?

N No as a worker. Working with that disease.

5 Hum, you know like everything **you work with a wide spectrum of people, and you work on the ward and some of the people they're horrible! You know, there's no wrapping it up. I came into nursing assuming everyone had a common thread, how mistaken was I?**

N Ah dear! What do you mean by that?

5 No I genuinely thought that people do, they assume, the press makes sure people don't really think that so much. I think that's the thing isn't it now people have become more aware, so your more comfortable to feel, oh I don't like that person, or ... that you know, that's just life. I've worked in many places in my time.

N So you think potentially that could cause some, those diseases could cause some problems on the wards?

5 **Do you know what I would think, just off the top of my head, I could see certain people using that as a bullying tool on someone else, because nursing is rife with bullying..... Horizontal bullying.**

N Horizontal bullying?

5 Yeah, Yeah

- N So if they actually, if one of the healthcare workers came along and felt that they could confide in you, and they've got a positive diagnosis of one of those infections, How would that make you feel?
- 5 That they'd confided in me that would be a good thing. I would like to think that people could find I could be approached, so moving forward in my career I'd like to think I've always got that ability for people to feel happy to talk to me. I think its important for people not to feel isolated.
- N Do you think you would worry about any contact with anybody else on the ward or? Would you give them any advise?
- 5 Provided they, I mean if they are telling you that they have it then they must have been diagnosed they must have gone through the process of being educated about their condition. So if they were ticking the boxes and know what they're doing and they're managing their condition , it shouldn't pose a threat to anybody else. Well I suppose if they fell over and cut their head open and there was blood pouring everywhere then, people should be aware possibly, you could enter into a whole new field couldn't you? Because, where as ...do they have some sort of, umm, moral obligation to inform people on their shift so that a key person on each shift should know that if something should happen then this person is say HIV positive, or whatever, whatever they have, so that protection for the other staff members could be in place. Its difficult isn't it ? I wouldn't like to make that call.
- N What if they were worried that they'd contracted it from a patient ?
- 5 Umm. I suppose the only real way you're going to contract something is a needle stick injury. so if they had a needle stick injury then they went to Occy Health then they've had their positive testing for XYZ off that patient's history what could you do? That's
- N Umm What about MRSA? Or TB, ? cause obviously they're more.....
- 5 They're more prevalent aren't they ?
- N Yeah
- 5 Um... and I know that the spread on those is different isn't it?
- N Yeah airborne.
- 5 Yeah...so in London apparently, there's a 40% rise in TB cases.

- N That's right.
- 5 Yeah. I find it quite astounding but then I'm from [REDACTED] [REDACTED]. I find that not too surprising really. Because you have like you know in any major city a swing from the very wealthy to the very poor and you have a big melting pot of culture and you know people coming into the country. You might have a screening programme, except its an inevitable factor isn't it?
- N Umm....Do you think umm? Do you feel the healthcare worker who has a positive diagnosis of say HIV or TB, for a start, um, DO you think they should be working within the health service?
- 5 I think TB might need a question mark over it. Cause it's airborne, cause its a communicable disease in different fashion isn't it ?
- N Ok
- 5 So maybe with HIV, I suppose you have got the needle stick thing again ? I don't know I wouldn't like to say. Cause I'd hate to marginalise someone. But for the greater good (laughs) ... you might need to.
- N Yeah....what about Hepatitis C ? Do you think they should be able to work in ...?
- Yeah. I think so, from my knowledge of hepatitis which is pretty miniscule....
- N With MRSA ? cause we know a lot about that.....
- 5 Yeah, its only a problem isn't it if its you know, if you colonised with it, or if you've got an open wound etcetera, or if any given person could screen positive for MRSA. I could. We could. You know, I could today. You don't know do you until you get swabbed andand the results come back.
- What about diabetes?
- 5 Um again, That depends on the type, depends on the, you know you can't pass it on. You know but if they're not managing their diabetes properly then they could be a liability on the shift.
- N Umm
- 5 They could be doing something clinical or whatever, something clinical, that could cause harm to the patient. Well you think.....its only Diabetes! But where do you draw the line?

- N Well yes. Do you think there should be a way,? sometimes we redirect people don't we into other areas sort of out of the clinical placement? Do you think they should be found a job somewhere away from patients?
- 5 Maybe, I would say it would need monitoring. So, if you've got somebody whose compliant with their um, treatment if you like, whatever, thing they, so say diabetes, if they're doing what they need to do, managing it well, and took on board the moves to manage. Then say MRSA, whatever, it is, provided that person's doing what they should I think there needs to be an agreement reached between employer and employee, but it respects each other's situation, **because it would be wrong for the employee to think they could come crashing in, have that massive hypo in the middle of the ward because they've been out drinking all night. Irresponsible.**
- N Do you think the 'irresponsible' would be seen the same if it was somebody who'd got TB and came to work? or HIV and came to work?
- 5 I suppose I'd form where I am you know, I'm not sitting with masses of knowledge,
- N No
- 5 About these conditions, however, if it's airborne and you've got, um, I don't know if it has an acute exacerbation or something? I don't know how it works, but I'm just thinking round... laterally, if it,...if you had that sort of, if it exacerbated in some way, and your more infected than other times, I don't know how TB works, but then you would need to take a view wouldn't you? And you should actually be supported to do that, because if you know you can ring up and say well I'm, well if this is how it works? I don't know, ' I'm not particularly well at the moment, um then you're taking ownership of your problem and not jeopardising anybody else.
- N Do you think more training would help anybody? (12.16)
- 5 As in to do with other members of staff ?
- N Yes....yes...
- 5 Um....you can't change peoples mind sets.
- N You don't think so?
- 5 No I don't. It depends on the person. You know I think one thing I've learnt in life ...is you can lead a horse to water. Mmmm! You see some people it would

have a positive effect on, other people it might magnify their negativity. Or edit again if it justits down to the individual.

- N Where do you think they'd findwhere do you think they get their mind set from? Is that something that?
- 5 God who knows. It could be anything couldn't it. Ignorance possibly.
- N Do you think its experience ? or culture? Or
- 5 Could beCertain cultures perceive it in different ways don't they? Perceive things in different ways, you know, like pain is supposed to be a punishment (laugh) Crazy to us, but not crazy to them.
- N Yeah.....yeah....
- 5 So....isn't it all just about jiggling along and
- N Yeah...I can see that. Um What if you looked after a patient (13.22) with TB and then found that you has a positive diagnosis ?
- 5 Oh god ! Now !! (laughter) That's a spanner in the works meetingI think I'd be gutted if that's how...if it is a proven connection. I think I'd be devastatedYeah ! Why wouldn't you be?
- N How do you think it would make you feel around....sort of work wise? How would you feel work wise?
- 5 Relating to that patient ? or just in general ?
- N Both really.
- 5 I suppose , Well that patient would probably have cleared the ward by the time you've come back to work after having got over the shock of having a positive diagnosis of TB. So, I mean we're immunised against it um.....I'm assuming that would reduce my chances of contracting it. err...I don't know. I don't know.
- N How do you think you wouldumm.....would you tell anybody or would you consider that your private issue?
- 5 Oh God no I'm not one of those keep it under your coat and go and beat yourself up in a corner...oh no! no! no! no! I wouldn't do that I would always vocalise my joys and fears.

- N Would that be different at work than at home?
- 5 I would like to think that just adhoc that if you contracted anything at work that you would have um....you would have very much support. You should be supported in this and I think that ...um.....if it would be vital to anybody if they did contract something from work, you know assaulted at work or whatever, that they felt they were supported as a network they were going to be looked after rather than vilified or 'well if you hadn't gone behind the curtain you wouldn't have had the thing thrown at you' or whatever, you know whatever it might be or in that case 'if you hadn't havewhatever,' that would be wrong.
- N Do you think that happens ?
- 5 OoooHHHH! Hot potato! Do you know probably, yeah, it does somewhere. Yeah, I think one thing I've learned in two and a half years nearly of nursing training is your experiences are determined by the ward manager. And that isn't always a positive thing and the whole management of anything starts at the top.
- N So do you think that they could influence how everybody else reacted to you?
- 5 And if youI don't know I certainly have seen people being subjected to what I would consider to be bullying on the ward. Which is, if you like, almost Ok'd by the manager. So would that happen in this situation, Yeah! More than likely. Yeah...
- N What about if it was HIV or Hepatitis C ?
- 5 Oh I think there'd be a lot of stamping of feet and people saying I am not working with her or, and um, yeah , a lot of ignorance maybe.
- N What about MRSA ?
- 5 That's what I would call a sanitised infection.
- N Well that's quite a good way of putting it really.
- 5 It's sanitised its like diabetes. Its like anything that becomes more common if you like. Is ...is sanitised. So that's almost you know an accepted and expected outcome for a percentage of patients.
- N Do you think your family would feel the same? Or your friends and people around at home would feel the same if you were at work with MRSA?

-
- 5 Well my Mum would say'well trust you!'typical ! well yeah I mean it wouldn't cause a problem for me! But I don't come from that sort of background I've got a supportive family so
- N Yeah
- 5 You now I am sure they would be horrified if I contracted TB or HIV...but horrified for me.
- N Not horrified for themselves?
- 5 No!! No! No!
- N Umso you said you have never heard of any of these people who had contracted TB ? Or had been infected with MRSA or anything?
- 5 No....no...
- N You're very lucky to have gone through training
- 5 Unless they just keep it quiet!
- N Yeah maybe.
- 5 This is what we,so at the end of the day the nux of what we're saying isn't it? Its that communication between members of staff and um, obviously if it is more prevalent than I am aware of then they do exactly what it says on the tin ...they're not telling anyone.
- N How would you feel if it was you that was infected and you've caught this you knew you'd caught this from a patient ? and so people moved you out of the clinical area ?
- 5 Well you know ifyou've got to be sort of a big girl about this because you might feel personally appalled that you have contracted this condition and now you, and your career trajectory changed, by this situation. But on the other hand if you caught it in that fashionthen you can't go round blaming everybody else. (laughs)
- N Well yeah.
- 5 You cant go on a one man crusade to infect the world with MRSA , or whatever it is, so its down to again individual's perception I think.
-

- N Ummm....what do you think if ... because you said that you think there would be some bullying attitudes and things towards people who perhaps had these infections. What if they were friends on the ward? Do you think people's attitudes would still be the same? Cause there are lots of staff that work together for a long time.
- 5 There areumm....again to me. I keep coming back to it a bit parrot fashion but I think its down to the person. **You know we have all had friends in our life who we thought have been really good friends and when the chips are down they actually disappear.**
- N Mmmmm
- 5 In a puff of air so That's probably going to be no different.
- N Ok. Do you think that's all based in...? Cause you said about this is ingrained, this is the way it is from the beginning. You don't think? Do you think that nursing changes people's attitudes to that or ?
- 5 Not everyone's.
- N No. Do you think that that stays the same?
- 5 I do. I think that some people remain bigoted whatever.
- N Ok. Ummm.... What would influence and effect your encounter with somebody who you knew had TB? What would be your main?
- 5 Provided I knew I think, I don't.....I can't imagine its as simple as standing next to some one and they happened to breath on you. I cant imagine its that simple. But, however, if I knew the facts, what to avoid or how to avoid. Then I could no more. I would very much....just because we have to be within the confines of the hospital it doesn't mean your immune to the world. So, I could go to, who would know, I could go to the Jet garage down the road, stand there, and someone couldif its as easy as coughing on someone, someone could cough. I could get it. You couldn't really, you can't go through life wrapped in cotton wool.
- N Do you think your friends or your family have influenced your attitude towards it at all?
- 5 Yeah probably....yeah I suppose....I don't know really I wouldn't say influence.

- N Mmm
- 5 So to me I think bigotry extends over a lot of things. You can't victimise someone for having a condition.
- N Do you think that's changed with? Sort of peoples attitudes toward things have changed with time? Or?
- 5 Possibly. I suppose with knowledge, is a good thing sometimes it's also dangerous I think.
- N Umm, little knowledge.
- 5 Yeah I think. Ummm its more common place in society now for things to be very open. So it's ...it's ...we have every method of finding out informationeven down to Google (laughs)
- N Yeah
- 5 Which is not a good place to go if you have no knowledge at all about something. That's ...that will send you into a complete epi. Um but you have every method to find out information and you know its on the doctor's surgery wall, on a leaflet and people are more educated, not necessarily fully but they have more acceptance of it because its more common place.
- N What about HIV and Hepatitis?
- 5 I don't think Hepatitis so much. I mean I sit here as a 3rd year student nurse and I don't really have an awful lot of knowledge about that. I understand what it is with HIV. You understand the bloods, body fluids, how and why. Um, again I think its just, just maybe people's not interested or interested they'd pick up information. I think its become more acceptable in society to talk about things in general anyway.
- N Do you think....? What about diabetes? Diabetes type 2.
- 5 Type 2, I think, I think its a bit of a witch hunt at the minute.
- N Oh right yeah!
- 5 At the moment. Now I can understand the reasons why. I understand about type 2. **I think it's wrong but they're going on a witch hunt for everybody that falls within that category of you know not exercising, and poor diet,**

not everybody can be judged just on their overweight appearance. I think some of the staff would judge although, we are in a profession that is supposed to be non-judgemental it happens....even I make a judgement. But to draw a conclusion you don't know the situation of that persons background as to why maybe they're overweight or...It's a very narrow minded perception that you can justand I think the press a05s o this. So they keep banging on about this and take pictures of some poor unsuspecting individual standing at the bus stop ...(laugh) and then cut their head off. And I am just going do you know I just don't like that, that's brain washing me, or trying. It's not going to work on me but there's many people it would work on.

- N So do you think they have any influence over what people's attitudes are towards all of these diseases?
- 5 Absolutely! We have almost sanitised HIV now cause its hey, you know, hey its you know.
- N Yeah.
- 5 We have had films about it. Tom Hanks had it for God's sakes so its got to be alright (laughs)
- N Its true though...
- 5 It's true ! I see it as true and I nurse them. Do I agree with it? Nonot really. But then I don't like anything that makes me ...or tries to make me think a certain way. I like to keep my own impressions of things.
- N Do you think umYour nurse training has had any different.....any influence on your attitude's or your?
- 5 Yeah I think so. It made me tell my 6 foot 1 son yesterday whose decided to ride his bike from his student digs to the police station for his shifts, made me tell him he has got to wear a helmet. (laughs) he could have a traumatic brain injury. He was like for Gods sake mother. But yeah....has it heightened my perception of how frail we are really? Yes!
- N Has it changed your attitude towards any of these diseases at al do you think?
- 5 In some ways I suppose ...I can't say changed my attitude. I suppose it puts more of a ...it makes more of a personal slant to it, not personal to me, but its made it more humanised because you nurse people who , not necessarily with that, but you see again for me it's the frailty of people. I find it quite touching.

So for , its possibly changed my perception of people because when they are all lying in bed in pyjamas its, it wipes the class out of the world!

N Yes.

5 And it ...so everyone becomes just a person and your deciding about because they're wearing this or they live there so they're all just unified aren't they.

N Yeah.....you don't think they become a disease?

5 No! II couldn't do that.

N Do you think there is anything that umm. That could be though your nurse training that would change? Or would it influence or increase knowledge at all about these disease processes?

5 Increase knowledge I'd like to learn so, to me that's never a problem. I enjoy it and I actively seek to do that. So, I'm I'm more interested, more excited to do that, rather than finding it a drag. The only thing I would say and I've always said it is if I ever felt I was becoming hardened to people and began to lack basic human compassion I would leave nursing and go back to my former life.

N Do you think that happens?

5 Yeah, well do you know it should. People should leave nursing! [REDACTED] I stand there and I see people, and I think do you know what I wouldn't want you at the end of my bed ! I have been on the receiving end of treatment like that, as well as a patient, I was very poorly in my time. So, now for me I find it abhorrent really! Some people shouldn't be there! And I've heard people, people on my cohort say 'I've done this cause its the best money you can get in Boston!' How appalling is that ? Your face says it all!

N Really!?

5 Really. Yeah, How heart breaking is that ? That you see that as a salary and not as a

N Not as a vocation?

No that's very remiss!!

Reflexive Practice Examples

The insider researcher working within an environment may be at risk of knowing a greater amount about the participants, which may skew the overall results (Tolich, 2004; Drake and Heath, 2008; Drake, 2010). Here, the examples below show some of the challenges faced by the '*insider researcher*' in this study.

First, as the study was located in the place of work of the researcher it was recognised that access to files and information regarding the participant group was a possibility. This was addressed within the ethical framework used in the study. No additional contact related to the study was undertaken other than that agreed within the ethical application approved by the University of Nottingham Ethics Committee. Each participant in Phase 1.0 and Phase 2.0 was identified by a code number and this prevented access to names by any person other than the researcher. All data was kept within the work environment locked in a safe cabinet with access only being available to the researcher. No further demographical/personal data was accessed at any time.

Awareness of the risks of introducing bias through contact with the sample groups was essential. However, given that students were located across several sites and had minimal contact with the researcher for much of the programme, it did not result in any major challenges with one exception where action needed to be taken to avoid risk of bias to participant group. An introductory lecture on stigma, which was part of the core curriculum, was usually delivered to groups on all nursing programmes by several lecturers. Historically, one of these in a satellite centres had been delivered by the researcher. Reflection on the potential impact of this on the research work led to another lecturer agreeing to deliver this lecture. This prevented the participants developing knowledge about the study directly from the researcher. This may have biased their responses or skewed the data through information delivery and contact with the participant group on a subject related to the research. This was noted and agreed as part of the Ethical approval for the study.

As an insider researcher it is important to recognise the potential cause and effect of the results drawn from analysis. Another risk area was that of direct contact of the researcher, as a member of staff and thus in a 'senior' position, administering the survey to participants. To avoid this another lecturer, who was not involved in the study in any way, undertook the task of circulating the descriptors within Phases 1.1, 1.2 and 1.3. This reduced the risk of the Hawthorne effect (Landsberger, 1958; Polit and Hungler, 1999). Reflecting upon this the researcher felt it minimised pressure on particular participants who may know have known her (as an insider researcher) and prevent them feeling obliged to answer or partake in the study.

Another concern for an insider researcher is that analysis of data may reveal negative results about the institution within which they worked and as such, these may remain '*unheard*'. To avoid this, therefore, a transparent research process was applied and all results were made available for review by the Institution at any stage of the research process. Full transparency and compliance to ethical procedures was provided. In the event the researcher felt it was a beneficial to be working in the same institution as feedback of **ALL** results was done via internal forums and course/curriculum development groups. Thus, as relevant, ideas generated from the research were used to underpin curriculum developments. this may be seen as a positive aspect of being an insider researcher.

The personal experience of the researcher may risk skewing the results and personal bias may be seen within analysis (Creswell, 2007). It was important to be aware of this throughout as the researcher had previously been positively diagnosed with PTB. Being aware and open about this meant the researcher's personal experience with PTB was not considered restrictive when preparing the proposal for the study. The issue of personal experience was discussed at length within the supervisory team and it was recognised that this experience had the positive effect of raising the issue for the research reported here. It was agreed that personal reflections could be undertaken as relevant but a regular review of each step of the research process was important, especially where there was a risk of bringing personal perspectives into written work. This openness helped in discussions within the supervisory team and any potential personal bias or

influences were addressed immediately. This was a particular challenge in Phase 2.0, when the researcher met participants face to face. Here the researcher was empathetic to participants, but at no point revealed personal information to prevent influencing the data collected. It was also recognised that the analysis of the qualitative data may be influenced by the researcher's own feelings and experiences and this could affect the findings of the study (Polit and Hungler, 199; Finlay, 2002; Silverman, 2005; Creswell, 2007; Walker *et al.*, 2013). The results and analysis were discussed at regular meetings within the supervisory team to help ensure no personal bias skewed the findings. This provided clarity for the researcher when considering the potential influence of personal experience on data analysis and write up.