

How does freedom of religion and belief affect health and wellbeing?

A report prepared for VicHealth by Dr Natascha Klocker, Ms Brigid Trenerry and Ms Kim Webster

Building health by supporting diversity and reducing discrimination



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**Australian
Human Rights
Commission**

everyone, everywhere, everyday



A summary of findings

This report considers:

- Whether a person's religious belief is among the factors influencing their health
- Whether discriminating against people on the grounds of their religion is a factor contributing to poor health.

These questions are important because, as Australia has become increasingly culturally diverse, there has also been an increase in religious diversity. Although Australia is very accepting of cultural diversity relative to other countries, race-based discrimination remains unacceptably high.

The Victorian Health Promotion Foundation (VicHealth) has identified reducing race-based discrimination and supporting cultural diversity as one of a number of objectives in its 2009–2013 Strategy and Business Plan. This objective was identified on the basis of research showing that exposure to race-based discrimination can lead to a number of adverse health outcomes. In contrast, conditions in which diverse cultures are valued have been found to be associated with better health.

In its program to reduce discrimination and support diversity, VicHealth has defined race-based discrimination to include discrimination on the grounds of race, ethnicity, culture and religion. Those most likely to be affected by this form of discrimination are Indigenous Australians and people from non-English speaking backgrounds. The program is concerned with reducing not only blatant forms of discrimination, but also with taking steps to support communities and organisations to value diversity and enable people to participate equally regardless of their racial, ethnic, cultural or religious backgrounds.

This study is based on the principle that religious belief is essentially a personal and private matter over which the individual should exercise control and choice. This freedom extends to the right not to hold a religious belief if one so chooses. For this reason, the study was not undertaken to work out whether religion should be promoted as a 'tool' for promoting health (as may be the case with, for example, exercise or diet). Rather, its aim was to understand the relative importance of religious beliefs and practices in protecting the health of people of religious faith and, hence, the need to protect their rights to practise this belief free from discrimination.

Of course, health is only one reason for protecting and promoting religious freedoms and reducing discrimination. The freedom to practise one's religion is a fundamental human right identified in key human rights instruments to which Australia is signatory. Freedom of religious belief is also protected in Victoria's *Charter of Human Rights and Responsibilities*.

Religious discrimination may also be associated with a range of other negative social and economic impacts including reduced social cohesion and social connection, and reduced morale and productivity in the workplace and education. By stifling achievement in these settings, discrimination has the potential to contribute to social inequality and to work against people reaching their potential. In an era of population ageing and unmet demand for skilled labour this is something Australia can ill afford.

How the research was done?

There have been many hundreds of studies that have investigated the link between health and religious beliefs and/or practices. There are limitations involved in looking at single studies as they each usually involve only a small number of people. Sometimes the findings of one study will contradict those of another. These disadvantages can be overcome to some extent by bringing together the findings of many different studies and systematically analysing them to see if there are any overall trends. These are called 'review studies'.

The research for this paper involved conducting a database search to identify reviews that had been conducted of studies on the relationship between various aspects of people's health and their religious beliefs and practices.

A second search was undertaken to find studies that explored the relationship between religious discrimination and health. Only a small number of studies were identified and these were all single studies (rather than reviews). Accordingly, a decision was made to supplement these with review studies exploring the relationship between race-based discrimination and health outcomes. Although there are important differences between religion and race, ethnicity and/or culture, in many social contexts people do not make fine distinctions between these aspects of their own or others' identity. For this reason, studies exploring the health impacts of race-based discrimination (broadly defined), can provide some indication of the likely impacts of religious discrimination specifically.

What were the findings?

Religious belief and health

The studies used in this paper looked at the relationship between health and a range of aspects of religious belief and practice. While these differed between studies they included:

- Religious denomination
- Religious practices, such as prayer and meditation
- Religiosity, or 'extent' of religiousness

- Spirituality and spiritual connectedness
- The extent of personal, as opposed to institutional, religiosity
- The extent and quality of interpersonal experiences through one's involvement in religion, including social support associated with various religious communities
- Religious orientation: comparing those people who are primarily motivated by religion (intrinsic religious orientation), with those who are motivated to use religion to achieve other ends, such as status, security or social opportunities (extrinsic religious orientation).
- Religious coping style: the way people translate their religious beliefs and practices to help them cope with life events. Coping styles can be negative or positive. Examples of positive strategies are collaborative religious coping, seeking spiritual support from God and religious helping of others. Examples of negative coping strategies are questioning the power of God, expressions of discontent with the congregation or clergy or punitive religious appraisals of negative situations.

The results of the literature review show that the impacts of religious belief on mental health are generally positive, with the strongest association being the link between religious belief and decreased depression, as well as reduced anxiety and suicide risk, and to a lesser extent, reduced psychotic disorders. The association found in most studies was a modest one. Religious belief was also found to be important in helping people to recover from traumatic events.

There was an increased risk of negative mental health effects on two of the measures above: religious orientation and religious coping style. Those at higher risk of negative outcomes were those who were attracted to religion for reasons other than the creed (referred to above as extrinsic religious orientation) and people who used negative religious coping strategies (also described above).

Religious belief was also found to be associated with a reduced likelihood of engaging in risk behaviours such as alcohol and drug abuse and cigarette smoking.

There were fewer studies investigating the link between religious belief and poor physical health. The available studies suggest only tentative evidence of a reduced risk. However, people engaging in some aspect of religious belief and practice were found to live longer.

Reductions in the risk of suicide and certain risky behaviours were especially large for young people, a stage of the life cycle when the risk of these problems is especially high.

Religious discrimination and health

While there were only a small number of studies exploring the health impacts of religious discrimination, these suggest that exposure to such discrimination increases the risk of anxiety and depression. Findings from single studies suggest that religious discrimination may increase the risk of

psychiatric disorder, psychiatric distress, sub-clinical paranoia and lower self-reported life satisfaction.

Table A provides a summary of the findings of reviews exploring the relationship between race-based discrimination and health.

Table A: The relationship between self-reported race-based discrimination and health

Established link	Tentative link	Possible link
Anxiety	Self-esteem	Blood pressure/hypertension
Depression	Low birth weight	Cardio-vascular disease
Psychiatric disorder/stress		Chronic health conditions
Stress		Body weight or size
Decreased life satisfaction		
Cardio-vascular reactivity		
Self-rated poor health		
Cigarette smoking		
Alcohol abuse		
Drug use		

What are the reasons for the study findings?

The link between religious belief and generally positive health outcomes is not well understood and further research is needed. There is a risk in this area of assuming a cause and effect relationship where one does not exist. This is because religious belief is associated with some other behaviours and practices that might contribute to, or be responsible for, the findings.

A number of possible explanations have been advanced:

- Religious practices, in particular praying, may help to reduce stress.
- Being part of a religion, especially if it is an organised religion, provides formal and informal opportunities to connect socially with others and to secure social support. There is a strong link between social connection and support and good physical and mental health.
- Religion may be associated with positive emotions and cognitions (e.g. optimism, sense of meaning and purpose to life), and these have been found to be linked to good cardiovascular, endocrine and immune functioning.
- Religious belief may help people cope better with stress and may serve as an alternative to less healthy coping strategies (e.g. alcohol, smoking).
- Attendance at places of worship and other forms of religious involvement keeps people physically active, which in turn reduces the risk of disability.

There are a number of reasons why discrimination may impact negatively on health. It can:

- restrict access to resources required for health (such as employment, housing and education)
- cause affected individuals to internalise negative evaluations and stereotypes of their own group, affecting psychological wellbeing and self-esteem
- produce negative emotions (such as stress and fear) that may have negative physiological effects (for instance on the immune, endocrine and cardiovascular systems)
- cause affected individuals to engage in behaviours that impact negatively on their health (such as smoking, excess alcohol consumption and drug use)
- manifest in violence, which is associated with negative physical and mental health outcomes.

Strengths and limitations of the study

Most of the studies included in the reviews of religion and health:

- surveyed people at a particular point of time, so it cannot be said with complete certainty that the linkages found mean that a cause and effect relationship exists
- involved subjects practising Judeo-Christian religions. It is not known whether the same results would be found with other religious traditions.

There were no studies that looked systematically at the impact of religious belief on particular populations (such as same-sex-attracted individuals). However, several suggest that it may have a negative impact on these groups.

Most of the studies exploring the link between discrimination and health were with particular populations, such as African-Americans or people of the Muslim faith in western countries. A particular gap was in studies exploring the health implications of spirituality for Australia's Indigenous peoples. As discussed above, there were very few studies exploring the relationship between religious discrimination and health specifically.

What do the findings mean?

This study suggests that religious beliefs and practices are likely to be factors in protecting the health of those of religious faith, while discrimination on the grounds of religion may contribute to poor health, especially poor mental health. This suggests the importance of ongoing efforts to ensure that:

- People's religious beliefs and practices are accommodated in day-to-day settings, such as schools, sports clubs and so on.
- People have access to opportunities to observe their faith.
- People are not excluded, inadvertently or otherwise, from participating in society because of their religious beliefs.

- People of faith are not exposed to harmful attitudes and behaviours on the grounds of their religion.

The finding that religious beliefs and practices are factors in assisting people to deal with stress and to recover from trauma are especially significant. Settlement in a new country is a time of stress and adjustment and one associated with a heightened risk of poor mental health (UNHCR 2002). A small but significant proportion of new arrivals originate from war-torn countries, and of these a substantial proportion will have experienced pre-arrival trauma, the psychological effects of which may persist well after arrival in a safe country (UNHCR 2002). For these reasons, the protection and promotion of religious freedoms may be especially important for new arrivals generally, and for those from refugee backgrounds in particular. This is particularly so as the denial of religious freedoms (or the forced adoption of other religious practices) may have been a feature of experiences in countries of origin and asylum (UNHCR 2002). Indeed specialists working with new refugee arrivals identify building connections to faith communities and institutions and a demonstrated commitment to human rights as factors in successful settlement and recovery from refugee-related trauma.

Similar issues may also apply for individuals from Indigenous communities with a strong commitment to a faith or spirituality, in healing from the now well-documented negative impacts of colonisation.

This research also suggests that religious freedoms and freedom from religious discrimination are likely to be important for young people since this is a stage of the life cycle involving multiple transitions and associated risks. Faith and its protective effects are also likely to be important to deal with the adjustments and challenges associated with ageing.

Protecting and promoting religious freedoms and reducing religious discrimination will require a spectrum of responses including:

- legislation and complaints systems to respond to discrimination and vilification when they occur
- support for people of faith to build connections to communities and places of worship
- efforts to increase interfaith understanding and dialogue
- ensuring understanding and acceptance of diverse religious expressions in the wider community
- ensuring that a range of environments (e.g. schools, sports clubs and workplaces) are welcoming to people from a range of religious backgrounds.

The Victorian Government has supported a range of policy and legislative initiatives to protect religious freedoms including the *Racial Vilification Act* and the *Charter of Human Rights and Responsibilities*. Through its reducing race-based discrimination and supporting diversity program,

VicHealth's focus is on complementing these initiatives with efforts to build wider community acceptance and understanding of religious diversity and welcoming and inclusive organisational environments.

In 2009, VicHealth worked with the Victorian Equal Opportunity and Human Rights Commission and the University of Melbourne's Onemda Koori Health Research Centre and the McCaughey Centre to develop a Framework to guide activity in this area. *The Building on our Strengths Framework* (Paradies et al. 2009) draws on the available evidence and proposes an approach and a number of strategies for addressing the problem of race-based discrimination.

VicHealth is currently undertaking a range of activities in partnership with others to improve understanding of the means of reducing discrimination and supporting diversity. Further information about these can be obtained from the VicHealth website: www.vichealth.vic.gov.au.

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1 Introduction

Australia is a country of multiple cultures and, increasingly, of multiple faiths. At the 2006 Census, the majority of Australians (64 per cent) identified as Christians, while only six per cent affiliated themselves with non-Christian religions (ABS 2008). This apparently small proportion belies a rapid growth in non-Christian religions in recent decades, reflecting changed patterns and source countries of immigration. Buddhism is the largest of the non-Christian religions in Australia (418,000 individuals in 2006), followed by Islam (340,400 individuals) and Hinduism (148,100 individuals) (ABS 2008). The proportion of Australians indicating adherence to Islam grew by 21 per cent during the period between the 2001 and 2006 censuses, the Hindu population grew by 55 per cent, and the Buddhist population by 17 per cent (ABS 2008). In light of this trend towards increasing religious diversity, it is imperative to develop a greater understanding of the experiences of religious minority groups in Australia.

The purpose of this report is to explore the relationship between freedom of religion and belief, and health and wellbeing. Freedom of religion is a universal human right, enshrined in Article 18 of the *1948 Universal Declaration of Human Rights*:

Everyone has the right to freedom of thought, conscience and religion; this right includes freedom to change his [sic] religion or belief, and freedom, either alone or in community with others and in public or in private, to manifest his [sic] religion or belief in teaching, practice, worship and observance.

Article 18(1) of the *International Covenant on Civil and Political Rights* (ICCPR) makes a similar statement. Australia has a longstanding commitment to these international instruments. It was one of eight countries involved in drafting the *Universal Declaration* and ratified the ICCPR in 1980. In 1986, the Commonwealth Government established the *Human Rights and Equal Opportunity Commission Act*, which makes discrimination (on the grounds of race, colour, sex, religion, political opinion, national extraction and/or social origin) unlawful in Australia.

Despite these international and domestic legal protections, there is evidence that members of some religious groups in Australia are unable to take religious freedom for granted in their daily lives (HREOC¹ 2004; IWWCV 2008; Australian Human Rights Commission 2009; Jones 2009a and 2009b). The most widely discussed examples (in the academic and grey literature) relate to Muslim Australians, who have faced heightened levels of religious discrimination in recent years –

¹ The Human Rights and Equal Opportunity Commission is now the Australian Human Rights Commission.

particularly in the aftermath of the September 11, 2001 terrorist attacks in the United States and the 2002 Bali bombings. As a result of perceived threats to national security, Muslim Australians have increasingly been subjected to discrimination and vilification on the basis of their religion and/or cultural beliefs (HREOC 2004; Dunn, Klocker and Salabay 2007; IWWCV 2008). The 2004 Human Rights and Equal Opportunity Commission (HREOC 2004) report *Ismaʿ—Listen* provided extensive evidence of such trends, as did a report on the experiences of Muslim women published by the Islamic Women's Welfare Council of Victoria (IWWCV 2008).

Muslim Australians have faced frequent religious discrimination – being sworn at, spat on, told they do not 'belong' in Australia and denied jobs (HREOC 2004; IWWCV 2008). They have also faced considerable difficulties when seeking to establish places of worship and Muslim schools, with local planning authorities refusing to approve applications amid community protests (Dunn, Klocker and Salabay 2007). The right of Muslim women to wear the hijab, niqab and/or burqa in public spaces has become a topic of recent public debate, amid suggestions that the garment is "not consistent with Australian culture and values" (Bernardi 2010; Haussegger 2010). This apparent trend towards anti-Muslim sentiments impacts on the everyday lives, and health and wellbeing, of Muslim Australians. This issue is explored in greater detail in Section 8 of this report.

Other groups in Australia are also susceptible to discrimination on the grounds of religion and belief. The Executive Council of Australian Jewry has reported increasing incidences of anti-Semitism, particularly on the internet (Australian Human Rights Commission 2009). Between 1 October 2008 and 30 September 2009, Australian Jewish organisations reported receiving an unprecedented 962 reports of anti-Jewish violence, including physical assault of visibly Jewish people, verbal abuse, vandalism of Jewish property, anti-Semitic graffiti and threatening emails, letters and phone calls (Jones 2009a, 2009b). However, discrimination on the grounds of religion and/or belief is not limited to individuals from immigrant or refugee backgrounds. In the case of Indigenous Australians, religious discrimination may occur when their spiritual beliefs (for instance, as pertaining to connection with 'country' or land) are perceived as not 'fitting' with economic demands and other competing pressures (such as pastoralism and mining activities). The literature, however, is heavily focused on documenting religious discrimination against Muslims.

Notwithstanding the specifics of discrimination against diverse religious communities (a small number of which have been mentioned above), such discrimination violates international and domestic law. Furthermore, evidence presented in this report demonstrates that religious discrimination may have profound implications for the health and wellbeing of individuals, the communities to which they belong and Australian society more generally.

Influences on health and wellbeing occur at a number of levels. Numerous factors can act to increase the chances of poor health outcomes (risk factors) or to increase the chances of good health outcomes (protective factors). These factors are often referred to as 'health determinants'. In the field of health promotion, it is common to refer to two distinct but interrelated sets of determinants – behavioural and social. Behavioural determinants refer to individual behaviours and lifestyles that impact on health (for instance, a person's level of physical activity or eating habits) (Krieger 2002). Social determinants of health refer to factors embedded in social and economic environments, ranging from immediate family relationships to government policies (Krieger 2002). Social determinants include factors such as access to education and meaningful employment, and a sense of social inclusion or exclusion. Importantly, the causes of poor health cannot be reduced to a single determinant. Determinants operate at multiple levels and interact to influence (positive or negative) health outcomes.

This report positions religion and belief, on the one hand, and religious discrimination, on the other, as behavioural and social determinants of health and wellbeing. There is abundant evidence in the literature that religiousness can generate a multitude of beneficial health outcomes. For people of faith, their religion and belief may influence individual health-promoting behaviours, for example by encouraging abstinence from alcohol. They may also influence social environments. Social support and participation have been found to be associated with good health (Berry et al. 2007, Caron et al. 2007) and may be offered by some religious communities. A substantive body of literature exists detailing the positive health outcomes that may be associated with religion and belief, particularly in relation to mental health (Krieger 2002). These benefits are explored in detail in Section 7 of this report. It is important to note, however, that the health benefits of religion apply only under those circumstances where individuals are able to exercise control and choice over their beliefs and practices.

If we accept the evidence that religion and belief are potentially health promoting, then it may be assumed that the denial of religious freedoms and/or religious discrimination produce negative health outcomes. This hypothesis is also supported by the literature, which indicates that discrimination (on the grounds of race and/or religion) is a risk factor that can contribute to poor health. This evidence is explored in detail in Section 8 of this report. By demonstrating that freedom of religion/belief can be health promoting, and that religious discrimination can have negative health implications, this report highlights the need for respect and tolerance across Australia's multiple faith communities. The following section defines key terms and concepts used throughout this report.

2 Key terms and concepts

Religion and belief

For the purposes of this report, the definition of 'religion and belief' provided in Recommendation 2.5 of the HREOC (1998) report: *Article 18: Freedom of Religion and Belief* will be adopted. That is:

[R]eligion and belief should be given a wide meaning, covering the broad spectrum of personal convictions and matters of conscience. It should include theistic, non-theistic and atheistic beliefs. It should include minority and non-mainstream religions and belief systems as well as those of a more traditional or institutionalised nature. Religion or belief should be defined as a particular collection of ideas and/or practices:

- that relate to the nature and place of humanity in the universe and, where applicable, the relation of humanity to things supernatural;
- that encourage or require adherents to observe particular standards or codes of conduct or, where applicable, to participate in specific practices having supernatural significance;
- that are held by an identifiable group regardless of how loosely knit and varying in belief and practice;
- that are seen by adherents as constituting a religion or system of belief.

The definition should not apply to all beliefs but only to those that clearly involve issues of personal conviction, conscience or faith...

As noted in the Introduction to this report, the right to freedom of religion and belief is enshrined under the *1948 Universal Declaration of Human Rights* and the *International Covenant on Civil and Political Rights*. According to those international instruments, freedom of religion relates not only to the beliefs that individuals hold, but also to outward manifestations of those religious beliefs (for instance, through attendance at places of worship, or the wearing of clothing that reflects adherence to a particular religion, and so on). The denial of religious freedoms is understood, for the purposes of this report, to be a form of religious discrimination.

Discrimination

Discrimination refers to behaviours and practices that result in avoidable and unfair inequalities across groups in society based on factors such as race, religion, culture, ethnicity, (dis)ability, gender, class and so on (Paradies et al. 2009). Discrimination is not limited to random acts of unfair treatment, but reflects a broader pattern which is justified by beliefs and expressed in interactions (both personal and institutional) that maintain privileges for members of dominant groups at the cost of deprivation for others (Krieger 1999). Both race-based discrimination and religious discrimination are of direct relevance to this report.

Discrimination that occurs on the grounds of religion or belief (henceforth referred to as **religious discrimination**) is, in its everyday use, often subsumed under the broader terminology of **race-based discrimination**. This conflation has occurred because constructions of ethnicity, culture, 'race'², and religion are oftentimes interrelated.

In a practical sense, the potential for religious discrimination and race-based discrimination to overlap is clear. For instance, religious discrimination against Muslim Australians has had a broader impact on (non-Muslim) Australians from Middle Eastern and/or Arabic backgrounds. These individuals have become targets of anti-Islamic sentiments and actions, on the false assumption that they are Muslim (HREOC 2004). Thus, the categories of 'Muslim' (a signifier of religious adherence) and 'Arab' (a signifier of ethnicity and/or culture) have been erroneously conflated. Another example of the overlap between religion and ethnicity pertains to Judaism. Indeed, to be Jewish is an ethnicity, culture and/or a religion.

As a result of these definitional complexities, VicHealth has adopted a broad definition of race-based discrimination, which encompasses those behaviours and practices that result in avoidable and unfair inequalities across groups in society based on race, ethnicity, culture or religion. These behaviours and practices, along with the beliefs and prejudices that underlie them, are sometimes collectively referred to as racism. The definition of race-based discrimination presented here is distinguished from a legal definition, which includes only those discriminatory acts that are against the law (Paradies et al. 2009).

Discrimination can be direct or indirect in nature. An example of **direct discrimination** would be a shopkeeper refusing to serve a customer wearing hijab. **Indirect discrimination** would arise if a school formulated a policy prohibiting all students from wearing anything on their heads, as this would indirectly discriminate against students whose religion requires the wearing of headwear (Paradies et al. 2009).

Discrimination operates at three interacting levels: interpersonal, systemic and internalised. **Interpersonal discrimination** occurs when interactions between people result in avoidable and unfair inequalities across groups. Examples include bullying, harassment, physical violence, name calling, jokes/teasing and hiring/firing biases in employment. **Systemic discrimination**, sometimes called institutional or organisational discrimination, occurs when requirements, conditions, practices,

² Different cultures classify people into racial groups according to a set of characteristics that are socially significant, including physical appearance, religion, dress, manner, language, accent, biological and social relationships, and self-identification. In practice the term 'race' when referred to as a social category overlaps with ethnicity, culture and (in some instances) religion.

policies or processes result in avoidable and unfair inequalities across groups. Systemic discrimination in critical areas such as education, employment and housing can lead to social disadvantage for those experiencing it. **Internalised discrimination** occurs when an individual accepts the attitudes, beliefs or ideologies about the superiority of other groups and/or the inferiority of their own group (Paradies et al. 2009). Examples of these three interacting levels of discrimination are provided in Table 1.

Table 1: Levels of discrimination

Internalised discrimination	Interpersonal discrimination	Systemic discrimination
Example: An Indigenous young person believes that he is naturally less intelligent than his non-Indigenous peers.	Example: A Muslim woman is yelled at while walking down the street and called a 'terrorist'.	Example: A bank introduces a policy that no customers may enter whilst wearing headwear.

Health and wellbeing

Health is not merely the absence of illness or infirmity. It is the embodiment of physical, mental, social, emotional and spiritual wellbeing (World Health Organization 2007). It is fundamental to productivity and to overall quality of life. Health provides individuals with the vitality necessary for active living and to achieve their goals (VicHealth 2005).

This report will consider the effects of freedom of religion and belief – or the absence of such freedoms – on physical and mental health and wellbeing.

A glossary of additional subject-specific terms that emerged during the literature review is provided in Appendix D.

3 Project background and context

In 2006 the Ministerial Council on Immigration and Multicultural Affairs endorsed the *National Action Plan to Build on Social Cohesion, Harmony and Security (NAP)*. As part of the NAP, the Australian Human Rights Commission (formerly HREOC) was funded to undertake a project on *Freedom of Religion and Belief in the 21st Century* (Australian Human Rights Commission 2008). The Australian Human Rights Commission commissioned the Australian Multicultural Foundation (AMF) in association with RMIT and Monash University to prepare a core report on that topic.

In addition to the core report, the Australian Human Rights Commission entered into an agreement with VicHealth to produce this supplementary report on the effects of freedom of religion and belief on health and wellbeing.

VicHealth was established by the Victorian Parliament in accordance with the *Tobacco Act 1987*. It is an independent, statutory authority that is responsible to the Victorian Minister for Health.

VicHealth's focus is on promoting good health and wellbeing and preventing ill health. The Foundation's mission is to build the capabilities of organisations, communities and individuals in ways that change social, economic, cultural and physical environments to improve health; and strengthen the understanding and the skills of individuals in ways that support their efforts to achieve and maintain health. VicHealth recognises that social harmony, support for ethnic and religious diversity and the prevention of discrimination are crucial to individual and community health.

VicHealth is concerned about race-based and religious discrimination on the basis of evidence that they negatively affect health and wellbeing; as well as evidence that such discrimination remains disconcertingly widespread in the Australian community. Extensive evidence of race-based discrimination was provided in the 2007 VicHealth publication *More than tolerance: embracing diversity for health*³. More specific evidence of religious discrimination in Australia is explored in more detail in Section 5.

³ The findings included in *More than tolerance* are based on a 2006–07 survey of more than 4000 Victorians that was funded by VicHealth and led by Professor Kevin Dunn (University of Western Sydney) and Associate Professor Jim Forrest (Macquarie University). The surveys investigated Victorians' attitudes towards cultural diversity and their experiences of race-base discrimination.

4 Project aims and scope

This project was designed to achieve the following aims, via a comprehensive review of the existing literature on the relationship between religion and belief and health and wellbeing.

- i) To identify and explore the effects (both positive and negative) of religion and belief on health and wellbeing.
- ii) To identify and explore the impacts of religious discrimination on health and wellbeing.
- iii) To develop an understanding of the causal pathways by which religion and belief can have positive and/or negative effects on health and wellbeing.
- iv) To develop an understanding of the causal pathways by which religious discrimination affects health and wellbeing.
- v) To produce a report, on the basis of a literature review, outlining the effects that religious belief and practice, and religious discrimination, can have on health and wellbeing.
- vi) To contribute a public health perspective to the Australian Human Rights Commission's broader project on *Freedom of Religion and Belief in the 21st Century*.

It is important to note that this study was based on the understanding that religious belief is something over which the individual should exercise choice and control. This extends to the freedom to not hold or practice a religious belief. For this reason, the study was not designed to work out whether religion should be promoted as a 'tool' for promoting health (as may be the case with, for example, exercise or diet). Rather, its aim was to understand the relative importance of religious beliefs and practices in protecting the health of people of religious faith and, hence, the need to protect the rights of individuals to practice their beliefs free from discrimination.

It is also important to note that the focus of this research was on the relationship between religious beliefs held by individuals and their health. It did not assess the impact of religion and belief at the group, community or societal level. More specifically, it did not:

- Look at the impacts of religion on whole communities or societies, including on secular society. Religious belief may serve as the basis for social practices that can contribute to other positive or negative health outcomes. For example the oppression of women, which has a basis in some religious doctrines, is associated with poor health outcomes, while altruism, a founding principle of many religions, may contribute to positive health outcomes.
- Weigh the impact of religion on particular groups, such as same-sex-attracted individuals, for whom exclusion from some religious communities may be associated with negative health consequences.

- Explore the health implications of particular religious beliefs and practices. For example, when the use of contraception is prohibited on religious grounds, this may result in negative health impacts for women, their partners and their children.
- Explore the role that religious communities and institutions may themselves play in discrimination against other religions or those without a religious faith.

There is considerable debate in scholarly and wider circles about the impact of religion on these aspects of community and societal wellbeing (Hitchens 2007; Dawkins 2006) and on the potential for religion to foster intolerance (Hall et al. 2010). All of these factors can in turn influence health.

However, this study did not explore the evidence linked to these broader debates. For this reason, it does not provide a basis for drawing conclusions about the 'net benefits' of religious belief to health at the population level.

5 Evidence of discrimination against religious minorities in Australia

There is considerable evidence of discrimination against religious minority groups in Australia. The bulk of the existing literature focuses on the experiences of Muslim Australians, particularly following the September 11, 2001 terror attacks in the United States and the 2002 Bali bombings. A small amount of literature was also located exploring experiences of anti-Semitism in Australia. The lack of literature on other religious groups' experiences of discrimination highlights a need for further research into this issue.

5.1 Discrimination against Muslim Australians

Several reports have documented Muslim Australians' experiences of discrimination. The 2004 HREOC report *Ismaḡ–Listen* provided extensive evidence of such trends, as did a report on the experiences of Muslim women published by the Islamic Women's Welfare Council of Victoria (IWWCV) in 2008. The HREOC (2004) report provided a compelling overview of Muslim Australians' experiences:

Participants identifiable as Arab or Muslim by their dress, language, name or appearance told of having been abused, threatened, spat on, assailed with eggs, bottles, cans and rocks, punched and even bitten. Drivers have been run off the road and pedestrians run down on footpaths and in car parks. People reported being fired from their jobs or refused employment or promotion because of their race or religion. Children have been bullied in school yards. Women have been stalked, abused and assaulted in shopping centres. Private homes, places of worship and schools were vandalised and burned. "Terrorist" "Dirty Arab" "Murderer" "Bloody Muslim" "Raghead" "Bin-Laden" "Illegal immigrant" "Black c..t" are just some of the labels and profanities that we [HREOC] were told have been used against Arabs and Muslims in public places. Arab and Muslim Australians were told to "Go back to your own country", even those whose families have been in Australia for many generations (p. iii).

The key points discussed on the following pages emerged from these reports.

i Muslim Australians have experienced increased discrimination in the aftermath of international terror events.

According to HREOC (2004), the Australian Arabic Council experienced a 20-fold increase in reports of discrimination and vilification in the month following September 11, 2001. Individuals involved in HREOC's community consultations and the IWWCV's focus group discussions provided evidence of this trend:

"It is common that people who used to be nice to you before September 11 change the way they react to you after...[but] we are the same Muslims, we haven't changed. Before September 11th I...had a normal life..." (HREOC 2004, pp. 43–44).

“I think there has been a dramatic increase in the number of incidents and the underlying feeling of alienation and unease since September 11 and, more particularly, since October [2002] in Bali” (HREOC 2004, p. 44).

“The situation for Arabs and Muslims was worse after the Bali bombing because it was more personal for Australians” (HREOC 2004, p. 44).

“If media reports on terrorism, it always becomes bad for us!” (IWWCV 2008, p. 8).

ii Individuals visibly identifiable as Muslim have been targets of discrimination.

Participants in the HREOC (2004) consultation and IWWCV focus groups made it clear that individuals’ who were visibly identifiable as Muslim were targeted:

“What all Muslims get is discrimination. There’s just a basic idea and a stereotype...they just don’t like you just because of your looks...There is nowhere you go that there is no discrimination” (HREOC 2004, p. 44).

The fact that women who wore the hijab, niqab or chador were explicitly targeted was also readily apparent in those consultations:

“I think there is no doubt that after September 11 there has been a rise in terms of the perception that you are a danger. From a woman’s perspective, if you wear the veil then you are seen as a fundamentalist – you are a danger” (HREOC 2004, p. 44).

“Everyone here has been through an experience or heard about an experience...we all have that experience of feeling that people look at us as terrorists. As a Muslim woman, we are more a victim than any other” (HREOC 2004, p. 44).

“Many people think and feel that a woman wearing the hijab is a moving bomb” (HREOC 2004, p. 44).

“It only takes one incident in the world concerning terrorism before Muslim women are attacked again” (IWWCV 2008, p. 12).

Women involved in consultations commonly reported that their hijabs had been forcibly removed by perpetrators (HREOC 2004).

iii People mistakenly identified as Muslim have also experienced discrimination.

The HREOC (2004) report provided evidence that individuals who appeared to be of ‘Middle Eastern background’ experienced discrimination, even if they were not Muslim (as in the case of Christian Arabs). In some cases, Sikhs experienced such discrimination on the basis that they were wrongly identified as being Muslim by perpetrators.

iv Discrimination against Muslim targets has taken a number of forms, and has occurred in a range of everyday and institutional settings.

The types of discrimination experienced by Muslims (or individuals thought to be Muslim) have included: physical violence and threats of violence, racist and anti-Islamic abuse, destruction or

vandalism of property (including defilement with human faeces, arson, graffiti) and unfair treatment at work (including failure to accommodate religious practices, abuse from co-workers, discrimination in hiring and promotion decisions, and attempts to ban wearing of the hijab) (HREOC 2004).

Another form of discrimination that has been reported in the academic literature and media includes community protests and the refusal of local planning authorities to permit the establishment of Muslim schools and/or mosques (Dunn, Klocker and Salabay 2007; Bernardi 2010; Haussegger 2010).

Participants in the HREOC consultations indicated that their experiences of violence, discrimination and vilification occurred in a variety of places and situations (HREOC 2004), including on the streets, while driving, on public transport, at work or in educational institutions, in shops/shopping centres and also in the media and in interactions with police and government service providers.

The abovementioned reports focused strongly on the perspectives and experiences of Muslim Australians. The following section documents evidence of negative attitudes towards Muslim Australians held by the 'mainstream' Australian population.

v *Negative attitudes towards Muslim Australians*

A number of studies have focused on the attitudes of 'mainstream' Australian society towards various racial and religious groups. Such studies have confirmed that antipathy towards Muslim Australians is particularly high and that Muslim Australians are a key 'out-group' in Australian society. For instance, findings reported in VicHealth's (2007) report *More than tolerance: embracing diversity for health*, indicated that 43 per cent of respondents would be concerned if a close relative were to marry a Muslim person. Furthermore, 36 per cent of respondents in that survey felt that there are some groups that do not 'fit' into Australian society – Muslim and Middle Eastern Australians were the most commonly identified 'out group' (VicHealth 2007).

Outside Victoria, the 2003 *Attitudes Towards Islam* survey of 1311 individuals⁴, reported that 66 per cent of respondents felt that Islam poses a threat to Australia (cited in Dunn, Klocker and Salabay 2007). In a phone survey of 5056 NSW and Queensland residents undertaken in 2001, 45 per cent of respondents claimed that some cultural groups do not 'fit' into Australian society, and Middle Eastern and Muslim Australians were the most commonly identified groups (Dunn et al. 2004). Furthermore, 53 per cent of respondents in that survey indicated that they would be concerned if a close relative were to marry a Muslim person (Dunn et al. 2004). The positioning of Muslims as an 'out-group' is further supported by evidence surrounding community opposition to the development of mosques and Islamic schools, as well as opposition against the arrival of Muslim and/or Middle Eastern asylum seekers. Community discourses

⁴ Carried out by Roy Morgan Research and Kevin Dunn; and funded by the Australia-Indonesia Institute.

have often been based on the view that Islam 'does not belong' in Australia and is somehow threatening to the Australian 'way of life' (Dunn, Klocker and Salabay 2007). This view has been given credence in media reports and statements made by some politicians (Dunn, Klocker and Salabay 2007).

5.2 Discrimination against Jewish Australians

A leading Australian researcher into anti-Semitism in Australia, Jeremy Jones, has reported that incidences of anti-Semitism reached a peak in the 12 months ending 30 September 2009 (Jones 2009a, 2009b). During that period, 962 incidents of 'racist violence' were directed at Jewish Australians. Acts of discrimination against Jewish Australians that were recorded included: physical assault of men and women who were visibly identifiable as Jewish; verbal abuse (especially when walking to and from the synagogue); vandalism of Jewish property and places of worship; anti-Semitic graffiti; and threatening emails, faxes, letters and phone calls (Jones 2009a, 2009b). Some of the anti-Semitic experiences recorded over the 2008 to 2009 period by Jones (2009a, 2009b) are listed below:

- Projectiles daubed with anti-Semitic slogans were thrown at the home of a Jewish family in Sydney and at a Sydney synagogue.
- Fireworks were thrown at synagogue personnel in Sydney, from a passing vehicle.
- Individuals walking to and from synagogues in Melbourne and Sydney were spat on and had eggs thrown on them.
- Anti-Israel demonstrators physically assaulted visibly Jewish individuals.
- Jewish people were verbally abused and sworn at. Offensive references to the Holocaust were made (e.g. that all Jews should be put in gas chambers).
- Jewish property (including synagogues, homes, vehicles and schools) were vandalised with anti-Jewish graffiti, including swastikas.

The examples listed above are just a small number of those included in Jones (2009b). No direct quotations from affected individuals were included in that report. As in the case of Muslim Australians, it is apparent that discrimination has been targeted at individuals who are visibly identifiable as Jewish. Such discrimination has taken numerous forms (including physical violence, verbal abuse and damage to property) and has occurred across a range of settings.

Anti-Semitic attitudes were also documented by VicHealth (2007) – 24 per cent of respondents indicated that they would be concerned if a close relative were to marry a Jewish person.

This extensive evidence of religious discrimination against Muslim and Jewish Australians forms an important foundation for this report. The process for conducting the literature review is described in Section 6.

6 Literature review

The literature review undertaken for the purposes of this report involved three component parts. This was necessary in order to fully explore the question: 'How does freedom of religion and belief affect health and wellbeing?'

The first component of the literature review was designed to explore the role of religion/belief as a determinant of health and wellbeing. A substantive body of literature exists documenting this relationship, as is explained in more detail in Section 6.1.

The second component of the literature review was designed to investigate how religious discrimination affects health and wellbeing and is explained in more detail in Section 6.2.

Finally, as minimal empirical research was available on the topic of religious discrimination and health, a third component was added to the literature review focusing on the relationship between race-based discrimination and health/wellbeing, as described in Section 6.3.

6.1. Literature review part I: Religion and belief as a determinant of health and wellbeing

This component of the literature review initially sought to examine the empirical research on religion and belief as a determinant of health and wellbeing. However, it became apparent that many hundreds of studies have explored this issue, and several high-quality systematic and comprehensive reviews of that body of literature have already been conducted. Accordingly, a decision was made to limit this component of the literature review to a 'review of reviews' – rather than focusing on the empirical literature linking religion/belief to health/wellbeing, the search criteria were restricted to include only review articles of that literature.

Studies were identified using computer searches of seven online databases: PubMed, MEDLINE, CINHALL, PsychINFO, ERIC, Sociological Abstracts and APAIS. The search was limited to articles published in academic journals, with abstracts, between 1998 and April 2009 in English text. The search terms used were: [religion (MeSH/free text), OR relig* (free text), OR spirituality (MeSH/free text), OR spiritual* (free text), OR faith (free text)] AND [health (MeSH/free text), OR personal satisfaction (MeSH), OR well-being/wellbeing/"well being" (free text)] AND [systematic review/"systematic review"(MeSH/free text)].

Abstracts were reviewed and articles were excluded if their primary focus was not on the role of religion and belief in influencing health and wellbeing. Articles focused on health service delivery

were also excluded, on the basis that this project sought to explore the role of religion/belief in promoting good health and preventing ill health, rather than its role in treatment. Although the search criteria included the term 'systematic review', a large number of the articles retrieved were not systematic reviews. A decision was made to exclude all articles that were not systematic reviews, meta-analyses or comprehensive reviews⁵.

The reference lists of the initial set of articles were scanned for relevant studies, and this process was repeated until no new studies were located.

A total of 27 relevant review articles were located and reviewed for the purposes of this report (see Appendix A). The findings of this review process are discussed in Section 7.2.

It should be noted that the search criteria used were not limited to positive aspects of the religion/health nexus. However, the preponderance of evidence presented in the academic literature suggests that religion and belief are health promoting, rather than risk factors. This is reflective of the literature rather than a bias in sampling strategy. Furthermore, the vast majority of articles retrieved via this search strategy focused on the impacts of religion/belief on *individual* health, rather than community wellbeing.

6.2 Literature review part II: Religious discrimination as a determinant of health and wellbeing

This component of the literature review sought to explore the empirical literature on religious discrimination and its relationship to health and wellbeing.

Studies were again identified using the same seven online databases: PubMed, MEDLINE, CINAHL, PsychINFO, ERIC, Sociological Abstracts and APAIS. The search was limited to published articles with abstracts between 1998 and April 2009 in English text.

The search terms used were: [religion (MeSH/free text), OR relig* (free text), OR spirituality (MeSH/free text), OR spiritual* (free text), OR faith (free text)] AND [prejudice (MeSH/free text), OR racism (free text), OR discrim* (free text), OR Islamophobia (free text), OR anti-Semiti* (free text) OR antisemiti* (free text) OR "anti Semiti*" (free text) OR anti-Jew* (free text) OR "anti Jew*" (free text)] AND [health (MeSH/free text), OR personal satisfaction (MeSH), OR well-being/wellbeing/"well being" (free text)].

⁵ Articles were only classified as systematic reviews or meta-analyses if they were described in that way by the authors. Articles were included as comprehensive reviews if they gave a clear indication of the search strategy used (details of the databases searched, search criteria used and so on) in order to eliminate the potential for author bias in article selection. Studies that were classified as 'selective reviews' were excluded.

Abstracts were reviewed and articles were excluded if they were not based on empirical studies and if they did not include at least one measure of religious discrimination and one measure of health or wellbeing. Given that only a small number of studies were retrieved on this topic, studies were included if they specifically examined the impact of religious discrimination on health, or if they indicated that religion was included in their broader conceptualisation of race-based discrimination.

The reference lists of the initial set of articles were scanned for relevant studies, and this process was repeated until no new studies were located.

A total of 10 relevant articles were located and reviewed for the purposes of this report (see Appendix B). The findings of this review process are discussed in Section 8.

Given the small number of studies retrieved in relation to religious discrimination and health, as well as the previously noted overlap between religious discrimination and race-based discrimination, this component of the literature review was supplemented with evidence from the larger body of literature on race-based discrimination (or racism) and health. This process is detailed in Section 6.3.

6.3 Literature review part III: Race-based discrimination as a determinant of health and wellbeing

As noted by Sheridan (2006), measures of racism or race-based discrimination can serve to highlight the existence of religious discrimination. The literature exploring the relationship between race-based discrimination and health/wellbeing is far more extensive than that on religious discrimination and has the potential to offer insights that are currently lacking in relation to religious discrimination and health. It is important to note, however, that such information only serves as a proxy and that further empirical research is required into the unique impacts of religious discrimination on health and wellbeing.

A large number of empirical studies have explored the relationship between race-based discrimination and health, and several high-quality systematic reviews, comprehensive reviews and meta-analyses have already been conducted on this issue. This component of the literature review was therefore restricted to a 'review of reviews' (i.e. only existing review articles were examined, rather than the empirical literature).

Studies were again identified using seven online databases, including: PubMed, MEDLINE, CINAL, PsychINFO, ERIC, Sociological Abstracts and APAIS. The search was limited to published articles with abstracts between 1998 and April 2009 in English text.

The search terms used were: [prejudice (MeSH/free text), OR racism (free text), OR discrim* (free text)] AND [health (MeSH/free text), OR personal satisfaction (MeSH), OR well-being/wellbeing/"well being" (free text)] AND [(systematic review/"systematic review"(MeSH/free text)].

Although the search criteria included the term 'systematic review', a large number of the articles retrieved were not systematic reviews. A decision was made to exclude all articles that were not systematic reviews, meta-analyses or comprehensive reviews.

The reference lists of the initial set of articles were scanned for relevant review papers, and this process was repeated until no new studies were located.

A total of six relevant review articles were located and analysed for the purposes of this report (see Appendix C). The findings of this review process are discussed in Section 8.

7 Findings of the literature review: How does religion/belief affect health and wellbeing?

A total of 27 review articles were retrieved relevant to the relationship between religion/belief and health/wellbeing. Relevant details are summarised in Appendix A at the conclusion of this report, including: design and limits of each review article, measures of religiousness used and aspects of health/wellbeing measured.

Of the 27 review articles identified:

- 20 explored how religion/spirituality impact on various aspects of mental health (Ano and Vasconcelles 2005; Aukst-Margetic & Margetic 2005; Baldacchino & Draper 2001; Beuscher & Beck 2008; Cotton et al. 2006; DeHaven et al. 2004; Hackney & Sanders 2003; Hollywell & Walker 2009; Koenig 2009; Koenig 2001a; Koenig 2000a; Koenig et al. 2001; Moreira-Almeida et al. 2006; Rew & Wong 2006; Shaw et al. 2005; Smith et al. 2003; Thuné-Boyle et al. 2006; Townsend et al. 2002; van Ness & Larson 2002; Wong et al. 2006).
- 13 examined the effects that religion/spirituality have on various aspects of physical health (Aukst-Margetic & Margetic 2005; Cotton et al. 2006; DeHaven et al. 2004; Gray 2004; Koenig 2001b; Koenig 2000a; Koenig 2000b; McCullough et al. 2000; Polzer & Miles 2005; Powell et al. 2003; Sloan & Bagiella 2002; Thuné-Boyle et al. 2006; Townsend et al. 2002).
- Nine reported on the link between religion/spirituality and a range of health-related behaviours (Aukst-Margetic & Margetic 2005; Cotton et al. 2006; DeHaven et al. 2004; Gray 2004; Koenig 2009; Koenig 2001a; Moreira-Almeida et al. 2006; Rew & Wong 2006; Townsend et al. 2002).

The following discussion explores the findings reported in relation to those three areas. It begins with an overview of the relationship between religion/belief and health and wellbeing (Section 7.1). This is followed by a detailed exploration of the mental and physical health outcomes of religion/belief (Sections 7.2 and 7.3) and health-related behaviours (Section 7.4). Finally, the causal mechanisms or pathways that mediate the relationship between religion/belief and health and wellbeing are explored (Section 7.5).

7.1 Overview of findings

The available evidence suggests that there is a relationship between religion/belief and positive mental health outcomes. More specifically, religiousness may protect against depression, be associated (albeit less strongly) with reduced anxiety levels, assist in psychological adjustment following trauma, protect against suicide and improve overall psychological wellbeing and life satisfaction. Results relating to psychosis, psychotic disorders and self-esteem are less conclusive. An important observation made in several of the studies examined was that the type of religiousness being practiced often determines whether the impact on mental health will be positive or negative.

More specifically, intrinsic and personal forms of religious engagement, as well as positive forms of religious coping and positive interpersonal religious experiences, are generally associated with improved mental health outcomes. Conversely, extrinsic and institutional religiosity, negative forms of religious coping and negative interpersonal religious experiences tend to be associated with poor mental health outcomes.

There also appears to be evidence of an inverse relationship between religiousness and engagement in risky health behaviours such as alcohol and drug (mis)use, cigarette smoking, risky sexual behaviours and criminal or delinquent activities. This association appears to be strong among adolescents, suggesting that religiousness may protect young people from engaging in risky health behaviours.

Evidence surrounding the relationship between religion/belief and physical health appears to be more tenuous than that observed in relation to mental health and health behaviours. The articles reviewed are, however, quite consistent in their conclusion that religiousness is associated with greater longevity, especially when public measures of religious involvement (such as attendance at places of worship) are used. Evidence for a relationship between religiousness and cardiovascular health is mixed, although there is some evidence that attendance at places of worship is associated with improved cardiovascular health. Similar observations have been made in relation to functional disability. Insufficient studies were reviewed to draw any firm conclusions regarding the role of religiousness in HIV prevalence and disease progression. In terms of cancer, the bulk of the evidence presented suggests that adherence to particular religions (and the health-promoting behaviours they encourage) can decrease the risk of developing cancer. The findings in relation to blood pressure, hypertension and immune and neuroendocrine function are also mixed.

There is limited empirical evidence on the specific mechanisms that explain how religious beliefs and practices have a causal effect on health/wellbeing. However, a number of reviews have hypothesised various psychological, social and behavioural mechanisms through which religious beliefs and practices may impact health. Religious beliefs and practices may help to reduce psychological stress, increase social support, prevent depression or enhance positive emotions, which may help to moderate or prevent potentially harmful behavioural and physiological responses to stress. Many of the reviews discussed in the following sections show evidence of the protective function of religion on the development of healthy behaviours and lifestyle choices. Furthermore, attendance at places of worship can encourage physical activity.

The literature reviewed has several shortcomings which may affect the validity of the findings reported. For instance, most of the studies reviewed in the articles discussed below were cross-sectional in design and could not eliminate the influence of potential confounders (see glossary, Appendix D). Additional longitudinal studies are required before more firm conclusions concerning the relationship between religion/belief and health/wellbeing can be drawn. Another major shortcoming of the existing literature lies in its focus on North American populations, and on people adhering to Judaeo-Christian faiths. Further research is required reflecting diverse religious traditions, in various countries, before stronger conclusions can be drawn relating to the potential health benefits of religion and/or belief.

7.2 Evidence of the relationship between religion/belief and mental health

The review articles discussed here explored several key aspects of mental health including: depression (14 articles⁶); anxiety (11 articles⁷); psychotic disorders, particularly schizophrenia (five articles⁸); psychological adjustment and ability to cope with stress and trauma (eight articles⁹); suicide risk and/or suicide attempts (six articles¹⁰); general mental health and/or psychological wellbeing (five studies¹¹); and self-esteem (four studies¹²).

The key findings of each review article in relation to these areas are reported below. Considerable detail is presented. This is necessary because of the complex material presented and because each of the review articles incorporated different study populations (e.g. the elderly, adolescents, cancer patients), different measures of religion/religiousness (e.g. attendance at place of worship, prayer, religious orientation etc) and different measures of mental health wellbeing. The summary tables and statements provided for each of the mental health variables discussed provide an overview of the findings for readers who do not require such detail.

a Depression

Table 2 summarises the findings of the review articles consulted in relation to the link between religion/belief and depression. The various measures of religion/belief used in those studies are presented. Each measure listed is considered in terms of its impact on depression – whether

⁶ Ano & Vasconcelles 2005; Aukst-Margetic & Margetic 2005; Cotton et al. 2006; Hackney & Sanders 2003; Hollywell & Walker 2009; Koenig 2009; Koenig 2001a; Koenig 2000a; Moreira-Almeida et al. 2006; Shaw et al. 2005; Thuné-Boyle et al. 2006; Townsend et al. 2002; van Ness & Larson 2002; Wong et al. 2006.

⁷ Ano & Vasconcelles 2005; Aukst-Margetic & Margetic 2005; Cotton et al. 2006; Hollywell & Walker 2009; Koenig 2009; Koenig 2001a; Koenig 2000a; Thuné-Boyle et al. 2006; Townsend et al. 2002; van Ness & Larson 2002; Wong et al. 2006

⁸ Aukst-Margetic & Margetic 2005; Koenig 2009; Koenig 2001a; Koenig 2000a; Wong et al. 2006.

⁹ Ano & Vasconcelles 2005; Bladacchino & Draper 2001; Beuscher & Beck 2008; Hackney & Sanders 2003; Koenig 2000a; Shaw et al. 2005; Thuné-Boyle et al. 2006; van Ness & Larson 2002.

¹⁰ Cotton et al. 2006; Koenig 2009; Koenig 2001a; Moreira-Almeida et al. 2006; Rew & Wong 2006; van Ness & Larson 2002.

¹¹ DeHaven et al. 2004; Koenig 2001a; Moreira-Almeida et al. 2006; van Ness & Larson 2002; Wong et al. 2006

¹² Ano & Vasconcelles 2005; Koenig 2000a; Moreira-Almeida et al. 2006; Wong et al. 2006.

predominantly positive (decreased depression), predominantly negative (increased depression) or mixed. Studies reporting 'no association' were not recorded in the table. The numbers listed in the results columns indicate the number of articles reviewed that reported a particular association.

Table 2: The relationship between religion/belief and depression

Measure of religion/belief	Predominantly beneficial – decreased depression	Predominantly harmful – increased depression	Mixed
Positive religious coping (Ano & Vasconcelles 2005; Smith et al. 2003)	2 [papers]	0	0
Negative religious coping (Ano & Vasconcelles 2005; Smith et al. 2003)	0	2	0
Unspecified religious coping (Koenig 2009; Thuné-Boyle et al. 2006)	1	0	1
Intrinsic religiosity (Aukst-Margetic & Margetic 2005; Moreira-Almeida et al. 2006; Smith et al. 2003)	3	0	0
Extrinsic religiosity (Aukst-Margetic & Margetic 2005; Smith et al. 2003)	0	2	0
Positive interpersonal religious experiences/relationships (Cotton et al. 2006)	1	0	0
Negative interpersonal religious experiences/relationships (Cotton et al. 2006)	0	1	0
Institutional religiosity (Hackney & Sanders 2003; Wong et al. 2006)	1	0	1
Personal religious devotion (Hackney & Sanders 2003)	1	0	0
Prayer (Hollywell & Walker 2009)	1	0	0
Religiousness (Hackney & Sanders 2003; Koenig 2000a; Koenig 2001a; Moreira-Almeida et al. 2006; Smith et al. 2003; van Ness & Larson 2002; Wong et al. 2006)	6	1	0
Religious involvement (Koenig 2001a; Koenig 2009)	2	0	0
Religious attendance/activity (Koenig 2009; Moreira-Almeida et al. 2006; Townsend et al. 2002).	3	0	0

Summary: The detailed findings presented below depict a generally positive relationship between various aspects of religious belief/practice and reduced depression. Several studies noted that this relationship depends on the type of religiosity that an individual adheres to or practises. More specifically, positive religious coping and intrinsic religiosity (defined in Appendix D) are typically associated with decreased depressive symptoms. On the other hand, negative religious coping and extrinsic religiosity have been associated with more depression.

The meta-analysis conducted by Ano and Vasconcelles (2005) examined evidence of a link between religious coping and psychological adjustment to stress. The findings indicated that the impacts of religious coping depended on whether individuals engaged in positive or negative religious coping strategies (positive and negative religious coping strategies are defined in Appendix D). A modest inverse relationship was found to exist between positive religious coping and negative psychological adjustment (-0.12), providing evidence that individuals who used positive religious coping strategies experienced improved psychological adjustment and less depression. A modest relationship was also found to exist between negative religious coping and negative psychological adjustment (0.22). Thus, individuals who reported using negative forms of religious coping experienced more depression. The authors concluded that positive religious coping strategies may serve adaptive functions, whilst negative religious coping strategies place an additional burden on people already experiencing stressful situations.

The majority of studies reviewed by Aukst-Margetic and Margetic (2005) show that religiosity can lower the prevalence and incidence of depression. However, there was also evidence that the relationship between depression and religiosity varies depending on how religion is practised and the aspects of religiosity measured. That is, people who are involved intrinsically in religion are at a substantially reduced risk of depression, although people who are involved in religion extrinsically are actually at a higher risk of depression (see Appendix D for definitions of intrinsic and extrinsic religiosity).

Cotton et al. (2006) reviewed studies assessing how proximal domains of religion/spirituality (such as religious coping and religious decision making) impact on adolescent health. Of the two studies located relating to depressive symptoms in adolescents, both found that higher levels of spiritual support and positive interpersonal religious experiences were associated with lower levels of depressive symptoms. Conversely, negative interpersonal religious experiences were associated with

greater levels of depressive symptoms. The authors concluded that social support may be a key mediator of the relationship between religion/spirituality and adolescent depressive symptoms.

The meta-analysis conducted by Hackney and Sanders (2003) sought to clarify the relationship between religiosity and psychological adjustment. Depression was coded together with other 'unhappy aspects of mental health', such as anxiety, as one measure of negative psychological adjustment (or psychological distress). Conclusions relating specifically to the relationship between religiosity and depression were not drawn. The authors concluded, on the basis of their meta-analysis, that religiosity can be said to have a salutary relationship with psychological adjustment if variations in the types of religiosity are not taken into account. They observed an overall pattern indicating that institutional religiosity had the weakest correlations with psychological adjustment (and in some cases had negative correlations), whilst personal religious devotion produced the strongest correlations.

Hollywell and Walker (2009) considered the relationship between religious coping (particularly in the form of private prayer) and mental health (particularly anxiety and depression) among hospitalised patients. The literature reviewed led the authors to conclude that private prayer (measured by frequency) is usually associated with lower levels of depression, and that prayer is a coping action that mediates between religious faith and wellbeing. Evidence also emerged that some types of prayer (based on desperate pleas for help in the absence of pre-existing faith) could be associated with poorer mental wellbeing.

Koenig's (2000a) review was limited to studies reporting on a negative association between religiosity and health. In relation to mental health, Koenig (2000a) observed that a number of studies have reported negative associations between religion and mental health, including evidence that religious persons were more perfectionistic, withdrawn, insecure, depressed, worried and inept. The author concluded, however, that much of the literature documenting negative impacts of religion on mental health relies heavily on opinion, experience with the mentally ill and/or anecdotal case reports.

Koenig's (2001a) comprehensive and systematic review of 20th-century research on the relationship between religion and mental health included 101 studies that focused on depression, including 93 observational studies and eight clinical trials. Of the observational studies, 59 (63.5 per cent) reported only lower rates of depressive disorder and/or fewer depressive symptoms among people with higher levels of religious involvement; 13 studies (14.0 per cent) reported no association; 16 studies (17.0 per cent) reported mixed findings (positive correlations with some religious variables and negative correlations with others) and only four studies (4.5 per cent) reported higher levels of

depression among the more religious. Of the eight clinical trials, five showed that depressed patients who received religious interventions recovered faster than those who received only a secular intervention or in control groups. Finally, the sample included 22 prospective cohort studies, of which 15 found that greater religious involvement at baseline predicted lower rates of depression at follow-up. The author concluded that the vast majority of articles examining the relationship between religion and mental health report positive associations.

Koenig's (2009) literature review included 101 articles on the link between religion and depression prior to 2000, and 10 studies post 2000. The pre-2000 studies replicate the findings presented by Koenig (2001a). Of the 10 relevant studies published post-2000, all demonstrated a statistically significant and positive relationship between a range of religious indicators (including religious involvement, religious coping and religious attendance) and reduced depression. The author noted that the studies linking religion with reduced depression have been critiqued for being predominantly observational and unable to exclude the possibility of confounders.

The total number of articles reviewed by Moreira-Almeida et al. (2006) in relation to the link between religion and depression was unclear. However, the authors concluded that the evidence presented in the reviewed studies is strongly consistent in establishing a positive relationship between religiousness and decreased depression. They acknowledged that the majority of the studies reviewed were cross-sectional and US based, but argued that recent studies in Brazil and Europe also indicate (respectively) that intrinsic religiosity is associated with better mental health and that frequent attendance at places of worship is associated with lower depressive symptoms among senior adults.

The meta-analysis undertaken by Smith et al. (2003) was specifically focused on the association between religiousness and depressive symptoms. Evidence was found that religiousness is moderately but reliably associated with depressive symptoms at the bivariate level. Across all 147 studies reviewed, the correlation between religiousness and depressive symptoms was -0.096, indicating that greater religiousness is *mildly* associated with fewer symptoms. The authors claimed that this association applies across different gender, age and ethnic groups. However, the association was stronger in individuals who were undergoing stressful life events. Another major finding of the study was that the association between religiousness and depression differed significantly depending on the type of religiousness measured. More specifically, measures of extrinsic religious orientation (which assess the extent to which people are involved in religion for self-seeking ends) and measures of negative religious coping (which assess the extent to which people cope with stress by engaging in counterproductive religious behaviours) showed different associations with depressive symptoms

than other measures of religiousness (see Appendix D for examples negative religious coping). That is, extrinsic religious orientation and negative religious coping were associated with higher levels of depressive symptoms, in the opposite direction of the overall findings.

Thuné-Boyle et al.'s (2006) systematic review examined the potential beneficial and/or harmful effects of religious and spiritual coping on people with cancer. Six of the studies reviewed included depression as an outcome measure. Of those six studies, four did not report a significant relationship between religious coping and depression, one reported that religious activity was related to lower levels of depression and one reported mixed results. The authors conclude that evidence is lacking upon which to draw firm conclusions about the beneficial or harmful effects of religious coping in patients with cancer.

Townsend et al. (2002) conducted a systematic and critical review of the medical literature on clinical trials examining the impact of religion on health outcomes. The review included depression as one of the mental health outcome variables observed. The main finding in relation to depression came from three randomised-control trials which indicated that Islam-based psychotherapy can speed recovery from depression in Muslims. The authors also concluded, on the basis of the prospective cohort studies reviewed, that religious activity (including attendance at places of worship) is associated with remission of depression and protection against depression.

Van Ness and Larson (2002) conducted a comprehensive review of epidemiological and survey research on the relationship between religiousness/spirituality and mental health at the end of life, including depression as an outcome variable. The authors reported that some of the studies reviewed showed that aspects of religiousness were associated with lower levels of depression, although not all studies found a significant association. They claim that different study designs, sample populations and outcome measures explain this variability in results. In general, they conclude that their review found fairly consistent inverse associations of religiousness with rates of depression, and that religion was generally protective of the mental health of elderly people (although the relationship was modest in strength).

Finally, Wong et al. (2006) conducted a systematic review exploring the relationship between adolescent religiosity/spirituality, including depression as a mental health outcome variable. Among the 20 studies reviewed, 18 (90%) found a positive association between adolescent religiosity/spirituality and mental health. That is, adolescents who reported higher levels of religiosity/spirituality were more likely to report having better mental health. The effects were stronger for institutional and existential measures of religiosity/spirituality, but weaker for measures

related to ideological and personal devotion. The authors also noted that the association between religiosity/spirituality and mental health was stronger for boys and older adolescents than for girls and younger adolescents. Results relating to depression in particular were not specified by the authors.

b Anxiety

Table 3 summarises the findings of the review articles consulted in relation to the link between religion/belief and anxiety.

Table 3: The relationship between religion/belief and anxiety

Measure of religion/belief	Predominantly beneficial – decreased anxiety	Predominantly harmful – increased anxiety	Mixed
Positive religious coping (Ano & Vasconcelles 2005; Koenig 2009)	2	0	0
Negative religious coping (Ano & Vasconcelles 2005; Koenig 2009)	0	2	0
Unspecified religious coping (Thuné-Boyle et al. 2006)	0	0	1
Intrinsic religiosity (Aukst-Margetic & Margetic 2005; van Ness & Larson 2002)	2	0	0
Extrinsic religiosity (Aukst-Margetic & Margetic 2005; van Ness & Larson 2002)	0	2	0
Spiritual wellbeing (Cotton et al. 2006)	1	0	0
Prayer (Hollywell & Walker 2009)	1	0	0
Religiousness (Koenig 2009; Koenig 2001a; Koenig 2000a; Wong et al. 2006)	2	2	0
Religious attendance/activity (Townsend et al. 2002)	1	0	0

Summary: The detailed findings presented below depict a generally positive relationship between various aspects of religious belief/practice and reduced anxiety. However, the relationship was reported as being weaker than that noted in relation to depression. Positive religious coping and intrinsic religiosity (defined in Appendix D) were typically associated with decreased anxiety, whilst negative religious coping and extrinsic religiosity were associated with greater anxiety.

The findings of Ano and Vasconcelles' (2005) study in relation to anxiety closely reflected those reported for depression. That is, individuals who used positive religious coping strategies reported less anxiety, while individuals who used negative religious coping strategies experienced more anxiety.

As in the case of depression, Aukst-Margetic and Margetic (2005) found that intrinsic religiosity was generally associated with lower levels of anxiety when compared to extrinsic religiosity. However, they also reported that negative outcomes could be found among people who had experienced a strict religious upbringing. The authors concluded that the relationship between religiosity and anxiety requires further investigation because there was evidence of both positive and negative associations.

Only one study was located by the Cotton et al. (2006) review that assessed the relationship between proximal domains of religion/spirituality and anxiety in adolescents. That study concluded that greater spiritual wellbeing predicted lower trait anxiety.

As in the case of depression, Hollywell and Walker (2009) concluded that private prayer (measured by frequency) is usually associated with lower levels of anxiety, suggesting that prayer is a coping action that mediates between religious faith and wellbeing.

As mentioned in relation to depression, Koenig's (2000a) review was limited to studies reporting on a negative association between religiosity and health. The author identified a number of studies reporting negative associations between religion and mental health, including evidence that religious people may, under certain circumstances, be more anxious than non-believers.

Koenig's (2001a) comprehensive and systematic review of 20th-century research on the relationship between religion and mental health included 76 studies examining the religion–anxiety relationship including seven clinical trials and 69 observational studies. Of the 69 observational studies, 35 (50.7 per cent) reported only lower levels of anxiety (or less fear) among people who were more religious; 17 reported no association; seven reported mixed results; and 10 reported increased anxiety among

the more religious. Of the seven clinical trials reviewed, six reported that there was a significant benefit in terms of anxiety relief when religious interventions were used. The author concluded that the majority of studies found less anxiety among the more religious.

Koenig's (2009) literature review included 76 articles on the link between religion and anxiety prior to 2000, and five studies post 2000. The pre-2000 studies replicate the findings presented by Koenig (2001a). Of the five post-2000 studies reviewed, only one showed positive results, one showed mixed results and three showed negative results (that is, religion was linked to increased anxiety). The author argued that evidence of a negative relationship between religion and anxiety may be explained by the fact that people pray more when they are already scared, nervous or feel out of control. Koenig (2009) concluded that positive forms of religious coping may reduce anxiety in highly stressful circumstances, but that negative forms may exacerbate it.

In Thuné-Boyle et al. (2006), five of the studies reviewed included anxiety as an outcome measure. Of those five studies, three did not report a significant relationship between religious coping and anxiety, one reported that the use of religious coping was associated with increased levels of anxiety, and one reported mixed results. The authors concluded that evidence is lacking upon which to draw firm conclusions about the beneficial or harmful effects of religious coping in patients with cancer.

Townsend et al.'s (2002) systematic review of the medical literature included anxiety as one of the mental health outcome variables observed. The main finding in relation to anxiety came from three randomised-control trials which indicated that Islamic-based psychotherapy can speed recovery from anxiety in Muslims.

Van Ness and Larson's (2002) comprehensive review of epidemiological and survey research on the relationship between religiousness/spirituality and mental health at the end of life included anxiety as an outcome variable. The authors concluded that the results of the review regarding the religion–anxiety relationship at the end of life were more mixed and inconclusive than those for other outcomes reviewed (including depression). They claimed that different types of religiousness are related to anxiety disorders in different ways, with intrinsic religiosity generally being negatively associated with anxiety outcomes while extrinsic religiosity is positively associated with the same outcomes. The authors argued that the religion–anxiety link may be complicated by the fact that people embrace religious beliefs after a stressful situation has already arisen.

Wong et al.'s (2006) systematic review explored the relationship between adolescent religiosity/spirituality and included anxiety as a mental health outcome variable. As in the case of depression, results pertaining specifically to the religion–anxiety link were not specified by the

authors, although there was considerable evidence of a positive association between adolescent religiosity/spirituality and overall mental health.

c Psychotic disorders

Table 4 summarises the findings of the review articles consulted in relation to the link between religion/belief and psychotic disorders.

Table 4: The relationship between religion/belief and psychotic disorders

Measure of religion/belief	Predominantly beneficial – decreased psychosis	Predominantly harmful – increased psychosis	Mixed
Unspecified religious coping (Aukst-Margetic & Margetic 2005; Koenig 2009)	2	0	0
Religiousness (Aukst-Margetic & Margetic 2005; Koenig 2000a; Koenig 2009; Wong et al. 2006)	2	1	1
Religious involvement (Koenig 2001a)	0	0	1

Summary: The detailed findings presented below suggest that religion/belief is either unrelated to psychotic disorders, or impacts positively on psychotic disorders (i.e. more religious individuals experience less psychosis and/or experience improved recovery). Only one of the review papers consulted noted a potential link between religion and increased psychosis.

Aukst-Margetic and Margetic (2005) claimed that religious coping methods have been shown to have positive effects on individuals who have been diagnosed with schizophrenia. However, they also concluded that individual differences in religiosity have little relation to individual differences in psychopathology (whether current or over the lifecourse).

Koenig’s (2000a) review of studies reporting on a negative association between religiosity and health reported that there is some evidence of a link between greater religiosity and psychopathology. The author reported that mental disorders, such as schizophrenia, acute mania or psychotic depression, often present alongside unusual religious beliefs (such as the belief in self as God, belief that the individual is being directed by a demonic power and so on).

Koenig’s (2001a) comprehensive and systematic review of 20th-century research on the relationship between religion and mental health included 10 cross-sectional studies examining the relationship of religion to psychotic symptoms and disorders. Four of these found fewer psychotic symptoms, tendencies and/or disorders among the more religious, three reported no association, two reported mixed findings, and one found a positive relationship between religion and psychotic disorder. Koenig (2001a) concluded that, with the exception of one study, religious involvement (particularly within mainstream religious groups is either unrelated to psychosis, or negatively related to psychosis (i.e. the more religious experience less psychosis).

The pre-2000 articles reported on in Koenig’s (2009) review replicate the findings presented by Koenig’s earlier review (2001a). Of the six studies published post-2000 that were reviewed, one found that greater religiousness was associated with increased psychosis among schizophrenics; one reported mixed findings; while four found a significant association between religion and decreased psychosis, or improved recovery from psychosis (that is, religion was identified as a protective factor against psychotic disorders and religious coping was identified as a factor that helps to lessen psychotic symptoms).

Wong et al.’s (2006) systematic review explored the relationship between adolescent religiosity/spirituality and included psychological disorder (more specifically, schizophrenia) as a mental health outcome variable. As in the case of depression and anxiety, results pertaining specifically to the religion–psychosis link were not specified by the authors, although there was considerable evidence of a positive association between adolescent religiosity/spirituality and mental health.

d Psychological adjustment and ability to cope with stress/trauma

Table 5 summarises the findings of the review articles consulted in relation to the link between religion/belief and psychological adjustment or ability to cope with stress and trauma.

Table 5: The relationship between religion/belief and psychological adjustment or coping

Measure of religion/belief	Predominantly beneficial – good adjustment/coping	Predominantly harmful – poor adjustment/coping	Mixed
Positive religious coping (Ano & Vasconcelles 2005)	1	0	0
Negative religious coping (Ano & Vasconcelles 2005)	0	1	0

Unspecified religious coping (Baldacchino & Draper 2001; Thuné-Boyle et al. 2006).	1	0	1
Intrinsic religiosity (Shaw et al. 2005)	1	0	0
Prayer (Beuscher & Beck 2008)	1	0	0
Religious social support (Shaw et al. 2005)	1	0	0
Institutional religiosity (Hackney & Sanders 2003)		0	1
Personal religious devotion (Hackney & Sanders 2003)	1	0	0
Religiousness (Hackney & Sanders 2003; Koenig 2000a; van Ness & Larson 2002)	2	0	1
Religious attendance/activity (Beauscher & Beck 2008; Shaw et al. 2005)	2	0	0

Summary: The detailed findings presented below generally indicate that religion/belief can help individuals in adjusting to stress and/or trauma (including illness or loss). More specifically, individuals who use positive religious coping strategies and have an intrinsic religious orientation are more likely to adjust well to stress and/or trauma, whilst those who use negative religious coping strategies may experience poor psychological adjustment.

Ano and Vasconcelles' (2005) meta-analysis examined evidence of a link between religious coping and psychological adjustment to stress. The findings indicated that the impacts of religious coping depended on whether individuals engaged in positive or negative religious coping strategies. A modest inverse relationship was found to exist between positive religious coping and negative psychological adjustment (-0.12), providing evidence that individuals who used positive religious coping strategies experienced improved psychological adjustment to stress. A modest relationship was also found to exist between negative religious coping and negative psychological adjustment (0.22). The authors concluded that positive religious coping strategies may serve adaptive functions,

whilst negative religious coping strategies place an additional burden on people already experiencing stressful situations.

Baldacchino and Draper's (2001) comprehensive review of the research-based literature examined the use of spiritual or religious coping strategies in response to life-threatening illnesses. The authors concluded that whilst the onset of illness can make individuals feel a lack of control over their lives, spiritual coping strategies can increase their sense of self-empowerment and improve their ability to adjust to the stress/trauma of illness.

Beuscher and Beck's (2008) comprehensive review examined the role of spirituality in coping with early stage Alzheimer's disease. The review indicated that people with early stage Alzheimer's disease frequently use prayer and attendance at places of worship as spiritual coping mechanisms, and that spirituality plays an important role in helping them to find meaning while living with Alzheimer's disease, and can improve quality of life.

Hackney and Sanders' (2003) meta-analysis sought to clarify the proposed relationship between religiosity and psychological adjustment. The authors concluded that religiosity has a salutary relationship with psychological adjustment if variations in the types of religiosity are not taken into account. They observed an overall pattern indicating that institutional religiosity had the weakest correlations with psychological adjustment (and in some cases had negative correlations), whilst personal religious devotion produced the strongest correlations.

Koenig's (2000a) review of studies focused on a negative association between religiosity and health and reported that there is some evidence that religiosity can worsen the effects of certain life stressors. Thus, while religiosity may help individuals to cope with problems that result from sources outside of the individual (such as poor health or financial problems), it can worsen individuals' ability to cope with family stressors which may be attributed to personal or spiritual shortcomings.

Shaw et al.'s (2005) comprehensive review of the literature considered how religion or spirituality could be associated with post-traumatic growth. The authors concluded that religious and spiritual beliefs and behaviours can help people to recover psychologically from trauma, and can improve their personal growth following trauma. Whilst religious participation appears to be beneficial, intrinsic aspects of religiosity and spirituality are more closely associated with post-traumatic growth, as they provide a sense of meaning and purpose. The social support provided by some religious groups can also assist with post-traumatic growth.

Thuné-Boyle et al.'s (2006) systematic review examined the potential beneficial and/or harmful effects of religious and spiritual coping on people with cancer, including the extent to which it could help them to adjust to their illness. Seven of the 17 studies reviewed found a significant relationship between religious coping and reduced distress or improved adjustment to illness. Religious coping helped to maintain self-esteem, providing a sense of meaning, purpose and hope, and gave emotional comfort. However, seven studies had non-significant results, and three found that religious coping could negatively affect adjustment to illness in people with cancer.

Van Ness and Larson's (2002) comprehensive review of epidemiological and survey research on the relationship between religiousness/spirituality and mental health at the end of life observed that religious and spiritual resources can help individuals to manage pain during illness, and can also improve life satisfaction and emotional wellbeing during illness (including terminal illnesses).

e Suicide risk/attempts

Table 6 summarises the findings of the review articles consulted in relation to the link between religion/belief and suicide.

Table 6: The relationship between religion/belief and suicide

Measure of religion/belief	Predominantly beneficial – decreased suicide risk	Predominantly harmful – increased suicide risk	Mixed
Religious coping (Cotton et al. 2006)	1	0	0
Intrinsic religiosity (Cotton et al. 2006)	1	0	0
Religious influence on decision making (Cotton et al. 2006)	1	0	0
Religiousness (Koenig 2009; Koenig 2001a; Moreira-Almeida et al. 2006; Rew & Wong 2006; van Ness & Larson 2002)	5	0	0
Religious involvement (Koenig 2009)	1	0	0
Religious attendance/activity (Moreira-Almeida et al. 2006; van Ness & Larson 2002)	2	0	0

Summary: The detailed findings presented below indicate that religion/belief is positively associated with decreased suicide risk and with more negative attitudes towards suicide, including among the high-risk adolescent group. None of the review articles found any evidence of a link between religion/belief and increased suicide risk.

Cotton et al.'s (2006) article reviewed studies assessing how proximal domains of religion/spirituality (such as religious coping and religious decision-making) impact on adolescent health. Two studies considered the link between religion/spirituality and suicide risk, with one finding that personal religious commitment was associated with a decreased risk of suicide, and the other finding that religious influence of decision-making was inversely related to suicide risk. The authors concluded that intrinsic religiosity/spirituality may be associated with a decreased risk of suicide among adolescents.

Koenig's (2001a) comprehensive and systematic review of 20th-century research on the relationship between religion and mental health included 68 studies that examined suicide rates, or attitudes towards suicide, according to levels of religious involvement. Of those studies, 57 (83.8 per cent) found less incidences of suicide and/or more negative attitudes towards suicide among more religious people. Of the remaining 11 studies, nine showed no significant relationship and two reported mixed results.

The pre-2000 articles reported on in Koenig (2009) replicated the findings presented by Koenig (2001a). Of the four studies published post-2000 that were reviewed, all showed a significant positive relationship between indicators of religiousness and decreased suicide. The author concluded that the most important factor influencing this relationship is that religious doctrines typically prohibit suicide, although religion may also provide comfort, meaning and social support.

Moreira-Almeida et al. (2005) claimed that studies using aggregate (ecological) level data tend to show that the level of religious involvement in a given area is inversely related to that area's suicide rate. Similarly, individual-level studies suggest that religious involvement is inversely correlated with suicide deaths. The authors reviewed two recent articles documenting an inverse relationship between religious commitment and religious attendance and suicide rates. They also found, on the basis of four additional studies, that religious involvement is associated with negative attitudes towards suicide and with less suicide attempts.

Rew and Wong (2006) systematically reviewed the literature on the relationship between religiosity/spirituality and adolescent health attitudes and behaviours. Four of the studies reviewed specifically considered the relationship between religiosity/spirituality and attempted suicide/suicidal ideation. The authors did not draw any conclusions relating to suicide specifically, but rather made the general statement that in 84 per cent of the 43 studies reviewed, measures of religiosity/spirituality had positive effects on the health attitudes and behaviours of adolescents.

Van Ness and Larson’s (2002) comprehensive review of epidemiological and survey research on the relationship between religiousness/spirituality and mental health at the end of life, included suicide as an outcome variable. The authors claimed that, in general, studies have found that the greater the percentage of residents in a region participating in religious organisations, the lower the suicide rates in that area. Similarly, subjective measures of religiousness have been linked to more negative attitudes towards suicide.

f General mental health and/or general psychological wellbeing

Table 7 summarises the findings of the review articles consulted in relation to the link between religion/belief and general mental health and/or psychological wellbeing

Table 7: The relationship between religion/belief and general mental health and/or psychological wellbeing

Measure of religion/belief	Predominantly beneficial – good mental health	Predominantly harmful – poor mental health	Mixed
Institutional religiosity (Wong et al. 2006)	1	0	0
Religious involvement (Koenig 2001a; Moreira-Almeida et al. 2005)	2	0	0
Religiousness (Koenig 2001a; van Ness & Larson 2002; Wong et al. 2006)	3	0	0
Religious attendance/activity (DeHaven et al. 2004)	1	0	0

Summary: The detailed findings discussed below indicate that religion/belief is positively associated with improved mental health and/or psychological wellbeing (including happiness, positive morale, life satisfaction, hope, optimism and so on). None of the review papers indicated that religion/belief exerts a predominantly negative effect on overall mental health.

DeHaven et al.'s (2004) review considered the impact of faith-based health programs on various aspects of health, including general mental health/mental illness. Of the two studies for which statistics were reported, both found a significant relationship between involvement in faith-based health programs and decreased symptoms and complaints of mental illness.

Koenig's (2001a) comprehensive and systematic review of 20th-century research on the relationship between religion and mental health included 100 studies that examined the impact of religious beliefs and practices on general psychological wellbeing (including factors such as life satisfaction, happiness, positive affect and morale). Of those 100 studies, 70 reported only significant positive correlations between religion and psychological wellbeing; 13 found no association; seven reported mixed findings; and only one study found a negative relationship. Ten of these 100 studies were cohort studies, nine of which reported that religious characteristics at baseline predicted greater psychological wellbeing over time. The author concluded that although many of the correlations reported were modest, they often equalled or exceeded those between psychological wellbeing and other psychosocial variables such as marital status, income and social support. This article also reported on 15 studies examining the relationship between religiousness and hope/optimism. Of these, 12 reported a significant positive association between these variables; two found no association. No studies reported that religious people were less optimistic or hopeful than the non-religious. Finally, 16 studies were located examining the relationship between religious involvement and a sense of purpose or meaning. Of those, 15 reported a significant positive association and one study found no association.

The total number of articles reviewed by Moreira-Almeida et al. (2005) in relation to the link between religion and psychological well-being was unclear. However, the authors observed that several recent studies have found that spirituality is positively associated with psychological wellbeing. They claimed that this positive association has been observed in sample populations from different countries involving people from diverse religions and races, and across different age groups. Some studies have shown, however, that the positive impact of religious involvement on psychological wellbeing is more robust among elderly, disabled and medically ill people, suggesting that the buffering effects of religious involvement may be more pronounced among people experiencing stressful life circumstances. The authors concluded that the existing research demonstrates that religious involvement has protective effects in relation to a wide range of outcomes association with psychological wellbeing.

Van Ness and Larson (2002) claimed that, within the studies reviewed, elderly religious persons generally reported higher levels of psychological wellbeing and life satisfaction than the non-religious. They concluded that the effects of religion on mental health among the elderly are generally protective, but modest in strength.

Wong et al. (2006) reviewed the impacts of religion/spirituality on adolescent mental health. The authors reported that 90 per cent of the 20 studies reviewed indicated that higher levels of religiousness/spirituality were associated with better general mental health in adolescents. One study reported no significant relationship and the other reported mixed findings. They observed that institutional and existential aspects of religion/spirituality displayed the most robust associations with improved mental health. Furthermore, the relationships between religion/spirituality and mental health were generally stronger for males and in older adolescents than for females and younger adolescents.

g Self-esteem

Table 8 summarises the findings of the review articles consulted in relation to the link between religion/belief and self-esteem.

Table 8: The relationship between religion/belief and self-esteem

Measure of religion/belief	Predominantly beneficial – higher self-esteem	Predominantly harmful – lower self-esteem	Mixed
Unspecified religious coping (Ano & Vasconcelles 2005)	1	0	0
Religiousness (Koenig 2000a; Moreira-Almeida et al. 2005; Wong et al. 2006)	2	1	0

Summary: Only a small number of studies reviewed the link between religion/belief and self-esteem. A positive relationship between religion/belief and high self-esteem was most commonly reported.

The meta-analysis conducted by Ano and Vasconcelles (2005) examined evidence of a link between religious coping and psychological adjustment to stress. In relation to self-esteem, the authors concluded that individuals who used religious coping strategies generally reported higher self-esteem. They also observed that negative religious coping did not appear to be related to lower self-esteem.

Koenig's (2000a) review claimed that a number of studies have found negative associations between religion and mental health, including evidence of a significant negative association between orthodox religious belief and self-esteem. This finding was not explained in further detail.

Moreira-Almeida et al. (2005) reported that most of the studies reviewed found a positive association between religiosity and psychological wellbeing, including self-esteem. Indeed, 16 of 29 studies reported a significant positive association between religiosity and self-esteem, with only one study reporting a negative association.

Finally, Wong et al. (2006) reviewed the impacts of religion/spirituality on adolescent mental health. The authors claimed that studies on adolescent outcomes indicate that more religious adolescents have higher levels of self-esteem, although they did not specify how many studies provided evidence to support this link.

The above discussion has indicated that, in many instances, religion and belief have positive effects in relation to a range of mental health variables. Possible explanations for such positive effects are considered in Section 7.5.

7.3 Evidence of the relationship between religion/belief and physical health

The review articles identified for inclusion in this report considered several aspects of physical health including: mortality (six articles¹³); cardiovascular disease (five articles¹⁴); HIV/AIDS (two articles¹⁵); physical disability, physical dysfunction and/or pain (three articles¹⁶); cancer (four articles¹⁷); hypertension and/or blood pressure (three articles¹⁸); and immune and neuroendocrine function (three articles¹⁹). The key findings of each of review paper in relation to these areas are reported below. As for the mental health findings, summary tables and boxes are provided for each variable.

a Mortality

Table 9, summarises the findings of the review articles consulted in relation to the link between religion/belief and mortality/longevity.

¹³ Aukst-Margetic & Margetic 2005; Koenig 2001b; Koenig 2000a; McCullough et al. 2000; Powell et al. 2003; Townsend et al. 2002.

¹⁴ Aukst-Margetic & Margetic 2005; DeHaven et al. 2004; Koenig 2001b; Powell et al. 2003; Sloan & Bagiella 2002.

¹⁵ Aukst-Margetic & Margetic 2005; Gray 2004.

¹⁶ Aukst-Margetic & Margetic 2005; Koenig 2001a; Powell et al. 2003.

¹⁷ Aukst-Margetic & Margetic 2005; DeHaven et al. 2004; Koenig 2001b; Powell et al. 2003.

¹⁸ Koenig 2001b; Sloan & Bagiella 2002; Townsend et al. 2002.

¹⁹ Koenig 2001b; Koenig 2000b; Townsend et al. 2002.

Table 9: The relationship between religion/belief and mortality/longevity

Measure of religion/belief	Predominantly beneficial – improved longevity	Predominantly harmful – decreased longevity	Mixed
Religious commitment (Aukst-Margetic & Margetic 2005)	1	0	0
Unspecified religious coping (Powell et al. 2003)	0	0	1
Religious involvement (McCullough et al. 2000; Townsend et al. 2002)	2	0	0
Religious denomination (Koenig 2000a)	0	1	0
Religiousness (Koenig 2001b; Koenig 2000a)	1	1	0
Religious attendance/activity (Aukst-Margetic & Margetic 2005; Koenig 2001b; McCullough et al. 2000; Powell et al. 2003; Townsend et al. 2002)	5	0	0

Summary: As discussed on the following pages, there appears to be a positive relationship between religion/belief and longevity. Religious attendance appears to be more strongly related to decreased mortality than private religiousness. This relationship is potentially confounded by the observation that healthier people are more likely to attend religious services/activities.

Aukst-Margetic and Margetic (2005) concluded that the majority of the literature demonstrates that religious commitment may increase longevity. Data from most of the studies reviewed showed that measures of public religious involvement, such as religious attendance, may be more strongly related to health outcomes than private religiousness (measured as self-rated religiousness, frequency of private prayer and use of religion as a coping resource). The authors claimed that the relationship between religion and reduced mortality is not conclusive, largely due to the possible confound that healthy people may be more likely than unhealthy people to be involved in public religious activities. They concluded that further research is required to understand why some measures of religiousness are more strongly related to longevity than others.

Koenig's (2000a) review was limited to studies reporting on a negative association between religiosity and health. In relation to mortality, the author drew attention to the literature on the role of particular faiths in causing individuals to refuse medical care for themselves, or their children. Refusal of blood transfusions among Jehovah's Witnesses is one example of a religious practice cited by Koenig (2000a) that may lead to premature death, as is the practice of refusing to vaccinate children on religious grounds. Religiousness may also cause individuals to attribute their illnesses to spiritual beings, or to believe that God will cure them without need for medical intervention. However, the author concluded that the literature documenting the negative effects of religion on health (including on mortality) is heavily reliant on opinion and anecdotal case reports rather than empirical research.

Koenig's (2001b) comprehensive and systematic review of 20th-century research on the relationship between religion and physical health included 101 studies that quantitatively examined the relationship between religion and mortality. Of these, 52 studies assessed the impact of the level of religiousness on mortality; 47 studies assessed the impact of religious affiliation; and the remaining two studies were clinical trials. Of the 52 studies assessing the level of religiousness, 39 (75 per cent) found that people who were more religious had longer survival rates, 10 studies found no association, two reported mixed findings, and one found shorter survival rates. Thus, the majority of the studies reviewed found that greater religiousness predicts longer survival. Another consistent finding was that frequency of religious attendance predicted longer survival, at a level roughly equivalent to not smoking cigarettes (i.e. frequent religious attendance added as much as seven years to survival). Thirteen studies examined mortality rates among members of the clergy, with 12 finding that clergy survived longer than comparison groups.

McCullough et al.'s (2000) meta-analytic review examined the association of religious involvement with mortality. It found that religious involvement was significantly associated with lower mortality, and that people who had high levels of religious involvement were 129 per cent more likely to be alive at follow-up than people with lower levels of religious involvement. The authors concluded that the relationship between religious involvement and mortality is robust and of a similar order of magnitude as that observed in relation to other psychosocial factors. The positive relationship between religious involvement and longevity appeared to be considerably greater for women than for men. The authors suggested that this may be related to 'differences in psychosocial resources that men and women receive from religious involvement' (McCullough et al. 2000, p. 220), although detail on the nature of such psychosocial resources was not provided. Studies that used public measures of religious involvement yielded larger effect sizes than those using private measures of

religiousness. The authors concluded that the correlational nature of the data make it impossible to draw causal inferences, but that religious involvement has a nontrivial, favourable association with all-cause mortality. They suggested that future research should focus on the mechanisms by which religious involvement may cause a favourable association with mortality.

Powell et al.'s (2003) comprehensive review of the literature explored the relationship between religion/spirituality and mortality. It found that, in healthy participants, there is a strong, consistent, prospective and (often) graded decline in the risk of mortality in people who attend places of worship/religious services. The magnitude of the reduction was approximately 25 per cent after adjusting for a range of confounders. Indeed, of the nine studies reviewed exploring the link between place of worship/service attendance and mortality among healthy individuals, seven (78 per cent) found a favourable relationship after adjustment for demographic, socioeconomic and health-related confounders. The authors concluded that place of worship/religious service attendance protects healthy people against death. Eight of the studies reviewed tested whether the depth of religiousness affected longevity, but the authors concluded that there was no evidence of a link between depth of religiousness and physical health. The authors also used the literature to explore whether use of religious coping promotes greater longevity, but concluded that there is currently inadequate data to draw conclusions about this relationship.

The main finding of Townsend et al.'s (2002) review, in relation to mortality, came from two large prospective cohort studies which found that attendance at places of worship (on at least a weekly basis) was associated with decreased mortality; as well as two recent cross-sectional studies which showed that religious involvement among older adults was associated with lower mortality for both men and women. The authors concluded that such observations are consistent with the existing literature, and that several studies in multiple cultures suggest that religious activity is associated with survival.

b Cardiovascular health

Table 10 summarises the findings of the review articles consulted in relation to the link between religion/belief and cardiovascular health.

Table 10: The relationship between religion/belief and cardiovascular health

Measure of religion/belief	Predominantly beneficial – improved cardiovascular health	Predominantly harmful – decreased cardiovascular health	Mixed
Religious denomination (Koenig 2001b)	0	1	0
Religiousness (Aukst-Margetic & Margetic 2005; Koenig 2001b)	1	0	1
Religious attendance/activity (DeHaven et al. 2004; Powell et al. 2003)	1	0	1

Summary: A number of review papers support a relationship between religion/belief and improved cardiovascular health. However, the evidence is more mixed than that presented in relation to overall mortality. Whilst there is minimal evidence suggesting that religion/belief can worsen cardiovascular health, a number of studies reported no association.

Aukst-Margetic and Margetic’s (2005) review examined the literature on epidemiological and clinical studies of the relationship between religiosity and both physical and mental health. They claimed that the evidence linking religion and cardiovascular health is mixed and that further research is required before conclusions can be drawn.

DeHaven et al.’s (2004) review considered the impact of faith-based health programs on various aspects of health, including cardiovascular health (eight studies). Of those eight studies reviewed, four reported a significant positive association between faith-based health programs and the cardiovascular health of participants. The remaining four studies did not provide any evidence upon which to draw a conclusion. The authors concluded that significant reductions in cholesterol and blood pressure levels have resulted from some faith-based health programs.

Koenig’s (2001b) comprehensive and systematic review of 20th-century research on the relationship between religion and physical health included 32 studies that examined the impact of religion on heart disease. Sixteen of the 32 studies examined how the level of religiousness impacts on heart disease, while another 16 explored the relationship between religious denomination and heart disease. In relation to the former group of studies, 12 (75 per cent) found that there was less heart disease and/or lower rates of cardiovascular mortality among more religious individuals; three

studies found no association and one reported mixed findings. Two of these were prospective cohort studies, and found that greater religiousness at baseline predicted lower rates of cardiovascular mortality. Of the latter group of studies (exploring the impact of religious denomination), a key finding was that higher rates of cardiovascular disease were present in Jewish participants when compared to non-Jewish participants. No explanation for this finding was presented by the author.

Powell et al.'s (2003) comprehensive literature review explored the relationship between religion/spirituality and cardiovascular disease. The authors were only able to find four well-designed prospective studies that examined this relationship. They concluded that the some aspects of religion/spirituality (most likely weekly attendance at places of worship/religious services) protect against cardiovascular disease. However, the authors claimed that more longitudinal studies of the relationship are required.

Sloan and Bagiella's (2002) review examined the literature on cardiovascular disease and religion. They claimed that there is virtually no evidence of a link between religious activity, religious involvement and beneficial heart disease outcomes. They also argued that existing reviews of the literature reporting a positive effect of religious involvement on cardiovascular disease are either based on flawed studies, or have misinterpreted study findings.

c HIV/AIDS

Table 11 summarises the findings of the review articles consulted in relation to the link between religion/belief and HIV/AIDS.

Table 11: The relationship between religion/belief and HIV/AIDS

Measure of religion/belief	Predominantly beneficial – decreased likelihood of contraction or improved immune function	Predominantly harmful – increased likelihood of contraction or poorer immune function	Mixed
Religious involvement (Aukst-Margetic & Margetic 2005)	0	1	0
Religious denomination (Gray 2004)	1	0	0
Religious attendance/activity (Aukst-Margetic & Margetic 2005)	1	0	0

Summary: Only two of the papers reviewed explored the relationship between religion/belief and HIV/AIDS. It is not possible to draw definitive conclusions on the basis of this small dataset. However, the evidence presented suggests that social support offered by religious communities can improve immune function among HIV/AIDS patients (by decreasing stress). However, criticisms or judgement from religious institutions can have the opposite effect. Religiosity may also decrease the likelihood of a person contracting HIV/AIDS due to constraints on sexual activity.

Aukst-Margetic and Margetic (2005) claimed that there is evidence that factors which act to reduce psychological stress and increase social support can affect the course of HIV/AIDS progression by improving immune function. Only one study was reviewed exploring this relationship, and it reported that religious activities were associated with significantly higher CD4+ counts (lower counts reflect a diminished capacity to fight infection). The authors noted that religion/spirituality can also contribute to increased anxiety, depression and guilt among HIV positive individuals in situations where religious institutions are critical of their lifestyles and sexual orientation.

Gray's (2004) article is a comprehensive review of the empirical literature on data about HIV prevalence and religious affiliation. Six of the seven studies reviewed indicated that there was a negative relationship between HIV prevalence and being Muslim. The author argued that religious constraints on sexuality may have consequences for the transmission of sexually transmitted diseases, including HIV/AIDS.

None of the papers explored whether the banning of contraception use by certain religions can increase the incidence of HIV transmission.

d Physical disability and pain

Table 12 summarises the findings of the review articles consulted in relation to the link between religion/belief and physical disability and/or pain.

Table 12: The relationship between religion/belief and physical disability/pain

Measure of religion/belief	Predominantly beneficial – decreased disability/pain	Predominantly harmful – increased disability/pain	Mixed
Religious attendance/activity (Koenig 2001b)	1	0	0
Religiousness (Aukst-Margetic & Margetic 2005)	1	0	0
Prayer (Koenig 2001b)	0	0	1

Summary: The findings reported in relation to physical disability, pain and religion/belief are based on only three review articles. The findings presented in those papers are mixed, particularly in relation to the role of prayer. There is some evidence that religious attendance can delay the onset and progression of physical disability. This is most likely due to the exercise undertaken when travelling to places of worship/religious activities.

Aukst-Margetic and Margetic (2005) reported that the relationship between physical illness and functional disability may be moderated by an individual's level of religiosity – that is, among individuals with greater levels of religiosity, a higher degree of physical illness is required to produce the same level of perceived disability and vice versa. This observation was, however, based on only one study.

Koenig's (2001b) comprehensive and systematic review of 20th-century research on the relationship between religion and physical health included 10 studies on the relationship between religion and pain, most of which measured the impact of prayer on pain intensity. Four out of six cross-sectional studies reviewed reported that more frequent prayer was associated with increased pain intensity. Koenig (2001b) argued that this relationship can be explained by a tendency for people in great pain to pray more frequently rather than vice versa, and that prospective studies and clinical trials are needed to clarify the nature of this relationship. Only one prospective study was included in the review, and it indicated that increased prayer predicted significantly lower levels of pain after eight weeks. Two additional studies found that the use of prayer as an intervention with patients resulted in a significant lowering of pain over time. The author concluded that prayer may help individuals to cope better with pain. This article also included 12 studies focused on the relationship between functional disability and religious involvement. It presented some evidence that frequent religious attendance can delay the onset and progression of physical disability, but personal religiousness does not appear to have a similar impact.

Powell et al.'s (2003) comprehensive review of the literature explored the relationship between religion/spirituality and physical disability. It reviewed three well-controlled prospective studies that tested this relationship in elderly populations. None of the studies found any relationship between religion/spirituality and the progression or onset of disability.

e Cancer

Table 13 summarises the findings of the review articles consulted in relation to the link between religion/belief and cancer.

Table 13: The relationship between religion/belief and cancer

Measure of religion/belief	Predominantly beneficial – decreased cancer mortality	Predominantly harmful – increased cancer mortality	Mixed
Religious denomination (Aukst-Margetic & Margetic 2005; Koenig 2001b)	2	0	0
Religious support (Aukst-Margetic & Margetic 2005)	1	0	0
Religious attendance/activity (DeHaven et al. 2003)	0	0	1
Religiousness (Aukst-Margetic & Margetic 2005; Koenig 2001b)	1	0	1

Summary: The discussion below suggests that the evidence in relation to religiousness and cancer is mixed. Whilst there is no evidence that religiousness increases likelihood of cancer, a number of review papers reported no association. However, there does appear to be an association between some religious denominations and decreased incidences of cancer, most likely due to the health promoting behaviours encouraged by those religions (such as abstinence from alcohol consumption and smoking).

Aukst-Margetic and Margetic (2005) observed that lower rates of cancer morbidity are found among some religious groups (such as Mormons) and may be attributed to the health behaviours promoted by these religions (such as low/no alcohol consumption and tobacco use). They also claimed that the social support apparent in religious communities may enhance immunity and reduce stress (which has been linked to carcinogenesis). The overall evidence presented in the article indicates that the relationship between religiousness and cancer is mixed, with some studies reporting a favourable relationship, whilst others report a detrimental relationship or no relationship at all.

DeHaven et al.'s (2004) review considered the impact of faith-based health programs on various aspects of health, including cancer (eight studies). Of those eight studies reviewed, four were

focused on breast cancer, three on prostate cancer and one on cervical cancer. Among the four breast cancer studies, two reported a significant positive association between faith-based health programs and screening for breast cancer and/or seeking of treatment. The remaining two studies did not report statistics upon which a conclusion about the relationship could be drawn. In relation to prostate cancer, only one of the three studies reported a significant positive association, and the remaining two did not report statistics. The cervical cancer study also did not report statistics.

Koenig's (2001b) comprehensive and systematic review of 20th-century research on the relationship between religion and physical health included 13 studies on the relationship between religion and the risk of cancer. Ten of these studies focused on the effect of religious denomination, and only three considered the effect of degree of religious involvement on cancer risk – two of which reported lower rates of cervical cancer in the more religious (the third found no relationship). An additional 36 studies considered the relationship between cancer mortality and religion, with most (28) again examining the impact of religious denomination. A consistent finding (as in the case of cancer risk) was that there is a favourable relationship between the Mormon and Seventh Day Adventist religions and reduced cancer mortality. Seven studies examined the relationship between the degree of religiousness and cancer mortality, five of which reported a favourable relationship (i.e. greater religiousness predicted lower likelihood of dying from cancer). The remaining two studies found no effect.

Powell et al.'s (2003) comprehensive review of the literature explored the relationship between religion/spirituality and cancer mortality. It found only two studies that examined this relationship, both of which found a favourable relationship between attendance at places of worship and decreased cancer mortality. However, in both cases the relationship became non-significant when adjustments were made for pre-existing health status and other potential confounders. Six additional studies were reported upon by the authors which explored the relationship between religion/spirituality and the progression of cancer. In five out of six studies, no significant association was observed. In the sixth study, a favourable relationship was reported between being a Seventh Day Adventist and survival, but this relationship became non-significant after adjustment for confounders. The authors concluded that there is little evidence to suggest that religion/spirituality slows the progression of cancer.

Note: Although Thuné-Boyle et al. (2006) systematically reviewed the effects of religious/spiritual coping on illness adjustment for people with cancer, it is not reported on here because the findings related to mental health outcomes (i.e. adjustment/coping with illness) rather than the physical health outcomes (such as disease progression, risk of cancer and cancer mortality).

f Hypertension and blood pressure

Table 14 summarises the findings of the review articles consulted in relation to the link between religion/belief and hypertension or blood pressure.

Table 14: The relationship between religion/belief and hypertension or blood pressure

Measure of religion/belief	Predominantly beneficial – decreased BP/hypertension	Predominantly harmful – increased BP/hypertension	Mixed
Intrinsic religiosity (Townsend et al. 2002)	1	0	0
Religious attendance/activity (Koenig 2001b; Townsend et al. 2002)	2	0	0
Religiousness (Koenig 2001b)	1	0	0

Summary: The findings in relation to religion/belief, hypertension and blood pressure appear to be positive, although based on a small number of review papers. None of the papers suggested that religion/belief increases the likelihood of high blood pressure or hypertension and some associated religiousness, religious attendance and intrinsic religiosity with decreased risk.

Koenig’s (2001b) comprehensive and systematic review of 20th-century research on the relationship between religion and physical health identified 34 studies on the relationship between religion and blood pressure. Of those studies, 16 assessed the impact of level of religiousness and 13 studies were clinical trials in which a spiritual intervention (such as meditation/prayer) was used to treat high blood pressure. Of the 16 studies examining the effects of level of religiousness, 14 found lower blood pressure among the more religious (87.5 per cent). Of the 13 clinical trials, nine (69.2 per cent) found that spiritual interventions lowered blood pressure.

Sloan and Bagiella’s (2002) review examined the literature on hypertension and religion. As in the case of cardiovascular disease, the authors claimed that there is virtually no empirical evidence of a link between religious activity/involvement and beneficial health outcomes, given the flawed nature of the existing studies.

Townsend et al. (2002) claimed that evidence from recent non-randomised controlled trials (non-RCTs) demonstrates that religion has a beneficial effect on blood pressure. Religious activity and intrinsic religiosity both appear to have salient effects. They also noted that Islamic-based psychotherapy may have a beneficial impact on blood pressure.

g Immune and neuroendocrine function

Table 15 summarises the findings of the review articles consulted in relation to the link between religion/belief and immune and neuroendocrine function.

Table 15: The relationship between religion/belief and immune and neuroendocrine function

Measure of religion/belief	Predominantly beneficial – improved function	Predominantly harmful – poorer function	Mixed
Religious activity/attendance (Townsend et al. 2002)	1	0	0
Religiousness (Koenig 2001b; Koenig 2000b; Townsend et al. 2002)	2	0	1

Summary: The findings in relation to religion/belief and immune and neuroendocrine function appear to be mixed, although there is some tentative evidence of a beneficial relationship based on a small number of review papers. This is most likely related to observations that religion/belief helps individuals to cope with stress, reducing stress-related hormones.

Koenig’s (2000b) review article specifically focused on the relationship between religion and immune and neuroendocrine function. The author argued that religion can improve physical health through neuroendocrine and immune mechanisms and claimed that the small existing body of literature on this topic substantiates this link. Of the five studies reviewed relating to immune function, two reported a positive relationship, two reported mixed findings and one had unclear findings. Of the 11 studies reviewed relating religion to neuroendocrine function, nine reported positive findings (81.8 per cent). The author concluded that because religious practices help people to cope with stress and illness, they reduce stress-related hormone levels and improve immune and neuroendocrine function.

Koenig's (2001b) comprehensive and systematic review of 20th-century research on the relationship between religion and physical health identified five studies examining the impact of religious involvement on immune function, and 11 relating to neuroendocrine function. The author concluded that the study of religion/spirituality and immune/neuroendocrine function is still in its infancy and that only tentative claims can be made regarding the salutary effects of religion.

Townsend et al. (2002) claimed that evidence from recent non-RCTs demonstrates that religion has a beneficial effect on immune function. They also noted that Islamic-based psychotherapy may have a beneficial impact on immune function.

The above discussion has provided evidence of some positive effects of religion and belief on physical health and wellbeing. However, these effects are less well supported by the literature than the positive mental health effects of religion. Possible explanations for the relationship between religion/belief and physical health are explored in Section 7.5. The section below explores the relationship between religion/belief and health-related behaviours.

7.4 Evidence of the relationship between religion/belief and health behaviours

The review articles included in this report identified several health behaviours that are influenced by religion/spirituality including: substance use/abuse (five articles²⁰); sexual activity (four articles²¹); cigarette smoking (three articles²²); and delinquency/criminal behaviours (two articles²³). The key findings of each of the review papers in relation to these areas are reported below. As for the mental and physical health findings, a summary table is provided for each of the health behaviours.

a Substance use/abuse – drugs and alcohol

Table 16 summarises the findings of the review articles consulted in relation to the link between religion/belief and substance use/abuse (including alcohol and drugs).

²⁰ Cotton et al. 2006; Koenig 2009; Koenig 2001a; Moreira-Almeida et al. 2005; Rew & Wong 2006.

²¹ Cotton et al. 2006; Gray 2004; Koenig 2001a; Rew & Wong 2006.

²² DeHaven et al. 2004; Koenig 2001a; Rew & Wong 2006.

²³ Koenig 2001a; Rew & Wong 2006.

Table 16: The relationship between religion/belief and substance (ab)use

Measure of religion/belief	Predominantly beneficial – decreased use/abuse	Predominantly harmful – increased use/abuse	Mixed
Spiritual coping (Cotton et al. 2006)	1	0	0
Spiritual connectedness (Cotton et al. 2006)	1	0	0
Religious involvement (Moreira-Almeida et al. 2005)	1	0	0
Religiousness (Koenig 2009; Koenig 2001a; Moreira-Almeida et al. 2005; Rew and Wong 2006)	4	0	0

Summary: The review papers consistently indicated that increased religiosity and/or religious involvement is associated with decreased drug and alcohol use or abuse. A number noted that this relationship exists during teenage/adolescent years, and that religion may therefore act as a protective factor for this high-risk group.

Cotton et al. (2006) specifically reviewed the association between religion/spirituality and adolescent health outcomes. The researchers claimed that the evidence is indicative of an inverse relationship between proximal domains of religion/spirituality and health risk behaviours in adolescents. That is, higher levels of spiritual connectedness, a strong relationship with God and the use of spiritual coping were associated with lower levels of substance use among adolescents.

Koenig's (2001a) comprehensive and systematic review of 20th-century research on the relationship between religion and health behaviours identified 56 studies that quantitatively tested the impact of religiousness on drug use. Four studies compared drug use among different religious groups (and were not described in the paper), and 52 tested the impact of level of religiousness on drug use. Most of the studies (48 out of 52, or 92.3 per cent) found that there were lower levels of drug use among more religious individuals, two studies reported no association, one study reported mixed results, and one study reported greater drug use among the more religious. Of the 48 studies that found lower levels of drug use among the more religious, 42 were conducted with adolescents or college students, suggesting that religiousness is a protective factor for individuals in this age group.

Koenig's (2001a) review article also identified 95 studies which quantitatively examined the religion–alcohol relationship. Nine of those studies examined the effects of religious denomination (and were not described in the paper) and 86 considered level of religiousness. Of those 86, 76 (88 per cent) reported that there was significantly less alcohol use and/or abuse among religious subjects; six studies found no association; two reported mixed results; and two found that alcohol use/abuse and religion were positively related. Importantly, four of those 76 studies were focused on the high-risk adolescent age group, including among college students.

Of the nine post-2000 studies identified by Koenig (2009), seven (77.8 per cent) reported an inverse relationship between religiousness and substance use/abuse, one reported severe levels of substance use among people from religious traditions promoting complete abstinence, and one reported that religions promoting abstinence may deprive people from the cardiovascular benefits of moderate, controlled drinking.

Moreira-Almeida et al. (2005) reported that of 120 identified studies published prior to 2000 that investigated the link between religiousness and alcohol or drug use/abuse, more than 80 per cent report a clear inverse relationship between these variables. According to the evidence, they concluded that the greater a person's level of religious involvement is, the lower the rates of drug and/or alcohol use/abuse are. Moreira-Almeida et al. (2005) concluded that these results are consistent for both adolescent and adult populations.

Rew and Wong's (2006) review considered how religiosity/spirituality impacts on adolescent health attitudes and behaviours. The authors concluded that religiosity and spirituality may be important determinants of adolescent health attitudes and behaviours, decreasing their involvement in risky behaviours such as alcohol and drug use. The authors did not provide details on the number of studies that provided evidence to support such a link.

b Sexual activity

Table 17 summarises the findings of the review articles consulted in relation to the link between religion/belief and sexual activity (including engagement in risky sexual activity and/or overall abstinence).

Table 17: The relationship between religion/belief and sexual activity

Measure of religion/belief	Predominantly beneficial – decreased (risky) sexual activity	Predominantly harmful – increased (risky) sexual activity	Mixed
Spiritual coping (Cotton et al. 2006)	1	0	0
Spiritual connectedness (Cotton et al. 2006)	1	0	0
Religiousness (Koenig 2001a; Rew and Wong 2006)	2	0	0
Religious denomination (Gray 2004)	0	0	1

Summary: The majority of the papers reviewed suggested that various aspects of religion/belief decrease early sexual activity and the likelihood of multiple partners, and may therefore act as a protective factor against sexually transmitted diseases.

Cotton et al. (2006) claimed that the evidence is indicative of an inverse relationship between proximal domains of religion/spirituality and health risk behaviours in adolescents. That is, higher levels of spiritual connectedness, a strong relationship with God and the use of spiritual coping were associated with lower rates of voluntary sexual activity among adolescents. Although voluntary sexual activity is not considered problematic from a public health perspective, decreased engagement in sexual activity may lower the potential for exposure to sexually transmitted infections.

Gray's (2004) review article considered the impact of adherence to the Islamic faith on HIV prevalence. The author concluded that evidence surrounding the link between Islam and sexual risk behaviours is ambiguous.

Koenig's (2001a) comprehensive and systematic review of 20th-century research on the relationship between religion and health behaviours identified 38 studies that quantitatively assessed the relationship between religion and extra-marital sexual attitudes and activity. The vast majority of the studies (37 of 38, or 97.4 per cent) found that religious individuals had significantly lower rates of extra-marital sexual activity, and significantly more negative attitudes towards non-marital sex, than

non-religious subjects. The vast majority of these studies (32) were undertaken among adolescents or college students, suggesting that religion is a protective factor for individuals in this age group. Again, although extra-marital sexual activity is not considered problematic from a public health perspective, decreased engagement in sexual activity may lower the potential for exposure to sexually transmitted infections.

Rew and Wong (2007) considered how religiosity/spirituality impacts on adolescent health attitudes and behaviours. The authors concluded that religiosity and spirituality may be important determinants of adolescent health attitudes and behaviours, decreasing their involvement in early sexual activity. The authors did not provide details on the number of studies that provided evidence to support such a link.

None of the papers discussed how the opposition to contraceptive use expressed by some religious institutions may impact on risky sexual behaviours and sexual health.

c Cigarette smoking

Table 18 summarises the findings of the review articles consulted in relation to the link between religion/belief and cigarette smoking.

Table 18: The relationship between religion/belief and cigarette smoking

Measure of religion/belief	Predominantly beneficial – decreased smoking	Predominantly harmful – increased smoking	Mixed
Religiousness (Koenig 2001a; Rew and Wong 2006)	2	0	0
Religious activities (DeHaven et al. 2004)	0	0	1

Summary: The papers reviewed support a positive relationship between religiousness and decreased likelihood of smoking. This relationship was found to be significant among adolescents / teenagers. However, these findings are based on a small number of review articles.

DeHaven et al. (2004) claimed that faith-based health programs generate significant improvements across a range of health-related behaviours, and may increase individuals' readiness to change their smoking habits. However, of the two studies reviewed, only one found that there was a significant relationship between faith-based health programs and behaviour change in relation to smoking. The

other reported that there was no significant relationship between engagement in such programs and ‘quit rates’.

Koenig’s (2001a) comprehensive and systematic review of 20th-century research on the relationship between religion and health behaviours identified 25 studies that quantitatively assessed the relationship between religiousness and smoking. Of these 24 (96 per cent) reported less smoking among the more religious, and 12 of those 24 studies were among adolescents or college students. The author concluded that religiousness helps to protect people from the onset of cigarette smoking in youth, with lifetime health benefits.

Rew and Wong (2006) considered how religiosity/spirituality impacts on adolescent health attitudes and behaviours. The authors concluded that religiosity and spirituality may be important determinants of adolescent health attitudes and behaviours, and tobacco use/cigarette smoking was identified as one of those risky behaviours. However, the authors did not provide details on the number of studies that provided evidence to support a link between religion and decreased smoking.

d Delinquency and/or criminal behaviours

Table 19 summarises the findings of the review articles consulted in relation to the link between religion/belief and delinquency and/or criminal behaviours

Table 19: The relationship between religion/belief and delinquency and/or criminal behaviours

Measure of religion/belief	Predominantly beneficial – decreased delinquency/criminality	Predominantly harmful – increased delinquency/criminality	Mixed
Religiousness (Koenig 2001a; Rew and Wong 2006)	2	0	0

Summary: Only a small number of the papers reviewed considered the relationship between religion/belief and delinquency or criminality. Those papers reported lower levels of delinquency and criminality among more religious individuals.

Koenig’s (2001a) comprehensive and systematic review of 20th-century research on the relationship between religion and health behaviours identified 36 studies exploring the link between religious involvement and delinquency or crime. Of these, 28 (78 per cent) reported significantly lower rates of delinquency and criminality among more religious individuals. Of the remaining eight studies, six

found no association, one had mixed results, and one reported a positive relationship between religion and increased delinquency.

Rew and Wong (2006) considered how religiosity/spirituality impacts on adolescent health attitudes and behaviours. The authors concluded that religiosity and spirituality may be important determinants of adolescent health attitudes and behaviours. Violence, aggression and weapon carrying were noted as some of those risky behaviours. The authors did not provide details on the number of studies that provided evidence to support a link between religion and decreased engagement in these delinquent and criminal activities.

The above discussion has provided considerable evidence of a positive relationship between religion/belief and decreased engagement in health risk behaviours. Possible explanations for this relationship are explored below.

7.5 Mechanisms by which religion/belief affects health and health behaviours

A number of the review articles identified for inclusion in this report considered the potential mechanisms by which religion/belief can influence health/wellbeing, but noted that there is limited empirical evidence to support the causal pathways underlying these associations. In particular, there is a lack of clarity on the direction of causality in the proposed relationship between religion and health. That is, does religion improve health – or are healthier people more likely to be involved in religion? Although most of the review papers supported the former hypothesis (i.e. religion improves health), further research is required in order to develop more conclusive evidence on the direction of causality. Physical and mental health are considered together in the following discussion, because the physical health benefits of religion/belief are often a result of mental health benefits (such as decreased stress).

a Physical and mental health

There are a number of potential mechanisms by which religion/belief may affect health and wellbeing. Importantly, all of the studies examined (and described below) suggested that the social support function fulfilled by religion is a likely mechanism by which positive health outcomes are promoted. Social support is not only beneficial in terms of mental health outcomes, but also appears to have a physiological impact by reducing the production of stress hormones, with beneficial effects for physical health. Further research into the link between religion, social support and health is required.

Hackney and Sanders' (2003) meta-analysis reviewed one study which assessed several possible mechanisms that could account for the positive impact of religion on health, including social

networks, healthier lifestyles, coping strategies, positive emotions and stress appraisal. Hackney and Sanders (2003) noted that the studies reviewed largely failed to address the issue of causality.

Koenig (2001b) suggested that religious beliefs and practices may impact health by decreasing the production of stress hormones and thus altering the risk of infection and cardiovascular disease, or improving immune and neuroendocrine function. The author argued that religious involvement may decrease stress by offering social support that acts as a protective factor against stressful life circumstances. However, Koenig (2001b) noted that some religious beliefs and practices that instil fear or arouse guilt may have the opposite effect – increasing psychological stress with negative effects on physical and mental health.

McCullough et al.'s (2000) meta-analytic review of the association between religious involvement and mortality also found evidence that religious involvement might help to buffer the impact of stress on physical and mental health. There is evidence that measures of public religious involvement are more strongly related to health outcomes, due to psychosocial support benefits and resources that religion provides.

Moreira-Almeida et al.'s (2005) review article proposed several mechanisms to explain the influence of religion on physical and mental health. Religion may provide psychosocial support and social cohesion (i.e. sense of belonging to a group and continuity in relationships) that promotes health. Social support can influence health by providing a supportive environment which assists individuals in adhering to health promotion programs or offers support in times of stress or difficulty, as well as buffering anxiety. Moreira-Almeida et al. (2005) also claimed that cognitive frameworks provided by religious beliefs could influence people's responses to stress and other problems and enhance positive emotions, including resilience, self-confidence, forgiveness and self-esteem. They suggested that the buffering effects of religious involvement may be more pronounced among people experiencing stressful life circumstances. On the other hand, some religious beliefs may cause negative emotions such as guilt, doubt, anxiety and depression. According to Moreira-Almeida et al. (2005), religious practices which help to support mental health and deal with destructive emotions, such as anxiety, fear, frustration, anger and isolation, are another mechanism by which religion can have a positive effect on health. In particular, numerous studies have cited the beneficial effects of meditation as a religious practice to reduce anxiety, diminish self-criticism, improve self-knowledge, reduce panic attacks, depression, insomnia, drug use, stress, chronic pain and other health problems (Moreira-Almeida et al. 2005).

Powell et al.'s (2003) comprehensive review suggested that religion/spirituality can impact on physical health by acting as a protective resource, preventing the development of disease in healthy people and buffering the impact of disease in patients through coping. Regularly attending a place of worship/service may encourage meaningful social roles and act as a mechanism for increasing self-worth and purpose. Similarly, regular attendance at places of worship may be linked to the experience of positive emotions. The authors also claimed that religion can protect against cardiovascular disease by promoting a healthy lifestyle (Powell et al. 2003).

Smith et al.'s (2003) meta-analysis found limited explanations for mechanisms underlying the link between religion and decreased depression. They proposed that a range of developmental factors (such as genetic and environmental influences) may influence religiousness and susceptibility to depression. Depressive symptoms (withdrawal, loss of energy and loss of interest in previously pleasurable activities) might also affect levels of religiousness. Social support, which is a proven buffer against the negative effects of stress, may explain how religiousness reduces depressive symptoms. Religious beliefs, such as those that assist people to find meaning in suffering, may also act as a coping mechanism for people who suffer physical and mental illness. In conclusion, the authors noted that the cross-sectional, non-experimental nature of the studies reviewed fails to shed sufficient light on the causal mechanisms that underlie the association between religion and depression.

An important part of the explanation for the mental and physical health benefits that are associated (to varying degrees) with religion is that religion appears to promote healthy behaviours (as explored in Section 7.4). But the question remains – what are the mechanisms by which religion/belief promotes such healthy behaviours? This question was considered in a number of the review papers explored.

b Health behaviours

Koenig (2001b) pointed to three mechanisms by which religious belief impacts health behaviours and lifestyle choices. First, religion may provide a more positive worldview that facilitates coping and therefore acts as a protective factor against alcohol or drug abuse and other risk-taking behaviours. Second, many religious teachings discourage health behaviours that harm the body, which may also act as a protective factor. Third, by providing a supportive social network that protects against stress, religion may reduce negative health behaviours and provide healthier alternatives for coping with stress.

Moreira-Almeida et al. (2006) maintained that religions that proscribe or prohibit certain behaviours may impact on health by promoting healthy behaviours and lifestyles, which in turn is a protective factor against many illnesses. Conversely, religious practices which prohibit the use of certain health care practices (such as vaccines, medication or blood transfusions) lead to risky health behaviours that may impact on health in a negative way.

Finally, Smith et al. (2003) suggested that religious beliefs and practices may provide a stress-buffering mechanism against engaging in negative health behaviours for people with depressive symptoms. However, they noted that this may be more pronounced among the more religious, who may seek comfort in religion when suffering from depression. Individuals with lower levels of religiousness may tend to engage in risky health behaviours such as substance use during times of distress.

This study did not explore the role of specific religious practices on health (for example meditation, chanting). However this may be a useful line for future inquiry.

As noted in the introduction to this report, the relationship between religion/belief and health only tells part of the story. That is, if we accept the evidence that religion and belief are health promoting, then it can be assumed that religious discrimination produces negative health outcomes. This hypothesis is explored in detail in Section 8.

8 How do religious and race-based discrimination affect health and wellbeing?

As argued in VicHealth's report *Building on our strengths: a framework to reduce race-based discrimination and support diversity in Victoria* (Paradies et al. 2009), discrimination on the grounds of race and/or religion often has a range of negative outcomes for individuals who experience it. It can "traumatise, hurt, humiliate, enrage, confuse, and ultimately prevent optimal growth and functioning of individuals and communities" (Harrell 2000, p. 42).

The comprehensive review of the literature undertaken for this report only identified 10 studies that explored the impact of religious discrimination on health and wellbeing – none of which were conducted in Australia. Those studies either directly measured religious discrimination, or made explicit that religious discrimination was included as a component of race-based discrimination. Summary information for those studies is provided in Appendix B. Nine of the studies reviewed focused on the mental health effects of religious discrimination, but only one considered the physical health implications. The potential impacts of religious discrimination on physical health and health behaviours have been under-explored.

As evidence surrounding the link between religious discrimination and health/wellbeing is minimal, and given the previously mentioned overlap between religious and race-based discrimination, a review of the literature on race-based discrimination and health was also conducted. In recent years, several systematic and comprehensive reviews of the literature have summarised the impacts of perceived race-based discrimination on the health of affected individuals. Rather than conducting an independent review of the literature for the purposes of this report, the findings of six key reviews identified from 1998 to 2009 are summarised here. The details of these reviews are included in Appendix C.

The much larger body of literature on race-based discrimination provides additional insight into the manner in which religious discrimination may affect health and wellbeing. However, further research specific to religious discrimination will be required in order to more fully understand how the impacts of race-based discrimination and religious discrimination both overlap and diverge.

8.1 Overview of findings

Seven of the 10 empirical studies reviewed reported that religious discrimination contributes to negative health outcomes²⁴; two did not conduct statistical tests upon which such conclusions could

²⁴ Bhui et al. 2005; Gold 2004; Montgomery 2008; Moradi & Hassan 2004; Sheridan 2006; Terheggen et al. 2001.

be drawn²⁵; and one reported mixed findings²⁶. The evidence suggests that religious discrimination increases depression and anxiety. There is also some evidence that religious discrimination is associated with subclinical paranoia, decreased life satisfaction and psychiatric disorder, although only one study was reviewed in each case. Only one paper linked religious discrimination to poor physical health outcomes, more specifically, premature birth and low birth-weight²⁷.

The empirical literature on religious discrimination reviewed here has some critical shortcomings. Nine of the 10 studies reviewed were cross-sectional in design, and only one was a longitudinal study (see Appendix B). There was also a heavy focus on particular ethno-religious groups, making it difficult to determine how religious discrimination may impact on others. The most common ethno-religious group upon which studies were based was Muslim/Middle Eastern, with one study focusing on Jewish women, one on multiethnic workers in the United Kingdom, and one on Tibetan (Buddhist) refugees in India (see Appendix B).

Six review articles were consulted regarding the relationship between race-based discrimination and health. Those articles consistently indicated that higher levels of self-reported race-based discrimination are associated with poor mental health outcomes and with a range of risky health behaviours. The association between race-based discrimination and poor physical health outcomes is more complex and the evidence is weaker (Krieger 2002; Paradies 2006). Problematically, much of the literature exploring the link between race-based discrimination and health is focused exclusively on African American populations. Additional studies are required that focus on more diverse ethnic/racial groups before the wider applicability of these relationships can be ascertained (Brondolo et al. 2003).

Overall, while there is an abundant body of literature examining the impacts of race-based discrimination on health and wellbeing, religious discrimination has been largely ignored as a separate variable (Sheridan 2006). It is critical to fill this research gap as there has been a dramatic increase in incidents of religious discrimination – particularly targeted at Muslims living in western countries – in recent years. In some instances, religious affiliation may be a more meaningful way of predicting discrimination than race or ethnicity (Sheridan 2003). Furthermore, for some individuals, religious discrimination may be even more distressing than other forms of discrimination.

²⁵ Hassouneh & Kulwicki 2007; Silveira & Allebeck 2001.

²⁶ Rippy & Newman 2006.

²⁷ Lauderdale 2006.

8.2 Evidence of the relationship between discrimination and mental health

A number of articles considered how religious and/or race-based discrimination affects mental health²⁸. Specific variables explored included: psychological or psychiatric distress, anxiety and depression, stress and/or post-traumatic stress, life satisfaction, self-esteem and subclinical paranoia. The findings of these studies are summarised below.

a Anxiety and depression

Several of the studies reviewed considered how religious and/or race-based discrimination may contribute to anxiety and depression. Table 20 summarises the findings of the empirical studies on religious discrimination, and the review articles on race-based discrimination in relation to anxiety and depression.

Table 20: The relationship between discrimination, anxiety and depression

Religious discrimination (empirical studies)	Increased anxiety	Increased depression
Gold (2004)	N/A ²⁹	Yes
Bhui et al. (2005)	Yes	Yes
Montgomery (2008)	Yes	Yes
Hassouneh & Kulwicki (2007)	Yes	Yes
Terheggen et al. (2001)	Yes	Yes
Silveira & Allbeck (2001)	N/A	Yes
Race-based discrimination (review articles)	Increased anxiety	Increased depression
Krieger (1999)	N/A	1 (of 1)
Williams & Williams-Morris (2000)	1 (of 2) ³⁰	2 (of 2)
Williams et al. (2003)	1 (of 1)	3 (of 4) ³¹
Paradies (2006)	15 (of 22) ³²	39 (of 52) ³³
Williams & Mohammed (2009)	4 (of 4)	18 (of 19) ³⁴

²⁸ Bhui et al. 2005; Gold 2004; Hassouneh & Kulwicki 2007; Krieger 1999; Montgomery 2008; Moradi & Hassan 2004; Paradies 2006; Rippey & Newman 2006; Sheridan 2003; Silveira & Allebeck 2001; Terheggen et al. 2001; Williams et al. 2003; Williams & Mohammed 2009; Williams & Williams-Morris 2000.

²⁹ This paper did not measure anxiety as a health outcome.

³⁰ The other study reviewed reported no significant association (either positive or negative).

³¹ The fourth study found no association.

³² The remaining seven studies did not report significant associations.

³³ The remaining 13 associations were not significant.

Note for Table 20: In relation to the empirical studies, the word 'yes' in a column indicates that a link was found between religious discrimination and increased anxiety/depression. For the review papers on race-based discrimination, the proportion of studies reporting a significant association is provided (e.g. in the case of Paradies 2006, 15 (of 22) studies reviewed reported that race-based discrimination is significantly associated with increased anxiety).

Summary: While earlier sections of this report provided evidence to support a link between religion/belief and decreased anxiety and depression, the results presented here indicate that religious and/or race-based discrimination are associated with increased anxiety and depression.

The following pages provide more detail on the empirical studies reviewed that detail the link between religious discrimination and anxiety/depression. Further detail on the review papers exploring the link between race-based discrimination and anxiety/depression is not provided.

Gold (2004) examined how anti-Semitic experiences impacted on mental health among a sample of 364 Jewish Canadian women³⁵. The study reported that a large number of anti-Semitic experiences was related to a higher depression score (on the BDI-II) among the sample population. Importantly, although the women involved in the study reported a higher frequency of sexist experiences than anti-Semitic ones, their sexist experiences were not positively associated with higher depression scores. According to Gold (2004), it is possible that the women experienced anti-Semitism as being more pernicious and threatening to their survival than sexism, or that they felt more hopelessness about their capacity to change anti-Semitic attitudes. This finding highlights the need for further research into the specific effects of religious discrimination on health and wellbeing, as it does not necessarily follow the same patterns as other forms of discrimination.

Bhui et al. (2005) examined the effects of racial discrimination (which they broadly defined to include discrimination on the basis of religion) on a nationally representative sample of 2054 working individuals in the United Kingdom. Perceived discrimination, both inside and outside of the workforce, was measured. The authors found that insults and unfair treatment at work, on the basis of race/religion, were significantly associated with a 2.0 and 2.3 times (respectively) greater risk of common mental disorders (including anxiety and depression) among those reporting such

³⁴ The remaining study found a conditional association.

³⁵ The types of anti-Semitic experiences most commonly reported by participants included: reading or hearing something that expressed a negative stereotype about Jews (99 per cent of respondents) and hearing an anti-Semitic joke (92 per cent). A total of 21 per cent reported being harassed because they were Jewish; 10 per cent reported having their home/office/personal property vandalised; and 9 per cent reported being assaulted/chased/physically hurt/beaten because they were Jewish.

experiences compared to those who did not report such experiences. They concluded that discrimination is a chronic daily stressor that contributes to ill health.

Montgomery (2008) examined the impacts of discrimination on 131 young (predominantly Muslim) Middle Eastern refugees in Denmark. It was not possible to determine how much of the discrimination experienced was due to religion as opposed to ethno-racial background. Nonetheless, the authors found that a stressful life in exile (in Denmark), including experiences of discrimination, was more predictive of psychological problems eight to nine years after arrival than traumatic experiences before arrival. Stressful experiences after arrival in Denmark (including experiences of discrimination) predicted more internalising behaviour (anxiety, withdrawal, dysphoria and depression) among the young refugees eight to nine years after arrival than did experiences from the home country. This is a shocking finding that requires further investigation.

Hassouneh and Kulwicki (2007) conducted an investigation into the impact of post-September 11 experiences of ethnic and religious discrimination among 30 Arab Muslim women in the United States. The findings indicated that Muslim women faced numerous stressors that impacted negatively on their mental health including discrimination, as well as acculturative stress and trauma. Almost two-thirds (63 per cent) of the women reported experiencing increased discrimination post September 11, 2001; 67 per cent reported experiencing more overall stress; and 77 per cent reported experiencing emotional distress either sometimes or most of the time during incidents of discrimination. The study did not provide sufficient detail to determine whether poor outcomes in relation to measures of depression and anxiety were *significantly* related to exposure to discrimination. No attempt was made to distinguish between discrimination based on ethnicity and religion (both were included).

Terheggen et al. (2001) examined how various traumatic experiences (including religious discrimination/persecution) impacted on rates of anxiety and depression among 76 Tibetan refugees living in an Indian refugee camp. Those participants who had experienced more traumatic experiences reported more symptoms of anxiety and depression. Traumatic experiences were ranked according to severity and frequency. Two of the top three most severe and frequent traumatic experiences were: destruction of religious signs and being forbidden to live according to one's own religion. These rankings demonstrate the importance of religion to Tibetans, as they were ranked more highly (in terms of severity and frequency) than personal experiences of danger, or the exposure of friends and relatives to danger. This study indicates how the denial of religious freedoms and religious persecution can contribute to poor mental health outcomes. It makes a case for greater recognition of cultural differences in perceptions of traumatic events, and suggests that people from

ethnically and religiously diverse backgrounds living in Australia may be more deeply affected by religious discrimination than secular members of the community may assume.

Silveira and Allebeck (2001) reported that several factors were perceived to increase vulnerability to depression among 28 male Somalis living in London. Perceived racial or religious discrimination was one of the factors considered. As the study was ethnographic it did not provide any quantitative evidence to support a link between discrimination on the grounds of religion and depression.

b Psychiatric disorder or psychological distress

Sheridan’s (2006) study of 222 Muslims living in the United Kingdom sought to determine whether religious discrimination was associated with diagnosable psychiatric disorder (measured via the GHQ-12 scale). A significant positive association was found between a GHQ-12 score of 4 or above (indicating the presence of a diagnosable psychiatric disorder) and the reporting of a specific abusive incident related to the September 11, 2001 terror attacks. A significant positive association was also found between a GHQ-12 score of 4 or above and high visibility as a Muslim, but no such association was found between participant ethnicity and mental illness (Sheridan 2006).

Moradi and Hasan (2004) examined how prejudice and discrimination against Arab Americans (the majority of whom were Muslim) impacted on psychological distress. A total of 108 Arab American individuals were included in the study. The authors concluded that there was a direct link between perceived discrimination and psychological distress among the study participants.

A number of the review papers considered how race-based discrimination may contribute to psychiatric disorder and/or distress. Table 21 summarises the key findings.

Table 21: The relationship between discrimination and psychiatric disorder/distress

Religious discrimination (empirical articles)	Increased psychiatric disorder/psychological distress
Sheridan (2006)	Yes
Moradi & Hasan (2004)	Yes
Race-based discrimination (review articles)	Increased psychiatric disorder/psychological distress
Krieger (1999)	6 (of 7) ³⁶
Williams & Williams-Morris (2000)	10 (of 13) ³⁷

³⁶ The other study reported no association.

³⁷ One reported a conditional association between race-based discrimination and increased psychiatric distress, the remaining two studies reported no association.

Williams et al. (2003)	20 (of 25) ³⁸
Paradies (2006)	40 (of 62) ³⁹
Williams & Mohammed (2009)	3 (of 4) ⁴⁰

Summary: All of the empirical studies and review articles that considered the link between religious and/or race-based discrimination and psychiatric disorder reported a predominantly harmful effect.

c Stress (including post-traumatic stress)

None of the empirical studies examining the health effects of religious discrimination examined its effects on stress. However, several of the review articles focused on race-based discrimination explored this link. Table 22 summarises the key findings.

Table 22: The relationship between discrimination and stress

Race-based discrimination (review articles)	Increased stress
Krieger (1999)	1 (of 1)
Paradies (2006)	13 (of 19) ⁴¹
Williams & Mohammed (2009)	2 (of 2)

Summary: All of the review articles that considered the link between race-based discrimination and stress reported a harmful effect. There is a lack of specific research on the effects that religious discrimination has on stress.

d Life satisfaction

Only one empirical study considered how religious discrimination impacts on life satisfaction. Silveira and Allebeck (2001) reported that several factors were perceived to decrease life satisfaction among 28 male Somalis living in London. Perceived racial or religious discrimination was one of the factors considered. As the study was ethnographic it did not provide any quantitative evidence to support a link between discrimination on the grounds of religion and decreased life satisfaction.

³⁸ Three studies reported a conditional association with increased psychiatric distress, two found no association.

³⁹ 21 studies found non-significant associations, one study reported that religious discrimination is associated with decreased psychiatric distress.

⁴⁰ One found a conditional association with increased psychiatric distress.

⁴¹ Five associations were not significant, one was conditional.

A number of the review papers included considered how race-based discrimination may impact on life satisfaction. Table 23 summarises the key findings.

Table 23: The relationship between discrimination and life satisfaction

Race-based discrimination (review articles)	Decreased life satisfaction
Williams & Williams-Morris (2000)	5 (of 5)
Paradies (2006)	27 (of 44) ⁴²
Williams & Mohammed (2009)	4 (of 5) ⁴³

Summary: The one empirical study that explored the relationship between religious discrimination and life satisfaction found a harmful effect, although this was not measurable. The majority of evidence presented in the review articles suggested that race-based discrimination contributes to decreased life satisfaction.

e Subclinical paranoia

Only one study explored the relationship between religious discrimination and subclinical paranoia (Rippy & Newman 2006). The authors examined the link between perceived religious discrimination and mental health in a sample of 152 Muslim Americans, post-September 11, 2001. The majority of participants reported that discrimination against Muslims had increased in the United States since the terrorist attacks (91.2 per cent), but only 53 per cent reported that their personal exposure to religious discrimination had increased. More than half (54 per cent) of the participants reported that they had experienced religious discrimination at some time in their lives including: verbal harassment, passenger profiling on airlines, unfair employment practices, government profiling, mail or telephone threats, denial of religious accommodation, symbols or slogans of hate on/near their property, harassment by police/FBI, physical assault and acts of vandalism. A statistically significant association was found between perceived religious discrimination and increased subclinical paranoia among the sample population. None of the review articles considered the relationship between race-based discrimination and subclinical paranoia.

⁴² 16 associations were not significant. One study reported a relationship between race-based discrimination and increased life satisfaction.

⁴³ One conditional association was reported between race-based discrimination and decreased life satisfaction.

f Self-esteem

The only empirical study considering the link between religious discrimination and self-esteem was conducted by Moradi and Hasan (2004). That study examined how prejudice and discrimination against Arab Americans (the majority of whom were Muslim) has affected self-esteem. A total of 108 Arab American individuals were included in the study. The authors concluded that individuals who experienced discrimination, and felt a lack of personal control over their lives as a result, also experienced lower self-esteem. Thus, the relationship between perceived discrimination and self-esteem was mediated by personal control.

Three of the review articles focusing on race-based discrimination explored this link. Table 24 summarises the key findings.

Table 24: The relationship between discrimination and self-esteem

Religious discrimination (empirical studies)	Decreased self-esteem
Moradi & Hassan (2004)	Yes
Race-based discrimination (review articles)	Decreased self-esteem
Williams et al. (2003)	4 (of 5) ⁴⁴
Paradies (2006)	9 (of 26) ⁴⁵
Williams & Mohammed (2009)	2 (of 2)

Summary: The findings presented suggest that religious and race-based discrimination contribute to decreased self-esteem. However, Paradies (2006) reviewed the largest number of studies and found mixed evidence in relation to the discrimination/self-esteem link. Further research into the link between religious and race-based discrimination and self-esteem is required.

g Qualitative evidence of the link between religious discrimination and mental health

In addition to the quantitative evidence supporting a link between religious discrimination and poor mental health outcomes provided above, a number of reports provide qualitative evidence of the ways in which individuals from religious minority groups are emotionally affected by discrimination. Problematically, in the Australian context, these qualitative reports are largely restricted to the experiences of Muslim Australians. Common reactions to religious discrimination documented in

⁴⁴ One reported no association.

⁴⁵ 13 associations were not significant, four positive associations were recorded (i.e. race-based discrimination contributes to increased self-esteem).

those reports include: fear, isolation, anger and frustration, a sense of not belonging, hopelessness and helplessness. A number of quotes in relation to each of these themes are provided in Table 25 below.

Table 25: Emotional responses of Muslim Australians to religious discrimination

<p>Fear</p>	<p>“We have to lock our gates now because after being sworn at and verbally abused by our neighbours and people driving by – we are afraid...” (cited in HREOC 2004, p. 53)</p> <p>“Someone tried to run me off the road while I was driving and my eight year old she is sitting in the car with me, frightened to death. Now, why is this? She is an Australian citizen, and she has every right to feel safe in this country, and she doesn’t!” (cited in HREOC 2004, p. 55).</p> <p>“I was walking with my grandson and a lady was driving and she got onto the footpath and tried to run us over and was yelling abuses. I was so scared” (cited in HREOC 2004, p. 56).</p> <p>“Everywhere you go, you have this constant fear that someone’s going to attack you, or you expect everywhere you go someone’s going to be racist to you...” (cited in HREOC 2004, p. 77)</p> <p>“We are citizens of Australia not strangers. We just want security because we are not feeling safe or secure at all. We walk in the street and we are afraid; we go into train stations and we are afraid; wherever we go we are afraid’ (cited in HREOC 2004, p. 77).</p>
<p>Isolation</p>	<p>“I used to always go down to the city as a day out with my kids but a year ago I was physically abused and since then I no longer step out of the house alone, not a train to the city or anything” (cited in HREOC 2004, p. 78).</p> <p>“I have had many people yell at me and call me names and in the end you decide that you don’t want to go out anymore. We are becoming prisoners in our own homes” (cited in IWWCV 2008, p. 5).</p> <p>“A lot of us don’t walk around so much...lots of us have spent at least some time at home scared, you know, a couple of months at home here and there, when you need to” (IWWCV 2008 p. 6).</p>
<p>Anger and frustration</p>	<p>A pregnant Muslim woman who was followed around a shopping mall and verbally abused commented: “Afterwards I felt angry, very angry. My husband said, ‘You don’t deserve to be treated like that’. But I blamed myself. I know I have to be strong living in a different country” (cited in HREOC 2004, p. 57).</p> <p>“My teacher would even discriminate against the religion and say ‘It’s all those Islamic people from the Middle East. They’re terrorists.’ I would just look at my teacher in the face and I would go crazy. I started going crazy at every student in the class saying to them ‘You’re ruining my life’...” (cited in HREOC 2004, p. 59).</p> <p>“I can see the children being so angry. And it’s really wrong because anger breeds anger and then violence” (cited in HREOC 2004, p. 81).</p>
<p>Not belonging</p>	<p>One Muslim man who had been questioned by the Australian Security Intelligence Organisation commented: “It has affected me a lot. I felt like I am an Australian a level lower than the other, I am not an Australian regular citizen...they don’t want me here in Australia. I feel they have been accusing me with things to make me leave this country” (cited in HREOC 2004, p. 67).</p> <p>“After September 11, it felt like our home, which Australia has been our home for almost all of my life and definitely all of their lives [referring to children] was somehow not home anymore...I’ve started feeling more like a foreigner” (cited in HREOC 2004, p. 77).</p>

	<p>“It is difficult to explain the disillusion you feel, when the only explanation you’re given when you are fired, is that, ‘Sorry, but you do not fit into our culture’...only days after the company is informed of your racial origin and religious practices” (cited in HREOC 2004, p. 51).</p> <p>“For my generation, as mothers, we do understand the discrimination and the context of it, but our children don’t. When they hear people shouting ‘Go home’ it is confusing for them because Australia is the only home that they have known...” (IWWCV 2008, p. 9).</p>
<p>Hopelessness and helplessness</p>	<p>“You don’t understand how just talking casually can affect people...And they’re [classmates] like going ‘We should kick them [Muslims] all out’. I’m just sitting there in the class thinking ‘Hello, you’re talking about me’. And the teachers allow them to talk like that...” (cited in HREOC 2004, p. 59).</p> <p>A pregnant Muslim woman who was followed around a shopping mall and verbally commented: “if I go to the authorities, what can they do?” (cited in HREOC 2004, p. 57).</p> <p>“Post September 11th it seemed like every [university] class I went to I had to sit there and justify who I was, what I was, what I believed, the position of Muslim women and that we are not terrorists. It took a lot of energy out of me. Each time I came home I would cry” (cited in HREOC 2004, p. 60).</p> <p>“Young people, even kids have turned against the system because they have been left feeling alienated and scared. Experiences in schools have particularly alienated them” (cited in HREOC 2004, p. 79).</p> <p>“I didn’t speak to anyone about it...Didn’t know who to go to. Besides, it’s not as if it happens once in a blue moon, it happens all the time, they spit at us, and pull our hijabs and call us black” (cited in IWWCV 2008, p. 4).</p>

The qualitative evidence provided here provides a greater insight into the manner in which religious discrimination, against Muslim Australians, may impact on their mental health and wellbeing. The potential effects on mental health were summarised poignantly by a community-based counsellor cited in HREOC (2004, p. 80):

A lot of young people are struggling...We are creating a very angry generation who will eventually end up with psychological repercussions. I don’t believe that anyone can endure this kind of pressure and come out feeling ok.

The same counsellor observed that a growing number of Muslim girls are experiencing psychological problems as a result of discrimination, with many being suicidal as a result of exposure to religious discrimination (HREOC 2004, p. 80).

Similarly detailed and rich qualitative evidence of the effects of religious discrimination on other minority religious groups in the Australian context (including Jewish Australians) was not located. This is an area in which further research is required.

8.3 Evidence of the relationship between discrimination and physical health

Only one of the empirical studies of religious discrimination explored its relationship to physical health (Lauderdale 2006). Accordingly, it is necessary to infer how religious discrimination impacts on physical health from the literature on race-based discrimination. Further research on the link between religious discrimination and physical health is required.

Five of the six review articles included in this report explored the link between race-based discrimination and physical health⁴⁶. Two of those review articles (Krieger 1999 and Brondolo et al. 2003) reported complex and mixed findings in relation to the effects of race-based discrimination on physical health, and three (Williams et al. 2003, Paradies 2006, Williams & Mohammed 2009) reported that race-based discrimination is generally associated with poorer physical health. However, the link between race-based discrimination and poor physical health is, according to those review papers, weaker and more conditional than the relationship observed for mental health. The general consensus, across the review articles considered, is that further evidence is required in order to draw firm conclusions about the relationship between race-based discrimination and physical health. Key physical health variables discussed in the review papers included: blood pressure/hypertension, low birthweight, heart disease, chronic conditions, self-rated ill health, cardiovascular reactivity/problems and body mass index/waist to hip ratio.

a Blood pressure/hypertension

As indicated in Table 26, five of the review articles explored the relationship between race-based discrimination and blood pressure/hypertension.

Table 26: The relationship between discrimination and blood pressure / hypertension

Race-based discrimination (review articles)	Increased BP / hypertension
Krieger (1999)	3 (of 5) ⁴⁷
Brondolo et al. (2003)	1 (of 6) ⁴⁸
Williams et al. (2003)	3 (of 11) ⁴⁹
Paradies (2006)	9 (of 79) ⁵⁰
Williams & Mohammed (2009)	1 (of 10) ⁵¹

⁴⁶ Brondolo et al. 2003; Krieger 1999; Paradies 2006; Williams et al. 2003; Williams & Mohammed 2009.

⁴⁷ Two studies reported no association.

⁴⁸ Two studies showed mixed results, two did not show a significant relationship, and one associated race-based discrimination with decreased blood pressure.

⁴⁹ Five studies reported a conditional association between race-based discrimination and increased blood pressure / hypertension, three studies reported no association.

⁵⁰ 59 associations were non-significant, one study found a relationship between race-based discrimination and decreased blood pressure.

Summary: Any evidence linking race-based discrimination to increased blood pressure or hypertension is, at best, weak. Only a small proportion of the studies included in the review papers listed in Table 26 reported a significant link.

b Low birth-weight

The only empirical study linking religious discrimination to low birth-weight was conducted by Lauderdale (2006). Using a sample of women of Arab descent living in California, birth outcomes were assessed over a six-month period following the September 11 terrorist attacks, during which time discrimination against Arabs/Muslims in the USA was heightened. The author found that the relative risk of low birth-weight and/or pre-term births was significantly elevated for Arabic-named women over that period, when compared to non-Arabic women, and also when compared to Arabic-named women in the previous year. The author noted that she could not demonstrate causality between religious discrimination during pregnancy and the risk of preterm birth or low birth-weight on the basis of the findings as the data did not indicate which women had experienced discrimination.

Four of the review articles explored the relationship between race-based discrimination and low birth-weight.

Table 27: The relationship between discrimination and birth-weight

Religious discrimination (empirical articles)	Low birth-weight
Lauderdale (2006)	Possible association
Race-based discrimination (review articles)	Low birth-weight
Krieger (1999)	No association
Williams et al. (2003)	0 (of 2) ⁵²
Paradies (2006)	15 (of 27) ⁵³
Williams & Mohammed (2009)	1 (of 1)

⁵¹ Six reported a conditional association with increased blood pressure/hypertension, one reported mixed findings and two reported no association.

⁵² One study reported a conditional association between race-based discrimination and low birth-weight, the other reported no association.

⁵³ 12 associations were not significant.

Summary: The results presented in Table 27 provide tentative evidence of a potential link between race-based discrimination and low birth-weight. Further research is required on this issue.

c Heart disease and cardiovascular reactivity/problems

Five of the review articles explored the relationship between race-based discrimination and heart disease.

Table 28: The relationship between discrimination and heart disease

Race-based discrimination (review articles)	Increased heart disease
Krieger (1999)	No association
Williams et al. (2003)	1 (of 3) ⁵⁴
Paradies (2006)	No association
Race-based discrimination (review articles)	Increased cardiovascular reactivity
Williams & Mohammed (2009)	7 (of 8) ⁵⁵
Brondolo et al. (2003)	11 (of 11)

Summary: The results presented in Table 28 do not provide evidence that race-based discrimination is associated with increased heart disease. However, there does appear to be a link between race-based discrimination and cardiovascular reactivity.

d Chronic conditions

Krieger (1999) reviewed two studies examining the relationship between race-based discrimination and unspecified chronic conditions. One study found no association and the other found a partial inverse relationship. Williams and Mohammed (2009) reviewed three studies exploring this relationship, all of which reported an association between race-based discrimination and the existence of chronic health conditions.

⁵⁴ The remaining two found no association.

⁵⁵ The other study reported a conditional association.

Summary: The findings suggest that there is mixed evidence surrounding the relationship between race-based discrimination and chronic health conditions. Further research is required.

e Self-rated ill health

Three of the review papers considered how race-based discrimination impacts on self-rated health (see Table 29).

Table 29: The relationship between discrimination and self-rated health

Race-based discrimination (review articles)	Poor self-rated health
Krieger (1999)	1 (of 1)
Williams et al. (2003)	6 (of 6)
Williams & Mohammed (2009)	4 (of 4)

Summary: The findings suggest that individuals experiencing race-based discrimination are likely to rate their own health as being poor.

f Body mass index/waist-to-hip ratio

In the studies reviewed by Paradies (2006), increased body mass index was associated with race-based discrimination in one out of four instances, while three associations were not significant. Williams and Mohammed (2009) reviewed only one study exploring the relationship between race-based discrimination and waist-to-hip ratio. That study found an inverse association (that is, race-based discrimination was associated with a lower waist-to-hip ratio).

Summary: There is insufficient evidence to support a relationship between race-based discrimination and increased body mass index or waist-to-hip ratio.

g Other

Some aspects of physical health were only considered in one review article and are summarised in brief below.

- Krieger (1999) reported that two out of two studies found that there is no association between perceived race-based discrimination and disability.
- In Krieger (1999), one study (of one) associated discrimination with increased ‘bed days’.
- Williams et al. (2003) reported that one study (of one) found a conditional association between perceived race-based discrimination and mortality.
- In the articles reviewed by Paradies (2006), diabetes was only associated with self-reported racism in one out of seven instances (six associations were not significant).
- Williams and Mohammed (2009) found associations between race-based discrimination and breast cancer (one study out of one), increased physical fatigue (one study of one) and sexual problems (one study of one). They also reported an inverse association between race-based discrimination and sleep (one study of one) – that is, race-based discrimination is related to decreased sleep.

Overall, it is apparent from the preceding discussion that the link between race-based discrimination and several aspects of physical health is far more tenuous than the link between race-based discrimination and mental health. There is, however, one link between discrimination and physical ill-health that is self-evident: the physical harm that results when members of racial and or religious minority groups are violently assaulted.

h Physical violence

Sections 5.1 and 5.2 of this report listed a number of violent acts that have been perpetrated against Muslim and Jewish Australians, or individuals mistakenly identified as Muslim (Jones 2009a, 2009b; HREOC 2004; IWWCV 2008). Qualitative evidence of physical violence against Muslim Australians has also been extensively recorded. The implications of such violence for physical health and wellbeing are readily apparent in the following quotes:

“Myself and my husband since September [11] have been abused in the city square several times and in one instance a man threw rocks at us and **cut my niece’s face**” (cited in HREOC 2004, p. 47).

“My Aunty was walking on the street in Granville and this guy drives past in his car and **threw stones at her and she fell to the ground** and was lying on the ground...she was **taken to hospital**. That happened right after September 11 and till this day she is afraid of leaving the house. It’s scary because you don’t expect to get stones thrown at you...” (cited in HREOC 2004, p. 48).

“I was picking up my children from the local Islamic school at Broadmeadows and on the way home a lady **tried to run me off the road**. She followed me home and then when I was in my driveway, I was getting the kids out of the car and the lady **threw a can at my daughter** who is 12 years old. She then came up the driveway and **physically assaulted my daughter** and grabbed her very hard and continued to shout at her. She kept yelling abuses and swear words at us. **My daughter was badly hurt**” (cited in HREOC 2004, p. 48).

“I was going shopping with my son, he is blind. These men followed us, and one **extinguished his cigarette on my head. I felt it burning**. I started to run with my son. They came up and surrounded us, six of them, Australian and white...” (cited in IWWCV 2008, p. 1).

A Muslim man involved in the HREOC (2004) consultations explained that his family had been assaulted in a supermarket and that a woman had tried to remove his wife’s scarf, breaking her tooth in the process. Physical violence against ethnic and/or religious minorities in Australia is of particular concern. It is a form of criminal activity that not only has the potential to affect individuals’ physical health, but also their mental wellbeing.

8.4 Evidence of the relationship between discrimination and health behaviours

None of the empirical studies focused on religious discrimination explored its relationship with health behaviours. Accordingly, it is necessary to infer how religious discrimination impacts on health behaviours from the literature on race-based discrimination. Further research on the link between religious discrimination and health behaviours is required.

Four of the six review articles on race-based discrimination and health considered health behaviours⁵⁶. Key health behaviours discussed included: cigarette smoking, alcohol use/abuse and drug use/abuse. All of these articles reported an association between race-based discrimination and increased likelihood of risky health behaviours. Further detail on the specific risky health behaviours is provided below.

a Cigarette smoking

Four of the review papers considered how race-based discrimination impacts on cigarette smoking.

⁵⁶ Krieger 1999; Paradies 2006; Williams et al. 2003; Williams & Mohammed 2009.

Table 30: The relationship between discrimination and smoking

Race-based discrimination (review articles)	Increased smoking
Krieger (1999)	1 (of 1)
Williams et al. (2003)	3 (of 3)
Paradies (2006)	4 (of 4)
Williams & Mohammed (2009)	5 (of 5)

Summary: There is consistent evidence, across the review articles included in this report, that race-based discrimination is associated with increased incidence or likelihood of cigarette smoking.

b Alcohol use/abuse

Three of the review papers considered how race-based discrimination impacts on alcohol use and/or abuse.

Table 31: The relationship between discrimination and alcohol use/abuse

Race-based discrimination (review articles)	Increased alcohol use/abuse
Williams et al. (2003)	2 (of 2)
Paradies (2006)	8 (of 14) ⁵⁷
Williams & Mohammed (2009)	3 (of 3)

Summary: There is consistent evidence, across the review articles included in this report, that race-based discrimination is associated with increased incidence or likelihood of alcohol use/abuse.

c Drug use/abuse

Two of the review papers considered how race-based discrimination impacts on drug use/abuse. In studies reviewed by Paradies (2006), drug (mis)use was associated with self-reported racism in five out of six instances. The remaining association was not significant. Williams and Mohammed (2009) reviewed three studies exploring the link between race-based discrimination and illicit drug (mis)use.

⁵⁷ The remaining six associations were not significant.

Two out of the three studies reported a link between race-based discrimination and increased drug use, the remaining study had mixed results depending on the type of illicit drug being investigated. The same authors also reviewed one study exploring the link between race-based discrimination and prescription drug (mis)use. That study reported a positive association.

Summary: There is consistent evidence, across the review articles included in this report, to support a relationship between race-based discrimination and drug use/abuse.

d Other risky health behaviours

Williams and Mohammed (2009) reported positive associations between race-based discrimination and unspecified conduct problems among adolescents (one out of one study), rebellious behaviour (one of one), violence (three out of three) and HIV risk behaviour (one of one).

e Disengagement from positive health behaviours

The discussion above has focused on the relationship between race-based discrimination and risky health behaviours. However, there is also a case to be made that such discrimination contributes to disengagement from healthy behaviours. Williams and Mohammed's (2009) review of the literature found that stressors such as race-based discrimination can reduce engagement in positive health coping behaviours such as regular sleep and exercise and other established health regimens. Paradies (2006) also found evidence, in one study, that self-reported racism was a mediator of the association between healthy food beliefs and healthy dietary behaviour. Experiences of race-based discrimination may also lead to disengagement with medical advice; however, Williams et al. (2003) noted that this link has not been empirically studied. Further empirical research is required to examine the link between race-based and religious discrimination and disengagement from healthy behaviours.

Overall, the review articles considered consistently support a relationship between race-based discrimination and risky health behaviours. Further research is required in relation to religious discrimination and health-related behaviours, particularly given evidence presented earlier in this report that religion/belief can act as a protective factor and encourage positive health behaviours. The following section of this report considers the mechanisms by which discrimination affects health.

8.5 Mechanisms by which discrimination affects health

The mechanisms by which religious discrimination can impact health and wellbeing were poorly explored in the literature reviewed for this report. Indeed, of the 10 studies reviewed, only three

suggested potential mechanisms that mediated the relationship between religious discrimination and mental health. None explored the relationship between religious discrimination and physical health or health behaviours. Explanations for the relationship between race-based discrimination and poor health, as detailed in subsequent sections of this report, may help to fill this gap in knowledge. There is, however, a need for more empirical research investigating the causal pathways between religious discrimination and health.

As outlined in Paradies et al. (2009), there are a number of mechanisms by which race-based discrimination may impact on health/wellbeing. It can:

- restrict access to resources required for health (such as employment, housing and education)
- cause affected individuals to internalise negative evaluations and stereotypes of their own group, affecting psychological wellbeing and self-esteem
- produce negative emotions (such as stress and fear) that may have negative physiological effects (for instance on the immune, endocrine and cardiovascular systems)
- cause affected individuals to engage in behaviours that impact negatively on their health (such as smoking, excess alcohol consumption and drug use)
- manifest in violence, which is associated with negative physical and mental health outcomes.

Not all of the causal pathways suggested as mediating the effects of race-based discrimination on health are currently supported by empirical evidence. More research is needed to more clearly delineate the mechanisms underlying that relationship. The minimal evidence presented in the empirical studies (of religious discrimination) as well as the evidence presented in the review articles (of race-based discrimination) are discussed below for mental health, physical health and health behaviours. The following sections should be read with an eye to the overlap across mental health, physical health and health behaviours. For instance, discrimination may first result in poor mental health outcomes and or risky health behaviours, which subsequently impact on physical health.

a Mental health

Gold's (2004) study of the relationship between anti-Semitism and depression found that a high number of anti-Semitic experiences was related to depression, whilst a high number of sexist experiences was not. This led the author to hypothesise that anti-Semitism contributed to depression by causing a deep level of fear and sense of not belonging. The author also hypothesised that anti-Semitism contributed to depression because it was largely ignored by Canadian society and the media (whilst sexism was more widely acknowledged and addressed). Finally, anti-Semitism was associated with a sense of helplessness, which contributed to depression among the participants. It is

important to note, however, that these explanations for the association between anti-Semitic experiences and depression were not empirically tested by the author.

Bhui et al. (2005) examined the effects of racial discrimination (broadly defined to include discrimination on the basis of religion) on a nationally representative sample of 2054 working individuals in the United Kingdom. They argued that the cross-sectional design of their study made it impossible to conclude that racist experiences contribute to mental disorders, as mental disorders may result in greater reporting of racist experiences. Difficulties determining the direction of causality make it difficult to determine the mechanisms through which discrimination affects health status. However, the authors did note that discrimination acts as a chronic daily stressor, and that the stress caused by discrimination is what causes ill health. They concluded that there is a need for long-term prospective and qualitative studies that explore the mechanisms which mediate the effects of discrimination.

Montgomery (2008) examined the impacts of discrimination on 131 young (predominantly Muslim) Middle Eastern refugees in Denmark. That study proposed that maladaptive psychological responses to traumatic events (including discrimination) are mediated by the presence or absence of protective resources, such as supportive relationships. Personal resilience also determines whether discriminatory experiences will contribute to poor mental health outcomes. The author concluded that more comprehensive longitudinal studies are needed to fully understand the processes and causal pathways behind these findings.

The review articles on race-based discrimination shed more light on the mechanisms by which discrimination can impact mental health. Paradies (2006) identified a number of mediators between self-reported racism and health-related outcomes. Five studies included in that review paper found stress to be a partial mediator of the association between self-reported racism and health. Another study found self-esteem to mediate between self-reported racism and psychological distress. Self-esteem was also identified as a mediator of depression and anxiety in one study, but only for male adolescents. Williams and Mohammed (2009) also focused on the stress literature and noted that stressors, including race-based discrimination, can play a role in the onset, progression and severity of ill health. Stressors can bring about psychological distress that negatively affects health (both mental and physical). However, the authors noted that more research is needed to identify the aspects of race-based discrimination that may impact at different stages of the 'disease continuum'.

Williams et al. (2003) also noted that the literature on stress and health (citing one study) shows how stressors can influence mental and physical health by bringing about negative emotional states, such

as anxiety and depression, which can cause changes in biological processes and therefore increase the risk of disease. They claimed that future researchers, when considering the relationship between perceptions of race-based discrimination and mental health, could consider measures of mental health as an intermediary mechanism between discrimination and the onset of physical disease. Finally, Williams and Williams-Morris (2000) focused on a different angle. They hypothesised that race-based discrimination may adversely impact on mental health by limiting access to socio-economic resources and contributing to poor self-worth. These processes can bring about both physiological and psychological reactions and impact wellbeing. A final point noted by Williams et al. (2003), was that further research is required on the ways in which experiences of race-based discrimination can impact positively on health, by increasing resilience and coping capacity. This is an important area for future research.

b Physical health

As noted above, the relationship between race-based and/or religious discrimination and physical health appears to be mediated by risky health behaviours and poor mental health. In Krieger's (1999) review paper, 13 studies supported the hypothesis that perceived racial discrimination provokes fear and anger and that these negative emotional states can lead to sustained hypertension through a number of physiological pathways, including 'flight-or-fight' responses, lipid mobilisation, increased glucose and sensory alertness. Paradies (2006) reported that research in the field of stress may explain the relationship between race-based discrimination and poor physical health outcomes. The stress literature suggests that specific stressors differentially affect various physiological systems (including the cardiovascular, immune and endocrine systems). Further research is required to determine how race-based discrimination impacts on those systems. Paradies (2006) also found one study in which self-esteem mediated between self-reported racism and blood pressure and, in another, how the relationship between self-reported racism and self-assessed health was mediated by depression. Citing the stress literature, Williams and Mohammed (2009) also claimed that psychological responses to stress, including race-based discrimination (either at the institutional or individual level), can lead to structural and functional physiological changes in the neuroendocrine, autonomic and immune systems that can in turn cause ill health.

Williams et al. (2003) also claimed that mental health impacts of race-based discrimination act as a mechanism for further physiological and biological changes in health. However, they argued that there is limited empirical research demonstrating how exposure to race-based discrimination leads to changes in physical health. In particular, they noted that future research needs to identify the specific conditions under which exposure to race-based discrimination impacts physiological systems

(such as cardiovascular, neuroendocrine and immune). There is also a need for more research on the individual factors (genetic and psychological makeup) that increase susceptibility to the health impacts of discrimination.

A second key way in which discrimination impacts on physical health is through access to resources. This was noted by Williams and Williams-Morris (2000) and also by Krieger (1999). Five studies reviewed by the latter author supported the hypothesis that discrimination leads to residential and occupational segregation, and that this leads to reduced access to affordable and nutritious food. This acts to increase risk of hypertension by nutritional pathways. Similarly, five studies included in that review showed evidence that the risk of hypertension is higher among African Americans in residentially segregated communities via contaminated soil (proximity of neighbourhoods to freeways) and lead paint (decreased resources for removing and replacing lead paint) by damaging renal physiology.

Similarly to Krieger (1999), Williams and Mohammed's (2009) review paper asserted that residential segregation has been widely studied as an institutional mechanism through which race-based discrimination affects health. The conditions of segregation and poverty make it more difficult to adhere to healthy food practices, where poorer nutritional outcomes can be attributed to the higher cost, reduced availability and poorer quality of healthy foods in disadvantaged areas. Furthermore, neglect and lack of resources in disadvantaged communities, which can be attributed to institutional race-based discrimination, results in decreased opportunities and facilities for physical activity and increased exposure to environmental toxins. Ongoing hardship and poverty also increases exposure to acute and chronic stress (with the implications for physical health having been noted above). Five studies reviewed by Krieger (1999) showed a pathway from negligence in the detection and management of hypertension among African Americans to increased risk of uncontrolled hypertension in this population. Krieger (1999) claimed that, in this instance, insufficient or inappropriate medical care as a result of systemic discrimination impacts on physical health outcomes.

Further research into the relationships between religious and race-based discrimination, mental health, health behaviours and physical health is required. In particular, Williams et al. (2003) and Williams and Williams-Morris (2000) noted that improved knowledge of the relationship between physical and mental health is required, and that this will aid understandings of the underlying processes and mechanisms that mediate the relationship between race-based discrimination and health.

c Health behaviours

The most obvious pathway by which discrimination impacts on health behaviours is through mental health. That is, race-based and/or religious discrimination contribute to stress, anxiety and depression, which can in turn cause individuals to turn to poor health behaviours as a coping mechanism. Paradies (2006), for instance, reported that self-reported race-based discrimination contributes to psychological distress and, hence, substance abuse. Williams and Mohammed's (2009) review of the literature also found that stress (caused by race-based discrimination) can lead to unhealthy coping behaviours such as smoking and tobacco use. Williams and Mohammed (2009) argued that these behavioural coping strategies can influence physiological changes in health, as noted above.

A second, less obvious, mechanism through which race-based discrimination can contribute to poor health behaviours is through the excessive targeting of alcohol and tobacco to disadvantaged minority communities (see Williams and Mohammed 2009). Similarly, Krieger's (1999) review paper cited five studies supporting the hypothesis that targeted marketing of high-alcohol beverages to African American communities causes negative health behaviours such as increased alcohol consumption, which in turn increases the risk of high blood pressure.

Further research into the relationship between religious discrimination and health behaviours is required, although it can be assumed that stress is a mediating factor (as is the case for race-based discrimination).

8 Discussion and conclusions

This report has provided evidence that religion and belief, religious discrimination and race-based discrimination all impact on health and wellbeing in various ways. Key findings are listed below.

Religion and belief are associated, to varying degrees, with a range of positive **mental health** outcomes including:

- decreased depression
- decreased anxiety
- improved psychological adjustment
- decreased suicide risk
- improved psychological wellbeing
- increased life satisfaction.

Importantly, the type of religiousness being practised often determines whether the impact on mental health will be beneficial or not. Intrinsic and personal forms of religious engagement and positive forms of religious coping are generally associated with improved mental health outcomes; whilst extrinsic and institutional religiosity and negative religious coping are associated with poor outcomes.

Whilst religion and belief appear to contribute to positive mental health outcomes, religious and race-based discrimination have the opposite effect. More specifically, such discrimination is associated with:

- increased depression
- increased anxiety
- increased stress
- psychiatric disorders
- decreased life satisfaction.

There is also strong evidence to support a relationship between religion/belief and **healthy behaviours** including:

- decreased alcohol and drug use/abuse
- decreased smoking
- decreased risky sexual behaviours
- decreased criminal and delinquent activities.

Importantly, this relationship appears to offer protection during the teenage and adolescent years. Again, while religion and belief promotes healthy behaviours, religious and race-based discrimination encourage engagement in risky behaviours (and disengagement from healthy behaviours). There is evidence to indicate that discrimination is associated with:

- increased alcohol use/abuse
- increased drug use/abuse
- increased smoking.

The relationship between religion/belief and **physical health** is, however, less clear. There is considerable evidence that religion/belief is associated with greater longevity (or delayed mortality). Evidence relating to other physical health benefits is more mixed. On the other side, the evidence between race-based or religious discrimination and physical health is also more tenuous than that offered in relation to mental health and health behaviours. However, there is tentative evidence of a link between discrimination and low birth-weight and increased cardiovascular reactivity. Importantly, despite a lack of statistical evidence conclusively linking race-based and religious discrimination to poor physical health, individuals who have experienced such discrimination are more likely to rate their own health as being poor. Of course, the physical harm produced by violent assaults must also be taken into account.

The literature reviewed in this report has a number of shortcomings. There is a lack of literature exploring the Australian context, and certain population groups are over-represented. The literature on religious discrimination is overwhelmingly focused on the experiences of Muslims in western countries, while the literature on race-based discrimination is overwhelmingly focused on the African American experience. Finally, the literature on religion/belief and health/wellbeing is dominated by North American studies focused on members of various Judaeo-Christian faiths.

Furthermore, insufficient studies have been conducted exploring the specificities of the relationship between religious discrimination and health/wellbeing. Although the literature on race-based discrimination and health/wellbeing provides some insights, religious discrimination is likely to have unique impacts that are not captured by this broader body of literature. Additional research is urgently required in this regard, given strong evidence (presented in this report) of an upsurge in discrimination against religious minority groups in Australia (including adherents to the Muslim and Jewish faiths). There is a particular lack of literature focusing on the health implications of Indigenous spiritualities, and how the denial of such spiritualities may contribute to poor health outcomes.

The lack of empirical evidence explaining the causal pathways by which religion/belief, religious discrimination and race-based discrimination may act upon health/wellbeing is also a key shortcoming.

Finally, few longitudinal studies have been conducted linking religion/belief and religious discrimination to health outcomes. The preponderance of cross-sectional studies weakens the evidence base as it does not eliminate the potential for confounding variables. However, a number of longitudinal studies have been conducted in relation to race-based discrimination, which suggest that the primary direction of causation is from racism to ill-health (Paradies 2006; Williams & Mohammed 2009).

Despite these shortcomings, it is possible to conclude that individuals of faith who experience religious freedom have the potential to access the positive health effects that may be associated with their religion/belief. Conversely, individuals who experience religious discrimination (or who are denied their religious freedoms) are likely to be susceptible to a range of negative health outcomes. These factors should be taken into consideration when determining how issues of religious freedom are dealt with in 21st century Australia.

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Appendix A:

Summary of articles reviewing the relationship between religion/spirituality and health

Publication	Study design & limits	Measure of religiousness	Aspect of health/wellbeing
Ano & Vasconcelles (2005)	<p>A meta-analysis of the literature on religious coping and psychological adjustment to stress.</p> <p>Databases searched: PsycINFO from 1967 – present using keywords: religion, religiosity, religious coping, stress and psychological adjustment. The reference list from a major study of religious coping (Pargament, 1997: <i>The Psychology of Religion and Coping: Theory Research and Practice</i>) provided additional studies.</p> <p>Inclusion criteria: a) only articles published in professional journals were included; b) articles had to investigate situation-specific religious coping methods; c) studies had to examine some form of psychological adjustment as an outcome; and d) only studies that reported bivariate correlations between situation-specific religious coping methods and psychological adjustment outcomes were included.</p> <p>The meta-analysis included 49 studies with a total of 105 effect sizes.</p>	<p>Positive and negative forms of religious coping.</p> <p>Positive religious coping strategies identified included: religious purification/forgiveness, religious direction/conversion, religious helping, seeking support from clergy/members, collaborative religious coping, religious focus, active religious surrender, benevolent religious reappraisal, spiritual connection, and marking religious boundaries.</p> <p>Negative religious coping strategies identified included: spiritual discontent, demonic reappraisal, passive religious deferral, interpersonal religious discontent, reappraisal of God’s powers, punishing God reappraisal, and pleading for direct intercession.</p>	<p><i>Mental health:</i> positive and negative psychological adjustment to stress.</p> <p>Positive psychological adjustment outcomes included: acceptance, emotional well-being, general positive outcome, happiness, hope, life satisfaction, optimism, personal adjustment, personal growth, positive affect, purpose in life, recent mental health, resilience, satisfaction, self-esteem, spiritual growth, stress-related growth and quality of life.</p> <p>Negative psychological adjustment outcomes included: anxiety, burden, callousness, depression, distress, global distress, guilt, hopelessness, hostility, impairment, mood disturbance, negative affect, negative mood, perceived stress, PTSD symptoms, social dysfunction, specific distress, spiritual injury, suicidality and trait anger.</p>
Aukst-Margetic & Margetic (2005)	<p>Comprehensive review of epidemiological and clinical studies of the relationship between religion and physical and mental health.</p> <p>The MEDLINE database was searched for articles using the following key words: ‘religiosity’, ‘religion’ AND ‘mental health’, ‘physical health’. Reference lists of relevant articles were examined to obtain additional relevant studies. Studies assessing the impacts of yoga, meditation and distance healing, as well as those</p>	<p>Studies that measured religiosity according to the following definition included: a set of beliefs involving devotional and ritual observances, and containing a moral code.</p>	<p><i>Physical health:</i> mortality, cardiovascular disease, AIDS, physical disability and cancer.</p> <p><i>Mental health:</i> depression, anxiety & schizophrenia.</p> <p><i>Health behaviours:</i> addiction</p>

	<p>examining the role of religion in psychotherapy, were excluded.</p> <p>The number of articles reviewed was not specified.</p>		
Baldacchino & Draper (2001)	<p>Comprehensive review of research based literature published from 1975 onwards in nursing, orientated towards the use of spiritual coping strategies in illness.</p> <p>*CINAHL and MEDLINE</p> <p>*Search terms: 'spiritual methods/strategies', 'religious methods/strategies', 'coping' and 'illness', 'meaning and purpose in life', 'self-transcendence' and 'connectedness'.</p> <p>*1975 onwards (no end-date given)</p> <p>5 studies met inclusion criteria and directly explored spiritual coping strategies used in various illnesses.</p>	<p>Use of spiritual coping strategies common to both believers and non-believers including: meditation/contemplation, appreciation, hopefulness.</p> <p>Use of religious coping methods, including: relationship with God, prayer, participation in religious practices.</p>	<p><i>Mental health:</i> adjustment to life-threatening illness.</p>
Beuscher & Beck (2008)	<p>Comprehensive review of published research-based literature to find research published between 1990 and 2006 aimed at understanding spirituality in coping with early stage Alzheimer's disease.</p> <p>Databases searched: Cumulative Index to Nursing and Allied Health Literature, MEDLINE, PsychInfo, Dissertation Abstracts online and Cochrane Library Database. Additional internet references included Google scholar and Alzheimer's Association webpage. Search was also broadened by consulting experts in dementia research and reference books by experts. Reference lists in articles were also reviewed.</p> <p>Time span covered: 1990–2006</p> <p>6 studies met selection criteria and were reviewed.</p>	<p>Various, but prayer and attendance at place of worship commonly used.</p> <p>Focus on spirituality rather than just religion (broader).</p> <p>Other measures: attendance at place of worship, private prayer, scripture study, meditation, contemplation etc (p. 90).</p>	<p><i>Mental health:</i> coping with early stage Alzheimer's disease.</p>
Cotton et al. (2006)	<p>Comprehensive review of the literature examining proximal domains of religion/spirituality and adolescent health outcomes.</p> <p>Databases searched were: PsychInfo and Medline. Reference lists of retrieved articles were also used to identify additional studies.</p>	<p>Proximal domains of religion/spirituality, primarily spiritual coping and religious decision making.</p>	<p>Adolescent health outcomes including:</p> <p><i>Health behaviours</i> (6 studies):</p> <p>*Substance use (3)</p> <p>*Voluntary sexual activity (1)</p>

	<p>Studies were included if they met the following criteria:</p> <p>a. inclusion of adolescents (12–20 years), b. inclusion of at least one measure assessing proximal domains of religion/spirituality, c. inclusion of at least one measure assessing a health outcome, d. inclusion of empirical data relation to religion/spirituality and health outcomes, and e. written in English.</p> <p>A total of 18 articles met the inclusion criteria.</p>		<p>*Quietly disturbed and/or acting-out behaviours (1)</p> <p><i>Mental health</i> (7 studies):</p> <p>*Grief reactions (2)</p> <p>*Anxiety (1)</p> <p>*Suicide risk and suicide attempts (2)</p> <p>*Depressive symptoms (2)</p> <p><i>Physical health</i> (4 studies):</p> <p>*Illness severity (1)</p> <p>*Coping with disease (3)</p>
<p>DeHaven et al. (2004)</p>	<p>Systematic literature review of articles describing faith-based health activities.</p> <p>Health-related databases for the years 1990–2000 were examined. MEDLINE was the major database. Supplemental searches of HealthSTAR, CINAHL and PsycINFO databases were conducted.</p> <p>All English language research articles reporting the health activities of FBOs were reviewed.</p> <p>Of an initial 386 articles, 53 articles met the inclusion criteria.</p>	<p>No specific measure of religiousness as focused on role of FBOs.</p> <p>Primary prevention role of FBOs.</p>	<p>*50.9% of articles focused on primary prevention; 24.5% on secondary prevention and 13.2% on tertiary prevention.</p> <p><i>Physical health:</i></p> <p>*24.5% of articles focused on general health</p> <p>*20.7% focused on cardiovascular health</p> <p>*18.9% focused on cancer</p> <p><i>Mental health:</i></p> <p>*11.3% of articles focused on mental health</p> <p><i>Health behaviours:</i></p> <p>*7.5% of articles focused on nutrition/weight control</p> <p>*5.7% focused on smoking</p>

<p>Gray (2004)</p>	<p>Comprehensive review of empirical literature of journal articles containing data on HIV prevalence and religious affiliation:</p> <p>*Standard on-line searches (e.g. MEDLINE)</p> <p>*Search terms: HIV and Islam, HIV and religion, HIV and risk factors.</p> <p>*Last updated May 2002</p> <p>7 studies met the inclusion criteria.</p>	<p>Adherence to Islamic tenets</p>	<p><i>Physical health:</i> HIV prevalence</p> <p><i>Health behaviours:</i> sexual activity</p>
<p>Hackney & Sanders (2003)</p>	<p>Meta-analysis to clarify the proposed relationship between religiosity and psychological adjustment.</p> <p>*Studies published between 1990 and July 2001, comparisons made with previous reviews and meta-analyses, most of which were done mid-1980s to early 1990s.</p> <p>*PsychINFO, Social Sciences Abstracts, MEDLINE, Humanities Abstracts</p> <p>*Search terms: 'religiosity and mental health', 'religion and mental health', 'religiousness and mental health', 'religiosity and depression', 'religiosity and happiness', 'religiosity and life satisfaction' and 'religiosity and self esteem'.</p> <p>Studies that focused on major clinical disorders (e.g. schizophrenia) and studies that did not focus on mental health variables (such as coping, attribution or physical robustness) were not included.</p> <p>34 studies met the inclusion criteria.</p>	<p>Various and coded as the following single variables:</p> <p><i>Institutional religion</i> (e.g. attendance at religious services, participation in activities at place of worship, extrinsic religious orientation, participation in ritual prayer)</p> <p><i>Ideological religion</i> (e.g. ideology, attitudes, belief salience, fundamentalism)</p> <p><i>Personal devotion</i> (e.g. intrinsic religious orientation, emotional attachment to God, devotional intensity, colloquial prayer).</p>	<p><i>Mental health:</i> psychological adjustment, focusing on psychological distress, life satisfaction and self-actualisation.</p>
<p>Hollywell & Walker (2009)</p>	<p>Systematic approach but authors note study falls short of a systematic review because no attempt was made to include unpublished material.</p> <p>*Studies included from 1990, no end date specified.</p> <p>*AHMED, CINAHL, PsycINFO, Medline, BNI, Blackwell Synergy, Cochrane, Google Scholar</p>	<p>Religious coping: private or personal prayer</p>	<p><i>Mental health:</i> rates of depression and anxiety among hospitalised patients.</p>

	<p>*Search terms: Pray*, prayer and health, prayer and wellbeing or wellbeing, prayer and psychological health, 'personal prayer', 'private prayer', 'religious activity', spirituality, religiosity.</p> <p>Inclusion criteria: personal/private prayer (not intercessory prayer), western studies, English, physical health only, limited to adult populations.</p> <p>26 studies met the inclusion criteria.</p>		
Koenig (2000a)	<p>Based on the comprehensive and systematic review of 20th-century research on the relationship between religion and health (detailed below). Only includes studies demonstrating a negative effect of religion on health.</p> <p>The number of studies reviewed is not specified.</p>	Various including: Religious belief, religiosity, religious activity.	<p><i>Physical health:</i> mortality.</p> <p><i>Mental health:</i> anxiety, depression, internalising behaviour, self-esteem, psychotic disorders, coping with stress.</p>
Koenig (2000b)	<p>Based on the comprehensive and systematic review of 20th-century research on the relationship between religion and health. Focuses on those studies that explore the relationships between religion, psychological processes and immune functioning.</p> <p>A total of five studies examined the relationship between some measure of religious involvement and immune function.</p>	Various including: religious involvement, religious cognitions and behaviours, religious coping (prayer, meditation), religious attendance, and reading religious/spiritual literature.	<i>Physical health:</i> immune function
Koenig et al. (2001)	<p>Based on the comprehensive and systematic review of 20th-century research on the relationship between religion and health. Epidemiological studies that focused on the relationship between religious involvement, coping with illness and health outcomes were extracted from that broader review.</p> <p>The number of studies reviewed is not specified.</p>	Various including: religious beliefs and activities, religious coping (including participation in religious activities and prayer, being visited by clergy and religious support seeking).	<i>Mental health:</i> adaptation to ill health.
Koenig (2001a)	<p>Comprehensive and systematic review of 20th-century research examining religion's relationships to mental health, social support, substance abuse and other behaviours affecting mental or social functioning.</p> <p>3 stage process used: i) computer searches of literature (Medline, Current Contents, Psychlit, Soclit, HealthStar, Cancerlit, CINAHL and others not specified) to identify quantitative studies examining the religion–mental health</p>	Various including: level of religiousness, importance of religion, differences across religious denominations, religious involvement/attendance, and prayer / religious coping.	<p><i>Mental health:</i></p> <p>*100 studies focused on psychological wellbeing (life satisfaction, happiness, positive affect, morale etc).</p> <p>*15 studies focused on hope and optimism.</p>

	<p>relationship; ii) footnotes and references of articles retrieved were consulted to identify other relevant studies. After retrieving this second set of studies, the process was repeated until no new studies could be found; iii) in order to identify studies not located using the previous two methods, articles and books on the topic were reviewed.</p> <p>Review includes 630 separate data-based reports.</p>		<p>*16 studies focused on purpose and meaning.</p> <p>*101 studies focused on depression.</p> <p>*68 studies focused on suicide.</p> <p>*76 studies focused on anxiety.</p> <p>*16 studies focused on psychotic symptoms and disorders.</p> <p><i>Health behaviours:</i></p> <p>*95 studies focused on alcohol use / abuse.</p> <p>*56 studies focused on drug use.</p> <p>*25 studies focused on cigarette smoking.</p> <p>*38 studies focused on extra-marital sexual activity.</p> <p>*36 studies focused on delinquency and crime (including 'getting in trouble with the law', carrying weapons, interpersonal violence, drink driving, seatbelt use, binge drinking, marijuana use etc.)</p> <p>*20 studies focused on social support.</p> <p>*38 studies focused on marital support.</p>
<p>Koenig (2001b)</p>	<p>Comprehensive and systematic review of 20th-century research examining religion's relationship to physical health and mortality.</p> <p>3 stage process used: i) computer searches of literature (Medline, Current Contents, Psychlit, Soclit, HealthStar, Cancerlit, CINAHL and others not specified) to identify quantitative studies examining the religion-physical health relationship; ii) footnotes and references of articles retrieved were consulted to identify other relevant studies. After retrieving this second set of studies, the process was repeated until no new studies could be found; iii) in order to identify studies not located using the previous two methods, articles and books</p>	<p>Various including: level of religiousness, religious attendance/involvement, prayer, differences across religious denominations.</p>	<p><i>Physical health:</i></p> <p>*10 studies focused on pain.</p> <p>*12 studies focused on functional disability.</p> <p>*32 studies focused on heart disease.</p> <p>*34 studies focused on blood pressure.</p> <p>*6 studies focused on stroke.</p> <p>*5 studies focused on immune and</p>

	<p>on the topic were reviewed.</p> <p>Review includes 225 reports on religion and pain/disability, heart disease, blood pressure, stroke, immune/neuroendocrine function, infectious disease, cancer and overall mortality.</p>		<p>neuroendocrine function.</p> <p>*13 studies focused on risk of cancer.</p> <p>*36 studies focused on cancer mortality.</p> <p>*101 studies focused on overall mortality.</p>
Koenig (2009)	<p>Based on the comprehensive and systematic review of 20th-century research on the relationship between religion and health (detailed below). Only includes studies examining the relationship between religion and mental health.</p> <p>In addition, this article includes a selective review of more recent studies (post 2000) of the link between religion and mental health. It only includes studies that had statistically significant findings.</p> <p>The overall number of studies included in the review is not specified.</p>	<p>Various including: level of religiousness, religious attendance/involvement, prayer, differences across religious denominations.</p>	<p><i>Mental health:</i></p> <p>*Depression (100 studies pre-2000, 10 studies post-2000)</p> <p>*Suicide (68 studies pre-2000, 4 studies post-2000)</p> <p>*Anxiety (76 studies pre-2000, 5 studies post-2000)</p> <p>*Psychotic disorders (16 studies pre-2000, 6 studies post-2000)</p> <p><i>Health behaviours:</i></p> <p>*Substance abuse (138 studies pre-2000, 9 studies post-2000)</p>
McCullough et al. (2000)	<p>Meta-analysis of the research on religious involvement and mortality:</p> <p>*Medline, PsycINFO, Sociofile, CINAHL, ERIC, Dissertation Abstracts</p> <p>*Search terms: Religion, religiousness, religiosity, religious AND mortality, fatality, death, survival OR cardiovascular, cancer</p> <p>*Published and unpublished studies on religious involvement and mortality through June 1999.</p> <p>42 effect sizes based on samples of nearly 126,000 people were extracted from 29 research reports.</p>	<p>Various:</p> <p>*23 of 42 effect sizes used single-item measures of religious attendance or subjective religiousness.</p> <p>Most common single-item measures were: frequency of attendance at places of worship or frequency of religious meeting or service attendance; spending spare time in activities at places of worship.</p> <p>*13 studies used between 2 and 10 items of religiousness</p>	<p><i>Physical health:</i> mortality</p>

<p>Moreira-Almeida et al. (2006)</p>	<p>Comprehensive review of Koenig et al.'s (2001) systematic review of 20th-century studies. Focused only on studies examining religion–mental health relationship as follows:</p> <p>*Medline, PsychLit, SocLit, CINAHL, Current Contents, HealthStar, Cancerlit</p> <p>*Search terms: 'religion', 'religiosity', 'religiousness', 'spiritual', 'spirituality'</p> <p>*Published and unpublished papers.</p> <p>Also provides an update on papers published since 2000 however not specified how this was undertaken.</p> <p>850 studies included from the Koenig et al. review. No indication of the number of post-2000 articles given.</p>	<p>Various including: religious involvement (including attendance at places of worship), religious affiliation, non-organisational (private) religiosity, subjective religiosity, religious commitment and intrinsic v. extrinsic religious orientation.</p>	<p><i>Mental health:</i> psychological wellbeing, self-esteem, depression and suicide.</p> <p><i>Health behaviours:</i> drug abuse</p>
<p>Polzer & Miles (2005)</p>	<p>Comprehensive review on African American spirituality, health, and self-management of chronic illness, with a particular focus on diabetes in African American adults.</p> <p>*Studies published between 1990 and 2004</p> <p>*CINAHL, Pubmed, PsycINFO, Sociological Abstracts</p> <p>*Search terms not specified.</p> <p>*Published articles including theoretical and clinical articles as well as research studies.</p> <p>*Articles with a clinical focus excluded.</p> <p>*Limited to studies of African American adults.</p> <p>55 studies met the selection criteria.</p>	<p>Various aspects of spiritual belief and practice including: belief in God, prayer, attendance at places of worship, reading the Bible and membership of religious community.</p>	<p><i>Physical health:</i> self-management of chronic illness, in particular diabetes.</p>
<p>Powell et al. (2003)</p>	<p>A comprehensive review of studies that provide the strongest methodologies and thus have the lowest risk of bias and/or confounding to examine the scientific basis for the most popular hypotheses about impact of religion or</p>	<p>Most of the studies fell into one of five categories for conceptualising religion or spirituality, including: place of</p>	<p><i>Physical health:</i></p> <p>*Mortality</p>

	<p>spirituality on physical health.</p> <p>*MEDLINE, PsychINFO, bibliographies of prior reviews and consultations with experts in the field.</p> <p>*Excluded studies: no control for potential confounder (age, gender, ethnicity); cross-sectional designs, inadequate measurement of religion or spirituality or of physical health; no statistical analyses; and earlier reports on the same cohort.</p> <p>Number of articles included in review not specified.</p>	<p>worship/service attendance, depth of religiousness, religious affiliation, religious coping and spirituality.</p>	<p>*Cardiovascular disease</p> <p>*Cancer progression and mortality</p> <p>*Disability</p> <p>*Recovery from acute illness</p>
<p>Rew & Wong (2006)</p>	<p>Systematic review of relationship between adolescent R/S & health attitudes / behaviours :</p> <p>*Jan 1998 – Dec 2003</p> <p>*CINAHL, ERIC, Dissertation Abstracts International, Medline, PsycINFO & Sociological Abstracts</p> <p>*Search terms: adolescent/adolescence AND religiosity, religion, religious, spiritual, spirituality.</p> <p>*Papers published in peer-reviews journals (31) & Dissertation Abstracts International (12) only.</p> <p>*Limited to studies involving adolescents (10–20 years) in the USA.</p> <p>43 studies met the inclusion criteria.</p>	<p>Various:</p> <p>*43 studies used 37 distinct religiosity/spirituality variables.</p> <p>*21 of 43 studies reported on reliability of measures</p> <p>*7 of 43 studies reported on validity</p> <p>Most common measures used:</p> <ul style="list-style-type: none"> - attendance/participation in religious activities/services (23 studies) - composite/generic measures of religiosity (15) - religious importance (10) - religious denomination/affiliation (9) <p>(Full summary included in Table 2, p. 438).</p>	<p><i>Health behaviours:</i></p> <p>*Alcohol use (18 studies)</p> <p>*Sexual activity / virginity status (16)</p> <p>*Use of generic drugs or drugs other than marijuana (13)</p> <p>*Tobacco use (8);</p> <p>*Violence, aggression, weapon carrying (6);</p> <p>*Birth control use (5).</p> <p><i>Mental health:</i></p> <p>*Suicide attempted or ideation (4)</p>
<p>Shaw et al. (2005)</p>	<p>Comprehensive review on the link between religion, spirituality and post-traumatic growth.</p> <p>*Date limits of review not specified.</p> <p>*PsycINFO</p>	<p>Various including: intrinsic and extrinsic religiousness, religious participation and religious openness.</p>	<p><i>Mental health:</i> emotional wellbeing with a focus on post-traumatic growth.</p>

	<p>*Search terms: posttraumatic growth, stress-related growth, positive growth, relig*, spirit* in various combinations</p> <p>11 studies met inclusion criteria.</p>		
Sloan & Bagiella (2002)	<p>Comprehensive review to:</p> <p>(a) determine the percentage of articles in the literature that were cited as providing a claim that religious people are healthier; and</p> <p>(b) to examine the quality of data in articles cited as providing support for such a claim by examining all articles in the area of cardiovascular disease and hypertension cited by two comprehensive reviews of the literature.</p> <p>Search (a):</p> <p>*Articles published in 2000 mentioning religion (266 in total)</p> <p>*Medline</p> <p>*Search term: religion</p> <p>*Limits: English language with published abstracts</p> <p>42 studies made claims about the health benefits of religious involvement and were included in the review.</p> <p>Search (b)</p> <p>*Examined all articles in the area of cardiovascular disease and hypertension cited by two comprehensive reviews.</p> <p>51 studies were retrieved in this manner.</p>	Religiousness, religious involvement/activity.	General health and physical health (cardiovascular disease & hypertension)
Smith et al. (2003)	<p>Meta-analysis of the association between religiousness and depressive symptoms.</p> <p>Searched published and unpublished studies conducted prior to February 2000.</p> <p>*CINAHL, <i>Dissertation Abstracts International</i>, Education Resources Information</p>	<p>Various:</p> <p>*35% of studies used multidimensional measures of religiousness</p> <p>*20% used measures of religious behaviors</p>	<i>Mental health</i> : depression/depressive symptoms

	<p>Center database, HealthSTAR, MEDLINE, Mental Health Abstracts, Programme Applique' a` la Se'lection et la Compilation Automatique de Litte´rature, PsycINFO, Religion Index, Social Sciences Abstracts, SciSearch, Sociological Abstracts via SocioFile, Social Work Abstracts, and TGG Health & Wellness database.</p> <p>*Multiple search terms: all words beginning with the root <i>depress</i>, as well as terms such as <i>affective disorder</i>, <i>mood</i>, and <i>affect</i>.</p> <p>Crossed with all words beginning <i>relig</i>, <i>spirit</i>, <i>church</i>, <i>mosque</i>, <i>synagogue</i>, <i>temple</i>, <i>worship</i>, and <i>pray</i>).</p> <p>*Limits, English language</p> <p>147 independent investigations included in the meta-analysis.</p>	<p>*12% used measures of religious attitudes and beliefs</p> <p>* 15% used measures of religious orientation</p> <p>*8% used measures of religious coping</p> <p>*7% used measures of religious well-being</p> <p>*3% used measures of God concept</p>	
<p>Thuné-Boyle et al. (2006)</p>	<p>Systematic review examining the potential beneficial or harmful effects of religious/spiritual coping on people with cancer.</p> <p>*PsychInfo (1978–2004), Medline (1977–2004), Embase (1977–2004), CancerLit (entire database)</p> <p>*Search terms: religion/religiosity/spirituality and cancer, religion/spirituality and coping and cancer, religious coping and adjustment and cancer, religious coping and health, faith and cancer, prayer and cancer, prayer and cancer and adjustment/anxiety/depression, spiritual support and adjustment, spiritual/religious beliefs and coping and cancer</p> <p>*Reference lists of books, book chapters and journal papers searched by hand for relevant papers.</p> <p>*Papers published in peer-reviewed journals only with religious coping appearing as an important factor in the title or abstract. Quantitative studies only. Limited to studies of adults.</p> <p>17 studies met the inclusion criteria.</p>	<p>Various including:</p> <p>*Frequency of attendance at place of worship (2 studies)</p> <p>*Prayer (1)</p> <p>*Extent of turning to religion for comfort (1)</p> <p>*Religious items form the COPE scale (7)</p> <p>*Active reliance on religion (1)</p> <p>*Religious Coping Activities Scale (1)</p> <p>*Service attendance (1),</p> <p>*Engagement with religious media (1)</p> <p>*Private religious practices (1)</p> <p>*Religious Problem Solving Scale (1)</p> <p>*Brief RCOPE Scale (1)</p> <p>*Daily Assessment of Coping Scale (1)</p>	<p><i>Mental health</i>: adjustment to illness/religious coping.</p>

		*Religious activity (1) *Religious connection (1)	
Townsend et al. (2002)	<p>Systematic, critical review of the medical literature on clinical trials examining the impact of religion on health outcomes.</p> <p>*Searched for all Randomized Control Trials (RCT)s published from 1966 to 1999 and all non-RCTs published from 1996 to 1999</p> <p>*MEDLINE</p> <p>*Search terms: religion (AND) medicine; religion (OR) intercessory prayer; prayer; prayer therapy; religious rites; faith; medicine; traditional; religiosity; religion (AND) psychology; and religion (AND) health.</p> <p>*Limited to English language and reference lists of randomized control trials (RCT)</p> <p>*Studies focused on non-religious spirituality, ethical issues, coping, wellbeing and life-satisfaction were excluded.</p> <p>9 RCTs and 25 non-RCTs met the inclusion criteria.</p>	Various including: prayer, religious activity, religiosity	<p><i>Physical health:</i> blood pressure, mortality, immune function.</p> <p><i>Mental health:</i> anxiety, depression.</p>
Van Ness & Larson (2002)	<p>Comprehensive review of epidemiological and survey research on relationship between religiousness/spirituality and mental health at the end of life.</p> <p>Koenig's prior review of the 20th-century literature was used as a basis for selection of studies. More recent studies were added to the findings of the existing review. Reference lists were reviewed to retrieve additional studies.</p> <p>Databases searched: MEDLINE, PsychINFO, Sociofile, CINHALL.</p> <p>Limited to studies of elderly populations (65+).</p> <p>Number of articles retrieved is not specified.</p>	Various including: religious affiliation, organisational (public) religiousness, private religious practices, spiritual experiences, religious beliefs/identity and religious coping.	<i>Mental health:</i> wellbeing, coping, cognitive dysfunction, anxiety, depression and suicide.

<p>Wong et al. (2006)</p>	<p>Systematic review examining relationship between adolescent religiosity/spirituality and mental health.</p> <p>*Jan 1998 – Dec 2004.</p> <p>*CINAHL, ERIC, Medline, PsycINFO, Sociological Abstracts</p> <p>*Search terms: Adolescent/adolescence and religiosity, religion, religious, spiritual and spirituality</p> <p>*Published, peer-reviewed, US-based studies only.</p> <p>*Limited to studies of adolescents (10–20 years).</p> <p>20 studies were included in the review.</p>	<p>Institutional, social and behavioural aspects of religion/spirituality (including religious attendance, participation in bible study).</p> <p>Ideological aspects of religion (ideology, attitudes, importance of religion, doctrinal beliefs).</p> <p>Personal devotion (intrinsic religious orientation, private religious practices).</p> <p>Self-reported level of religiousness.</p>	<p><i>Mental health:</i> self-esteem, depression, anxiety, thriving, psychological wellbeing, psychotic disorders (schizophrenia), emotional distress.</p>
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Appendix B:

Summary of published empirical research on religious discrimination¹ and health

Study	Sample	Design	Outcome variable/s	Findings
Bhui et al. (2005)	2054 multi-ethnic workers, UK	Cross-sectional	Presence of common nonpsychotic mental disorders (anxiety and depression)	Positive association
Gold (2004)	364 Jewish women, Canada	Cross-sectional	Depression (Beck Depression Inventory-II)	Positive association
Hassouneh & Kulwicki (2007)	30 Arab Muslim women, USA	Cross-sectional	Anxiety and depression	Statistical tests not conducted
Lauderdale (2006)	Arabic-named American women	Cross-sectional	Low birth weight, pre-term births	Positive association
Montgomery (2008)	131 young (predominantly Muslim) Middle Eastern refugees, Denmark	Longitudinal	Internalising behaviour (anxiety, depression, withdrawal and dysphoria)	Positive association
Moradi & Hassan (2004)	108 Arab Americans	Cross-sectional	Self-esteem, psychological distress	Positive association
Rippy & Newman (2006)	152 Muslim Americans, Oklahoma, USA	Cross-sectional	Subclinical paranoia, anxiety	Conditional positive association with subclinical paranoia. No association with anxiety.

Sheridan (2006)	222 Muslims, UK	Cross-sectional	Diagnosable psychiatric disorder (GHQ-12 questionnaire)	Positive association
Silveira and Allebeck (2001)	28 older Somali males, East London	Cross-sectional	Anxiety, depression, life satisfaction	Statistical tests not conducted
Terheggen et al. (2001)	76 Tibetan refugee students, India	Cross-sectional	Anxiety and depression	Positive association (strong for anxiety, weak for depression)

¹ Studies either directly measured religious discrimination, or made explicit that religious discrimination was included as a component of race-based discrimination.

Appendix C:

Summary of articles reviewing the relationship between race-based discrimination and health

Publication	Study design & limits	Aspect of health/wellbeing
Brondolo et al. (2003)	<p>Comprehensive review of peer-reviewed literature on perceived racism and blood pressure.</p> <p>Databases: PsycINFO, MEDLINE, ERIC and Sociology Abstracts.</p> <p>Total of 17 articles met inclusion criteria.</p> <p>Most of the studies reviewed were conducted in North America on African American populations.</p>	<p>*6 studies examining relationship between perceived racism/ethnic discrimination and blood pressure.</p> <p>*11 studies examining relationship between perceived racism/ethnic discrimination and cardiovascular reactivity.</p>
Krieger (1999)	<p>Review of the public health literature for studies measuring self-reported discrimination (ethnic/racial, gender, sexual orientation) and physical/mental health.</p> <p>Out of the total 20 studies identified, 15 examined the association between self-reported ethnic/racial discrimination and health.</p> <p>The review was limited to US-based studies, and focused on race-based discrimination against African Americans (13 studies) and Hispanic/Mexican Americans (2 studies)</p>	<p>Physical health: blood pressure (3 studies); hypertension (2); low birthweight (1); heart disease (1)</p> <p>Mental health: psychological distress (6); depression (1); stress (1); psychiatric distress (1); psychological wellbeing (1)</p> <p>Other: disability (2); number of chronic conditions (2); cigarette smoking (1); satisfaction with medical care (1); self-rated ill health (1); bed-days (1)</p>
Paradies (2006)	<p>A systematic review of the literature on self-reported racism and health.</p> <p>Databases searched included: PubMed, PsychINFO and Sociological Abstracts.</p> <p>Dates searched: earlier records to 2004.</p> <p>The review was limited to empirical, quantitative, population-based studies.</p> <p>138 articles met the inclusion criteria.</p> <p>No indication is given of the geographical limits or ethnic groups targeted by this review article.</p>	<p>Mental health: psychological, psychiatric or emotional distress (62 associations recorded); depression/depressive symptoms (52); obsessive-compulsive symptoms (5); somatisation (5); anxiety (22); stress (19); life/personal/work satisfaction (44); self-esteem (26); general mental health (25)</p> <p>Physical health: increased blood pressure, hypertension (79); low infant birthweight/decreased gestational age (27); heart disease (12); increased heart rate (1); diabetes (7); increased body mass index (4)</p> <p>Health-related behaviours: cigarette smoking (4); alcohol (mis)use (14); substance (mis)use (6)</p>

<p>Williams & Williams-Morris (2000)</p>	<p>Review of 13 studies, using community samples, examining the association between self-reported ethnic/racial discrimination and mental health.</p> <p>The studies included were conducted in the US (11 studies) and Canada (2 studies). They focused on a variety of ethnic groups.</p>	<p>Mental health: psychological distress (13 studies); happiness (2); life satisfaction (5); major depression (2); depressive symptoms (1); generalised anxiety (2); symptoms of intrusion (1); symptoms of avoidance (1)</p>
<p>Williams et al. (2003)</p>	<p>Comprehensive review of population-based empirical studies examining the association between perceptions of racial/ethnic discrimination and a particular indicator of health.</p> <p>Studies involving college students and studies measuring an aspect of medical care or stress were excluded.</p> <p>Databases searched: Medline, PsycInfo and Sociofile, 1998–2003.</p> <p>A total of 53 articles met the inclusion criteria.</p> <p>No indication is given of the geographical limits or ethnic groups targeted by this review article.</p>	<p>Total of 53 studies focused on various aspects of health/wellbeing.</p> <p>Mental health (47 associations recorded): well-being (6); self-esteem (5); control/mastery (3); psychological distress (25); major depression (4); anxiety disorder (1); other mental disorder (2); anger (1)</p> <p>Physical health (34 associations): self-rated health (6); other self-report (11); blood pressure (11); other cardiovascular (3); mortality (1); very low birthweight (2)</p> <p>Health behaviour (5 associations): smoking (3); alcohol (2)</p>
<p>Williams & Mohammed (2009)</p>	<p>Systematic review of the relationship between perceived ethnic/racial discrimination and health.</p> <p>Databases searched: PubMed between 2005 & 2007.</p> <p>Limited to empirical studies examining the association between a measure of perceived discrimination and an indicator of health or health care utilisation.</p> <p>115 articles met the inclusion criteria.</p> <p>No indication is given of the geographical limits or ethnic groups targeted by this review article.</p>	<p>Mental health: anxiety (4 studies); depressive symptoms (19); conduct problems (1); rebellious behaviour (1); negative emotions (2); daily moods (1); psychological distress (4); burnout (1); quality of life (3); mental disorders/psychological symptoms/psychiatric problems/psychosis (5); self-esteem (3); post-traumatic stress symptoms (2); life/job satisfaction (2); internalising problems/symptoms (3); externalising problems/symptoms (2); positive affect (1); homesickness (1); drug use (1); violence (3); cognitive function (1); sleep disturbance (1); suicidal ideation (1); general mental health (1)</p> <p>Physical health: blood pressure/hypertension (10 studies); reactivity (8); self-reported good health/general physical health (4); chronic health conditions (3); self-reported ill health (4); low birth weight/prematurity (1); breast cancer (1); physical fatigue (1); sleep (1); waist-hip ratio (1); sexual problems (1); other negative (7)</p> <p>Health behaviours: cigarette smoking (5 studies); illicit drug (mis)use (3); alcohol (mis)use (3); general substance (mis)use (1); prescription drug (mis)use (1); HIV risk behaviour (1)</p> <p>Studies pertaining to health care utilisation are not reported on here.</p>

Appendix D:

Glossary of subject-specific terms

Confounders

A confounder is a factor that can cause or prevent the outcome of interest and is associated with the factor under investigation. Unless it is possible to adjust for confounders, their effects cannot be distinguished from those being studied (Last 2001). For example in this paper, the health impacts of religious belief are explored. Many people who have a strong faith are also connected with a religious community. Social connectedness has a generally positive impact on health. If a study finds that people with a religious belief tend to have good health, some adjustment would need to be made to work out to what extent this belief as opposed to the social connectedness often associated with it (the confounder) contributes to the health outcomes observed. If adjustments are not made or cannot be made in the study design or data analysis, typically acknowledgement is made of their existence.

Intrinsic/extrinsic religiosity or intrinsic/extrinsic religious orientation

Extrinsic religious orientation refers to individuals who are 'disposed to use religion for their own ends' (Moreira-Almeida et al. 2006). For these individuals, religion is valued because it serves other interests – such as providing 'security and solace, sociability and distraction, status and self-justification'. Extrinsic religiosity is often shaped to meet individuals' other 'more primary' needs (Moreira-Almeida et al. 2006).

Intrinsic religious orientation refers to those individuals whose primary motive is religion (Moreira-Almeida et al. 2006). For these individuals, other needs are regarded as being of less significance and are, to the extent possible, 'brought in harmony' with the religious beliefs and religious requirements. Intrinsic religiosity involves 'embrac[ing] a creed' and then seeking to 'internalize it and follow it fully' (Moreira-Almeida et al. 2006).

Meta-analytic review

A meta-analytic review is a statistical synthesis of the data from separate but comparable studies, leading to a quantitative summary of their pooled results. Meta-analyses are often performed where there are a number of small studies, none of which in themselves is powerful enough to demonstrate statistically significant differences. The aim is to integrate the findings, pool the data and identify the overall trend of results (Last 2001).

Positive/negative religious coping strategies

Religious coping can be defined as: “the use of religious beliefs or behaviours to facilitate problem-solving to prevent or alleviate the negative emotional consequences of stressful life circumstances” (Pargament et al., 1998, p. 713). Religious coping refers to the ways in which individuals ‘translate’ their religious beliefs and practices in ways that help them to cope with stressful life events (Pargament et al. 1998). According to Pargament et al. (1998, p. 711), “religious coping methods mediate the relationships between an individual’s general religious orientation and the outcomes of major life events”. The authors developed a list of positive and negative religious coping methods. The pattern of positive religious coping methods were identified as being “derived from a secure relationship with God, a sense of spirituality, a belief that there is meaning to be found in life, and a sense of spiritual connectedness with others” (Pargament 2002, p. 171). Positive religious coping methods that were identified included: benevolent religious appraisals of negative situations, collaborative religious coping, seeking spiritual support from God, seeking support from clergy or congregation members, religious helping of others, and religious forgiveness (Pargament 2002, p. 171). In relation to negative religious coping methods, the authors argued that they develop “out of a general religious orientation that is...in tension and turmoil, marked by a shaky relationship with God, a tenuous and ominous view of the world, and a religious struggle in the search for significance” (Pargament 2002, p. 171). Specific negative religious coping methods identified included: questioning the powers of God, expressions of anger toward God, expressions of discontent with the congregation and clergy, punitive religious appraisals of negative situations, and demonic religious appraisals (Pargament 2002, p. 171).

Positive and negative psychological adjustment

Psychological adjustment refers to “psychological outcomes to...efforts employed to manage the negative impact of stressful situations” (Ano & Vasconcelles 2005, p. 464). Positive psychological adjustment, or positive outcomes, include: acceptance, emotional wellbeing, happiness, hope, life satisfaction, optimism, personal growth, purpose in life, resilience, satisfaction, self-esteem, quality of life, positive mood and so on (Ano & Vasconcelles 2005, p. 464). Negative psychological adjustment, or negative outcomes, include: anxiety, burden, depression, distress, guilt, hopelessness, hostility, negative mood, stress, post-traumatic stress disorder symptoms, social dysfunction, suicidality and anger (Ano & Vasconcelles 2005, p. 464).



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