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A systematic review of studies examining the relationship between reported racism and health and wellbeing for children and young people

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ABSTRACT

Racial discrimination is increasingly recognised as a determinant of racial and ethnic health inequalities, with growing evidence of strong associations between racial discrimination and adult health outcomes. There is a growing body of literature that considers the effects of racial discrimination on child and youth health. The aim of this paper is to provide a systematic review of studies that examine relationships between reported racial discrimination and child and youth health. We describe the characteristics of 121 studies identified by a comprehensive search strategy, including definitions and measurements of racial discrimination and the nature of reported associations. Most studies were published in the last seven years, used cross-sectional designs and were conducted in the United States with young people aged 12–18 years. African American, Latino/a, and Asian populations were most frequently included in these studies. Of the 461 associations examined in these studies, mental health outcomes (e.g. depression, anxiety) were most commonly reported, with statistically significant associations with racial discrimination found in 76% of outcomes examined. Statistically significant associations were also found for over 50% of associations between racial discrimination and positive mental health (e.g. self esteem, resilience), behaviour problems, wellbeing, and pregnancy/birth outcomes. The field is currently limited by a lack of longitudinal studies, limited psychometrically validated exposure instruments and poor conceptualisation and definition of racial discrimination. There is also a need to investigate the complex and varying pathways by which reported racial discrimination affect child and youth health. Ensuring study quality in this field will allow future research to reveal the complex role that racial discrimination plays as a determinant of child and youth health.

Introduction

The importance of social determinants of health (including historical, cultural, environmental, and political factors) as key to understanding and addressing health inequalities is now well established (Commission on Social Determinants of Health, 2008; Wilkinson & Marmot, 2003). It is widely accepted that a range of social factors are implicated in ill-health and the persistence of health inequalities in societies, with considerable evidence of links between existing forms of social stratification and health inequalities in numerous contexts (Marmot, 2005).

Expanding the social determinants agenda to include a more explicit emphasis on social determinants of child health across the life course has been identified as a priority (Li, Mattes, Stanley, McMurray, & Hertzman, 2009). This includes greater recognition of the importance of early life conditions to later health, education and social outcomes in adulthood as well as the ways in which skills, capabilities and resilience across individual, family, neighbourhood and socio-political contexts influence accumulation of advantage and disadvantage throughout life (Maggi, Irwin, Siddiqi, & Hertzman, 2010). Moreover, the Eurocentric focus of social determinants of health inequalities research has also been critiqued (Bonnefoy, Morgan, Kelly, Butt, & Bergman, 2007), with recognition of the need for research on child health inequalities to consider a broader range of cultural and geographical contexts (Maggi et al., 2010). In particular, exploration of developmental processes for

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children from indigenous (Priest, Mackean, Davis, Waters, & Briggs, 2012) and minority racial and ethnic groups (Quintana et al., 2006) is currently underdeveloped.

Racial and ethnic inequalities in child health and wellbeing have been described across population groups and contexts, particularly in developed nations such as the United Kingdom, the United States, Canada, Australia and New Zealand (Quintana et al., 2006). The bulk of existing scholarship on racial/ethnic disparities investigates the relative contribution of genetics, health behaviours, cultural practices and beliefs and socioeconomic position (Dressler, Oths, & Gravlee, 2005).

However, racism and racial discrimination are increasingly receiving attention as determinants of racial/ethnic inequalities in health (Braveman, Egerter, & Williams, 2011). Defined as a phenomena that results in avoidable and unfair inequalities in power, resources and opportunities across racial or ethnic groups; racism can be expressed through beliefs (e.g. negative and inaccurate stereotypes), emotions (e.g. fear/hatred) or behaviours/practices (e.g. unfair treatment), ranging from open threats and insults (including physical violence) to phenomena deeply embedded in social systems and structures. The behavioural or practice-based forms of racism are commonly known as racial or race-based discrimination. Racism can occur at three levels: internalised (i.e. the incorporation of racist attitudes, beliefs or ideologies into one's worldview), interpersonal (interactions between individuals) and systemic racism (production, control and access to labour, material and symbolic resources within a society) (Berman & Paradies, 2010; Paradies, 2006a).

Within the literature, the terms racism and racial discrimination are at times used interchangeably (Giscombe & Lobel, 2005) and often poorly defined (Paradies, 2006b). In this review we use the term 'racial discrimination' for consistency and brevity, and in recognition that discrimination as unfair treatment is generally the most common form of racism to be perceived and reported. In using the term 'racial discrimination', we include discrimination due to race, ethnicity, culture and religion, acknowledging the overlapping nature of these categories within popular and academic discourse, rather than as an endorsement of 'race' as an essentialist biological category. While the inclusion of religion in such definitions is debated, we do so in recognition that religion is often conflated with ethnicity and culture in popular culture (Hartmann, Winchester, Edgell, & Gerteis, 2011). Scholars are also increasingly describing the racialised nature of religious identity, noting that many markers used to discriminate against racial/ethnic groups are identical to those applied to religious groups; thus making it difficult to disentangle these forms of discrimination (Dunn, Klocker, & Salabay, 2007; Hartmann et al., 2011).

Experiences of racial discrimination can be subtle, unintentional, unwitting and even unconscious. Events caused by other factors may be misconstrued as racial discrimination while racist events may go unnoticed. However, research suggests that respondents are more likely to under than over report experiences of racial discrimination (Kaiser & Major, 2006). Moreover, given that internalised racism is, by its very nature, unrecognised by those suffering from it while systemic racism is often so pervasive that it is invisible and/or taken for granted, these forms of racial discrimination are particularly difficult to perceive. As such, it is important to note that the studies included in this review are unlikely to capture the full extent to which racial discrimination and racism impact on health and wellbeing for children and young people.

Racial discrimination can affect health and wellbeing through several pathways: (1) restricted access to social resources such as employment, housing and education and/or increased exposure to risk factors (such as unnecessary contact with the criminal justice system); (2) negative affective/cognitive and other patho-psychological processes; (3) allostatic load and other patho-physiological processes; (4) reduced uptake of healthy behaviours (e.g. exercise) and/or increased adoption of unhealthy behaviours (e.g. substance misuse) either directly as stress-coping or indirectly via reduced self-regulation; (5) direct physical injury caused by racist violence (Brondolo, Brady, Libby, & Pencille, 2011; Brondolo, Hausmann, et al., 2011; Gee, Ro, Shariff-Marco, & Chae, 2009; Harrell et al., 2011; Paradies, 2006b; Pascoe & Smart Richman, 2009).

A growing body of epidemiological evidence shows strong associations between self-reported racial discrimination and poor adult health outcomes across diverse minority groups in developed countries (Brondolo, Brady, et al., 2011; Brondolo, Hausmann, et al., 2011; Harrell et al., 2011; Lee & Ahn, 2011, 2012; Paradies, 2006b; Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009). There is also emerging research examining the impact of racial discrimination on the health and wellbeing of children and young people who are considered particularly vulnerable to its harmful effects (Pachter & Garcia Coll, 2009; Paradies, 2006b; Sanders-Phillips, 2009; Williams & Mohammed, 2009). Childhood exposure to either direct (Coker et al., 2009; Nyborg & Curry, 2003; Simons et al., 2002; Szalacha et al., 2003) and/or vicarious racial discrimination (Kelly, Becares, & Nazroo, in press; Priest, Paradies, Stevens, & Bailie, 2010) has been linked to poor child health, wellbeing and development. Experiences of racial discrimination due to structural racism also impact on children's wellbeing through access to resources needed for optimal health (Sanders-Phillips, 2009) and internalised racism has been associated with poor child health outcomes (Chambers et al., 2004). Racial discrimination has the potential to negatively affect the development and adjustment of children and young people, with potential consequences throughout the life course. In addition, children of parents affected by racial discrimination (i.e. children experiencing vicarious racial discrimination) are at increased risk of developing emotional and behavioural problems through less supportive parenting and/or changes in racial socialisation (Mays, Cochran, & Barnes, 2007; Sanders-Phillips, 2009).

Experiences of racial discrimination have been negatively associated with outcomes as diverse as birth weight and gestation (Collins, David, Handler, Wall, & Andes, 2004), socio-emotional wellbeing (Coker et al., 2009; Kelly et al., in press), childhood illnesses (Priest et al., 2010), cognitive development (Kelly et al., in press) and indicators of metabolic disease (Chambers et al., 2004). Previous reviews suggest that research to date has largely focused on African American adolescents in the United States to the exclusion of other age groups, populations and national contexts (Pachter & Garcia Coll, 2009; Sanders-Phillips, 2009).

Understanding of pathways and processes by which racial discrimination impacts on health and wellbeing outcomes for children and young people, and indeed for adult populations, is highly complex and at present relatively under-developed (Brondolo, Hausmann et al., 2011; Williams & Mohammed, 2009). While pathways by which direct, vicarious and group experiences of racial discrimination influence health and wellbeing outcomes for children and young people are all likely to differ, there may also be commonalities. It is also suggested that such processes may not only differ by the target or perceiver of racial discrimination, but may also vary within and between population groups, different ages, and type and duration of exposure to racial discrimination (Sanders-Phillips, Settles-Reaves, Walker, & Brownlow, 2009). Given the lack of current evidence regarding these processes, in this present review we have considered a diverse range of child and youth health wellbeing outcomes associated with exposure to racial discrimination of children and young people themselves, as well as vicariously by their parents and caregivers. While this unavoidably covers a range of aetiological pathways by which racial discrimination

influences health and wellbeing, this is consistent with approaches taken by others in this field (Pachter & Garcia Coll, 2009; Paradies, 2006b; Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009). Such a life course approach is also advocated to understand the influence of racial discrimination on children and young people across the lifespan regardless of the source of exposure (Gee, Walsemann, & Brondolo, 2012).

A key gap in this emergent field is the lack of a high quality systematic review of empirical studies examining relationships between reported racial discrimination and health and wellbeing specifically for children and young people. While such reviews exist among adults (Paradies, 2006b; Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009) the applicability of the findings of these reviews to the unique developmental needs and contexts of children and young people requires further examination. One non-systematic review published in 2009 identified 40 articles on racism and child health, 70% of which considered African American populations (Pachter & Garcia Coll, 2009). However, as demonstrated below, this review included only a little over half of the studies published at that time. Furthermore, almost as many studies have been published since this time.

This present review provides the first international systematic review of epidemiological studies on reported racial discrimination and health and wellbeing for children and young people. It aims to describe 1) the nature and characteristics of epidemiological research on reported racial discrimination and health and wellbeing for children and young people; 2) definitions and measurement of reported racial discrimination used in this research, including method of administration, content and timeframes of exposure; and 3) nature of associations found between reported racial discrimination and health and wellbeing for children and young people.

Methods

Inclusion criteria

The inclusion criteria for studies were as follows:

1) Empirical studies using quantitative methods including cross-sectional; prospective and retrospective cohort; case–control; and intervention designs. Peer-reviewed journal articles (published or under-review), and dissertations/theses were included.
2) Reported racial discrimination as the exposure measure, based on racial, ethnic, cultural and/or religious background. As described in the introduction, while the inclusion of religion in such definitions has been debated, this review included religion in recognition that it is often conflated with ethnicity and culture in popular culture (Hartmann et al., 2011) and the racialised nature of religious identity (Dunn et al., 2007). This definition also included racial discrimination based on internalised, interpersonal and/or institutional racism reported by carers, by children and young people, as well as proxy reports (e.g. carer report of child experiences).
3) Associations between reported racial discrimination and health and wellbeing outcomes reported for participants aged 0–18 years old. Health and wellbeing were defined holistically, including measures of illness and ill-health as well as positive health outcomes across physical, mental and behavioural domains (World Health Organization, 1946).

Search strategy and data extraction

The following databases and electronic journal collections were searched using a detailed and comprehensive search strategy from the earliest time available to November 2011: Medline (1950–), PsychInfo (1897–), Sociological Abstracts (1962–), ERIC (1910–), CINAHL (1982–) and ProQuest (1861–) (for dissertation/theses). Reference lists of articles selected for full text review were hand-searched for relevant studies. In addition, Google and key website searches were conducted and experts in the field were contacted. Key experts provided details of relevant studies both published and under-review. Searches were conducted in English only. Medline search strategy and selection of studies is provided in Appendices 1 and 2 respectively.

The initial search generated 5693 results that were screened for inclusion. All titles and abstracts were screened independently by two authors using Endnote X4. Any queries about a study to be included in the review were discussed with a third author. When required, full text papers were obtained in order to assess inclusion. Some papers with abstracts in English and full text in other languages were identified, and these were translated into English when possible. After screening, 121 studies were identified as meeting the inclusion criteria.

The quality of included studies was appraised using the Health Evidence Bulletin Wales critical appraisal tool adapted from the Critical Appraisal Skills Programme (CASP) (http://hebw.cf.ac.uk/projectmethod/appendix5.htm#top). This tool assesses key domains of study quality, including clarity of aims, appropriateness and rigour of design and analysis, including risk of bias, and relevance of results. Only studies of medium or high quality were included.

Data from studies meeting the inclusion criteria were entered by all authors into an Excel spreadsheet. Data extraction of a random 10% sample of included studies was conducted independently by a second author in order to ensure data quality. Extracted data was analysed using basic descriptive statistics in Excel 2011 for Macintosh. A formal meta-analysis was not conducted due to the heterogeneity of studies in terms of design, study populations, exposure and outcome measures.

Results

From the 5693 titles generated by the search, 153 papers representing 121 studies met the inclusion criteria. We were unable to obtain the full texts of three articles with abstracts that initially met the inclusion criteria (Borges et al., 2011; Murrell, 1996; Sedmak, 2003). Of the 153 papers, 122 were published journal articles and reports and 31 were unpublished theses/dissertations. Main reasons for exclusion were samples not being within age range, studies utilising poor methodological quality or papers with inadequate reporting of methods or not reporting health outcomes for children and young people. A number of studies were also excluded that utilised measures of general discrimination that did not specify discrimination due to racial, ethnic, cultural or religious background. On occasion, multiple papers were published from the same study. As a consequence, the unit of analysis for this review is study rather than publication. Studies reporting more than one sample were considered as one study with multiple associations. (Note: some percentages may not add to 100% due to i) some categories not reported by all studies and ii) some categories are not mutually exclusive to the unit of analysis i.e. studies.)

Description of the studies

Table 1 provides details of the key characteristics of included studies. Details of all associated publications representing included studies are set out in Appendix 3.

The majority of studies included in this review were published in the last seven years (66% $n = 80$) and in English (99% $n = 120$), with one study published in Spanish (Castro, 2005). Most of the studies used a cross-sectional study design (78% $n = 94$). Of these,

Table 1
Characteristics of 121 empirical quantitative studies of reported racial discrimination and child and youth health.

	Number of studies	% of total studies
First year of publication		
1990–1994	2	2
1995–1999	8	7
2000–2004	30	25
2005–2009	53	44
2011–	28	23
Study design		
Case-control	3	2
Cross-sectional	94	78
Longitudinal	24	20
Sampling procedure		
Convenience	100	83
Population/representative	21	17
Sample size		
$n < 100$	4	3
$100 \leq n < 200$	32	26
$200 \leq n \leq 1000$	62	51
$n \geq 1000$	23	19
Region of study[a]		
Australia/New Zealand	5	4
South America	2	2
Canada	7	6
Europe/UK	22	18
Israel	2	2
US	86	71
Study population characteristics		
Age group[2]		
Newborns/infants (0–2 years)	13	11
Preschool (3–5 years)	5	4
Primary school (6–11 years)	46	38
High school (12–18 years)	103	85
Ethnic/racial group[2] [b]		
White	28	23
Latino/a	35	29
African American	49	40
Asian[c]	30	25
Indigenous	11	9
African	11	9
Bi/multiracial	16	13
Other	13	11
Refugee/immigrant status		
Refugees	3	3
Immigrants	46	38
Religion[1]		
Christian	7	6
Muslim	4	3
Other[d]	5	4
Place of residence[2]		
Urban	93	77
Rural	20	17
Remote	8	7
Exposure time frame[1]		
None	78	64
Past year or less	25	21
>1year ≤ 5 years	1	1
Lifetime	9	7
Type of discrimination[2]		
Direct	117	97
Group	18	15
Vicarious	10	8
Informant group[2]		
Carer self report	21	17
Child/Youth self report	104	86
No. of items in measure		
≤9 items	69	57
≥10 items	51	42
NR	1	1

Percentages may not add to 100% due to rounding.
[1] Categories in this section are not complete.
[2] Categories are not mutually exclusive in relation to the unit of analysis (i.e. studies).
[a] Regions in only one study: Barbados and Turkey.
[b] Racial/ethnic backgrounds included in <10 studies: Caribbean/West Indies (9), Turkish (8), Eastern European (8), Arab/Middle Eastern (5), Greek/Italian (3), and Pacific (3).
[c] Includes South Asian, East Asian and other Asian.
[d] Other: Mormon, Protestant, Native American Church, Buddhist, Jewish, Atheist.

12 were cross-sectional analyses from a longitudinal study although longitudinal analysis was not reported. The majority of studies used convenience (i.e. non-representative) samples (83% $n = 100$), with a majority of studies including samples of 100–1000 children, young people or carers (77% $n = 94$). Most of the studies were conducted in the US (71% $n = 86$) and in urban areas (77% $n = 93$). The majority of studies (85% $n = 103$) reported outcomes for young people aged 12–18 years. A total of 46 studies (38%) reported outcomes for children aged 6–11 years, five studies (4%) for children 3–5 years, and 13 studies (11%) were reported outcomes for newborns/infants 0–2 years. The three most common ethnic/racial groups represented in the studies were African American (40% $n = 49$), Latino/a (29% $n = 35$) and Asian, including East Asian, South Asian and other Asian (25% $n = 30$).

Defining racial discrimination

Only one third of studies (38 of 121) in this review provided a definition of racial discrimination. The majority of definitions recognised both interpersonal and systemic forms of racial discrimination. However, interpersonal racial discrimination was mentioned more frequently than systemic racial discrimination. A majority of definitions also defined racial discrimination as differential treatment by race or ethnicity. These definitions were general in nature and did not specify for which racial groups this treatment was positive or negative. Several definitions included the detrimental effects of racial discrimination (i.e. for minority or non-dominant groups) with some of these also highlighting the privileges accrued through racial discrimination for dominant groups such as White people. Racial discrimination was defined as an ideology of inferiority or superiority in only a small number of studies and generally not attributed to both.

Exposure measurement

For the 121 studies in this review, a total of 123 different instruments/scales assessed reported racial discrimination. Across the instruments, there was considerable variation in exposure measurement and scale length. Of the 123 measures, 69 were between 1 and 9 items in length (with 8 consisting of only a single item) and 51 were between 10 and 44 items in length. One study did not report the number of items used (Dominguez, Dunkel-Schetter, Glynn, Hobel, & Sandman, 2008).

A number of different instruments were used as exposure measures. The two most common instruments used (in five studies each) were the Everyday Discrimination Scale (EDS) (Clark, Coleman, & Novak, 2004; Williams, Yu, Jackson, & Anderson, 1997) and the Experiences of Discrimination (EOD) scale (Krieger, 1990; Krieger, Smith, Naishadham, Hartman, & Barbeau, 2005). The next most commonly used scales were the Adolescent Discrimination Distress Index (ADDI) (Fisher, Wallace, & Fenton, 2000), and the Racism and Life Experiences Scale (RaLES) (Harrell, Merchant, & Young, 1997), each used four times. The Schedule of Racist Events (SRE) (Landrine & Klonoff, 1996) was used in three studies. The EDS and EOD have shown good internal reliability and construct validity (Bastos, Celeste, Faerstein, & Barros, 2010) while the EDS has also performed well in cognitive testing (Reeve et al., 2011). The ADDI has shown poor internal consistency and efforts towards content validation have not been reported, while psychometric testing on the RaLES has not been published in a peer-reviewed journal (Bastos et al., 2010). According to Bastos et al. (2010) other utilised exposure measures that have been psychometrically validated include the Asian American Racism-Related Stress Inventory (AARSI) (Liang, Li, & Kim, 2004), the Index of Race-Related Stress (IRRS) (Utsey, 1999) and the Perceived

Racism Scale (McNeilly, Anderson, Armstead, et al., 1996, McNeilly, Anderson, Robinson, et al., 1996).

In 79 studies, scales were developed specifically for the study, or inclusion of items from other studies that did not appear to be standard scales, was reported. Where standard scales were used, these were modified in 14 studies. Almost two-thirds of studies (61% $n = 74$) included in this review reported the internal consistency of the racial discrimination exposure scale developed specifically for the study, 67 (55%) of which were $\geq$0.70, though far fewer studies (8% $n = 10$) described use of factor analysis to examine measure structure.

Studies in this review predominantly examined reported experiences of interpersonal racial discrimination with only a handful of studies (4% $n = 5$) specifically indicating that they were measuring racial discrimination due to systemic racism. One study explicitly examined internalised racism (Chambers et al., 2004). Studies examined interpersonal racism in schools, at work and in employment processes, in the neighbourhood or community, in shops and shopping centres, in restaurants, in housing, in dealings with police and the criminal justice system, in businesses and banks, on public transport and in public. However, insufficient and inconsistent reporting of settings limits detailed synthesis of this information. Similarly, limited data was reported regarding perpetrators of racial discrimination, although where reported this included adults and peers, teachers, medical staff, police, community members, security guards, restaurant staff, shop owners and general members of the public.

Most studies included measures examining direct experiences of racial discrimination (97% $n = 117$) while 18 studies (15%) included measures that specifically assessed reported racial discrimination for a respondent's entire ethnic/racial group and 10 studies (8%) included measures of vicarious racial discrimination (i.e. reports on others' experiences of racial discrimination). Studies predominantly utilised child/youth self-reports of racial discrimination (86% $n = 104$), with fewer including carer reports of racial discrimination (17% $n = 21$). No studies included carer proxy reports specifically for children or young people (i.e. carer assessment of vicarious racial discrimination). Of the 21 studies reporting child/youth health outcomes associated with carer reports of racial discrimination, 16 were carer report only, 4 both carer and child/youth self report, and one both primary carer and main householder reported racial discrimination. Of the carer report measures, 15 captured carer direct experience of racial discrimination only (11 of which were with pregnant women and examining effects of racial discrimination on birth outcomes), two measured carer direct and vicarious racial discrimination combined (i.e. for you and your family/household) while two others used separate items for carer direct experience and carer vicarious report for a member of your family (Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004) or other African Americans (Caughy, O'Campo, & Muntaner, 2004). In Stevens, Vollebergh, Pels, and Crijnen (2005) the carer measure was report of group experience only (do you feel Moroccans are discriminated against?) while Kelly et al. (in press) included carer direct and report of racial discrimination in residential area. Six studies reported child/youth health outcomes associated with exposure measures that included discrimination due to religion, five of which included religion in the same item as discrimination due to race, ethnicity or culture. Four used general terms (e.g. discrimination because of your ethnicity, religion or colour?) and one used a specific combination of religion, ethnicity and acculturation strategy (e.g. discrimination due to being Muslim, Somali, and maintaining Somali culture). One study reported associations with discrimination due to religion, but did not report participant religious background.

Only 43 studies (36%) included a timeframe associated with exposure measurement. Of these, 25 studies measured exposure in the past year, one study measured exposure in the last five years and nine studies measured reported racial discrimination over a lifetime. Other timeframes for exposure included during school years, immigration or pregnancy.

Associations between reported racial discrimination and child health-related outcomes

Table 2 shows the associations found between reported racial discrimination and child health-related outcomes in the 121 studies included in this review. These outcomes are grouped in broad categories and are shown alongside information on the nature of the associations between these outcomes and self-reported racial discrimination.

Overall, the 121 included studies included 461 reported health-related outcomes. Of these, 46% of examined outcomes were negatively associated with reported racial discrimination, 18% were positive, and 3% were conditional. Mental health outcomes were the most commonly reported health-related outcome, with 51% of all health-related outcomes related to mental health. The most consistent association between reported racial discrimination and health was for negative mental health outcomes (e.g. anxiety, depression and negative self esteem), for which 76% of examined outcomes were significantly associated with reported racial discrimination in a positive direction (i.e. reported racial discrimination associated with worse mental health outcomes). For positive mental health outcomes (e.g. resilience, self-worth, self-esteem, psychological adaption, psychological adjustment, social and adaptive functioning) 62% of examined outcomes were significantly associated with reported racial discrimination in a negative direction. Behaviour problems/delinquent behaviours (e.g. aggression, internalising, externalising and conduct problems) were also commonly studied, with statistically significant positive associations found in 69% of examined outcomes and no association found in the remaining examined outcomes. Health-related behaviours (i.e. alcohol use, drug use and smoking) were examined in 74 outcomes, of which 51% found a significant positive association with reported racial discrimination. Wellbeing/life satisfaction/quality of life outcomes were also examined across 22 outcomes, with 45% negatively associated with reported racial discrimination and 50% unrelated. About 79% of negative pregnancy/birth outcomes examined were positively associated with reported racial discrimination. Fifteen of examined outcomes were related to physical health (e.g. blood pressure, childhood illnesses), of which 67% showed no significant association with reported racial discrimination.

Associations between study/exposure characteristics and health-related outcomes

The statistical significance (at the $p < 0.05$ level) of associations between reported racial discrimination and health outcomes also varied by exposure characteristics (Table 3). The highest proportion of significant associations occurred in studies published between 2000 and 2004, located in rural areas or including Latino/a, Eastern European or Turkish participants. Studies with exposure instruments of 10 or more items had slightly more significant associations (67%) than studies with exposure instruments with 9 or less items (62%). Of studies measuring racial discrimination within rural locations, 68% of associations examined were significant, compared with 60% for remote locations and 66% for urban locations. Studies examining reported racial discrimination among only preschool-aged children reported 37% significant associations, compared with between 60% and 65% for newborns, primary and high school

Table 2
Findings of 121 empirical quantitative studies of reported racial discrimination and health ($P < 0.05$ unless otherwise indicated).[a]

	Positive		Negative		Conditional		Unrelated		Total
Negative mental health	96	76%			4	3%	27	21%	127
Anxiety	7	64%					4	36%	11
Depression	57	79%			4	6%	11	15%	72
Depression/anxiety	1	100%							1
Distress	3	60%					2	40%	5
Hopelessness	3	60%					2	40%	5
Loneliness	2	100%							2
Mental health problems	2	100%							2
Negative self esteem	1	100%							1
Post-traumatic stress	1	100%							1
Psychological distress	1	100%							1
Social and emotional difficulties	7	64%					4	36%	11
Somatic symptoms							1	100%	1
Stress	7	100%							7
Suicide	4	57%					3	43%	7
Positive mental health	2	2%	67	62%	7	6%	32	30%	108
Emotional adjustment			1	100%					1
Psychological adaptation			1	100%					1
Psychological adjustment							1	100%	1
Resilience			1	50%			1	50%	2
Self esteem	2	2%	58	62%	7	8%	26	28%	93
Self-worth			2	50%			2	50%	4
Social and adaptive Functioning			4	67%			2	33%	6
Physical health	3	20%			2	13%	10	67%	15
Blood pressure					2	40%	3	60%	5
Childhood illnesses							1	100%	1
Common childhood illnesses	1	100%							1
Insulin resistance	1	100%							1
Obesity							5	100%	5
Physical symptoms	1	50%					1	50%	2
General health							2	100%	2
Health problems							2	100%	2
Negative general health	3	100%							3
Feeling unhappy	1	100%							1
Feeling unhealthy	1	100%							1
Health problems	1	100%							1
Positive general health			1	100%					1
Self-rated health			1	100%					1
Wellbeing/life satis/QoL[1]			10	45%	1	5%	11	50%	22
General health and wellbeing			1	100%					1
HrQoL[2]			1	100%					1
Life satisfaction			3	38%	1	13%	4	50%	8
Wellbeing			5	42%			7	58%	12
Negative pregnancy/birth	11	79%					3	21%	14
LBW[3]	4	80%					1	20%	5
Preterm birth	6	86%					1	14%	7
Preterm birth/LBW	1	100%							1
VLBW[4]							1	100%	1
Positive pregnancy/birth			2	33%			4	67%	6
Birth Weight			2	67%			1	33%	3
Gestational age							2	100%	2
Weight for gestational age							1	100%	1
Behaviour problems/delinquent behaviour	58	69%					26	31%	84
ADHD[5]	1	100%							1
Aggression	5	83%					1	17%	6
Behaviour problems	15	94%					1	6%	16
Conduct problems	3	100%							3
Delinquent behaviour	4	67%					2	33%	6
Deviance							1	100%	1
Emotional and behavioural problems	1	100%							1
Emotional problems	1	100%							1
Externalising	8	62%					5	38%	13
Internalising	20	57%					15	43%	35
Problem behaviour							1	100%	1
Health related behaviours	38	51%	3	4%	1	1%	32	43%	74
Alcohol	9	60%					6	40%	15
Drug use	20	49%	1	2%			20	49%	41
Smoking	9	50%	2	11%	1	6%	6	33%	18
Healthcare utilisation	1	20%	1	20%			3	60%	5
Access and cost of healthcare							2	100%	2

Table 2 (*continued*)

	Positive		Negative		Conditional		Unrelated		Total
Dissatisfaction with healthcare	1	100%							1
Healthcare utilisation and compliance							1	100%	1
Patient satisfaction			1	100%					1
Total	212	46%	84	18%	15	3%	150	33%	461

[1] QoL = Quality of Life.
[2] HrQoL = Health-related Quality of Life.
[3] LBW = Low Birth Weight.
[4] VLBW = Very Low Birth Weight.
[5] ADHD = Attention Deficit Hyperactivity Disorder.
[a] % of associations between that health outcome and measures of reported racial discrimination in a particular direction.

aged children. Relatively consistent patterns of associations were identified between reported racial discrimination and health-related outcomes across age groups (Table 4). However, a higher proportion of negative mental health associations were non-significant among preschoolers compared to older children and young people while a greater proportion of physical health associations were significant for newborns compared to older children.

Table 3
Significance of associations examined in 121 empirical quantitative studies of reported racial discrimination and child and youth health ($P < 0.05$).

	Total number significant associations	Total number associations examined	% of total associations significant
Year			
1990–1994	3	5	60%
1995–1999	24	33	73%
2000–2004	78	103	76%
2005–2009	124	198	63%
2011–	67	122	55%
Study design			
Cross sectional	216	340	64%
Longitudinal	76	115	66%
Sample size			
≤9 items	142	230	62%
≥10 items	153	230	67%
NR	1	1	100%
Sample size			
$n < 100$	5	12	42%
$100 \leq n < 200$	70	118	59%
$200 \leq n < 1000$	163	245	67%
$n \geq 1000$	58	86	67%
Sampling procedure			
Convenience	249	385	65%
Population/representative	47	76	62%
Location			
Remote	31	52	60%
Rural	62	91	68%
Urban	245	371	66%
Region of study			
USA	225	345	65%
Other	71	116	61%
Age			
Newborns	14	23	61%
Preschool	7	19	37%
Primary	122	202	60%
High	268	413	65%
Racial/ethnic BACKGROUND			
African	21	42	50%
African American	138	225	61%
Arab/Middle East	9	17	53%
Asian[1]	65	118	55%
Bi/multiracial	31	50	62%
Caribbean/West Indies	39	77	51%
Eastern European	14	20	70%
Greek/Italian	13	27	48%
Indigenous	41	65	63%
Latino/a	93	132	70%
Pacific	10	21	48%
Turkey	17	21	81%
White	67	110	61%
Other	269	412	65%

[1] Includes South Asian, East Asian and other Asian.

Mediation of the associations between reported racial discrimination and health-related outcomes

A number of mediators were also identified. While many mediators identified in the included studies could also plausibly be moderators, we have retained the terminology used by study authors. The association between youth reported racial discrimination and substance use was mediated by anger (Gibbons et al.,

Table 4
Findings of 121 empirical quantitative studies of reported racial discrimination and health by age group ($P < 0.05$ unless otherwise indicated).[a,b,c]

	Positive		Negative		Conditional		Unrelated		Total
Negative mental health									
Preschool (3–5 years)	3	43%					4	57%	7
Primary (6–11 years)	30	70%			2	5%	11	26%	43
High (12–18 years)	87	76%			4	4%	23	20%	114
Positive mental health									
Primary (6–11 years)	2	4%	27	53%	4	8%	18	35%	51
High (12–18 years)	2	2%	66	63%	7	7%	30	29%	105
Physical health									
Newborns/infants (0–2 years)	1	50%					1	50%	2
Preschool (3–5 years)	1	14%					6	86%	7
Primary (6–11 years)	1	20%			2	40%	2	40%	5
High (12–18 years)	2	25%			2	25%	4	50%	8
General health									
Primary (6–11 years)							2	100%	2
High (12–18 years)							2	100%	2
Negative general health									
Primary (6–11 years)	3	100%							3
High (12–18 years)	3	100%							3
Positive general health									
High (12–18 years)			1	100%					1
Wellbeing/life satis/QoL									
Primary (6–11 years)			5	45%			6	55%	11
High (12–18 years)			10	45%	1	5%	11	50%	22
Negative pregnancy/birth									
Newborns/infants (0–2 years)	11	79%					3	21%	14
positive pregnancy/birth									
Newborns/infants (0–2 years)			2	33%			4	67%	6
Behaviour problems/delinquent behaviour									
Preschool (3–5 years)	1	100%							1
Primary (6–11 years)	37	69%					17	31%	54
High (12–18 years)	54	68%					26	33%	80
Health related behaviours									
Primary (6–11 years)	15	52%					14	48%	29
High (12–18 years)	38	51%	3	4%	1	1%	32	43%	74
Healthcare utilisation									
Newborns/infants (0–2 years)							1	100%	1
Preschool (3–5 years)	1	25%	1	25%			2	50%	4
Primary (6–11 years)	1	25%	1	25%			2	50%	4
High (12–18 years)	1	25%	1	25%			2	50%	4

[a] % of associations between that health outcome and measures of reported discrimination in a particular direction.
[b] Not all outcomes were explored in all age groups.
[c] Refer to Table 2 for total associations across all age levels.

2010) by anger and delinquent behaviour (Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001) and by anger and delinquent peers (Cheadle & Whitbeck, 2011). Distress, friends' substance use and young people's risk cognitions (including willingness to try drugs) were also found to mediate the association between racial discrimination and substance use while supportive parenting was an attenuating mediator, associated with less willingness and intention to use substances (Gibbons et al., 2010, 2004, 2007). Post-traumatic stress was also found to mediate the relationship between racial discrimination and alcohol use (Flores, Tschann, Dimas, Pasch, & de Groat, 2010).

The relationship between racial discrimination and depression was mediated via intergroup competence (Phinney, Madden, & Santos, 1998). Mediators of the relationship between racial discrimination and self-esteem were ethnic identity (Castro, 2005; Romero & Roberts, 2003), ethnic affirmation and exploration (Romero & Roberts, 2003), internalising problems (Smokowski & Bacallao, 2007; Smokowski, Bacallao, & Buchanan, 2009, Smokowski, Rose, & Bacallao, 2010), stress (DuBois, Burk-Braxton, Swenson, Tevendale, & Hardesty, 2002) interethnic contact and attitudes (Castro, 2005) as well as familism and prosocial friends for those with ethnic identity and biculturalism (Smokowski & Bacallao, 2007). Liebkind, Jasinskaja-Lahti, and Solheim (2004) found the effect of racial discrimination on self-esteem was mediated by reduced ethnic identity and that such identity was associated with increased sense of mastery that in turn increased self-esteem. Cassidy, O'Connor, Howe, and Warden (2004) reported self-esteem (personal and ethnic self esteem, or how individuals evaluate the ethnic group with which they identify) as a mediator between racial discrimination and anxiety and that ethnic self-esteem mediated the relationship between racial discrimination and depression. Ethnic self esteem also mediated the relationship between racial discrimination and global self worth in other research (Verkuyten, 2003; Verkuyten & Thijs, 2006). Self-esteem also mediated the relationship between racial discrimination and psychological adjustment (Jasinskaja-Lahti & Liebkind, 2001). The relationship between racial discrimination and depression was mediated by discriminatory victimisation and cultural orientation (Deng, Kim, Vaughan, & Li, 2010; Kim-Bae, 2000) and by perceived threat (Hunter, Durkin, Heim, Howe, & Bergin, 2010) while perceived social support mediated the association between racial discrimination and externalising symptoms (Nair, 2008).

Carer related factors were also identified as mediators, with carer negative affect and carer drug problems mediating relationships between carer reported racial discrimination and common childhood illnesses (Priest et al., 2010), while parental distress mediated between parent reported racial discrimination and substance use in 12–13 year olds (Gibbons et al., 2004). Parent–adolescent conflict mediated the association between reported racial discrimination and internalising problems (Smokowski & Bacallao, 2007; Smokowski et al., 2009, 2010).

Effect modification of the association between reported racial discrimination and health-related outcomes

The associations between reported racial discrimination and health-related outcomes examined in this review were modified by a number of factors, which either intensified or attenuated the association between reported racial discrimination and health. Details of significant interaction terms and the relationships they modified are provided in Table 5. Moderators included: individual level factors such as age, gender, cognitive development; coping responses to racial discrimination such as anger, talking to someone, accepting it; social support such as friends, community support; parenting quality and frequency and type of racial socialisation messages; and ethnic group orientation and cultural identification factors. In addition, ethnicity was reported as a significant interaction term in several studies with associations between racial discrimination and health varying in magnitude for different ethnic and racial groups (Di Cosmo et al., 2011; Greene, Way, & Pahl, 2006; Verkuyten, 2003).

Discussion

This review reveals a growing body of literature on the relationship between reported racial discrimination and the health and wellbeing of children and young people, with well over half of included studies published in the last seven years. It provides compelling evidence for acknowledging and addressing racial discrimination as a key determinant of health for children and young people by documenting strong and consistent relationships between reported racial discrimination and a range of detrimental health outcomes across various age groups, racial/ethnic backgrounds and settings.

Patterns of association between racial discrimination and child and youth health

The patterns in the relationship between racial discrimination and health for children and young people parallel findings from the broader racial discrimination and health literature (Paradies, 2006b; Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009). This review reveals a strong and consistent positive relationship between racial discrimination and negative mental health outcomes such as anxiety, depression and psychological distress, and birth-related outcomes such as preterm birth and low birth weight, as well as a strong and consistent negative relationship between racial discrimination and positive mental health outcomes, such as self-esteem, self-worth and psychological adaptation and adjustment. Weaker relationships existed for physical health outcomes together with mixed or relatively weak associations for other examined outcomes. A novel finding emerging from this review was an association between racial discrimination and behaviour problems including delinquent behaviours, that was as strong and consistent as the association with negative mental health outcomes. The varying strength of associations between racial discrimination and physical and mental health and problem behaviours may reflect different causal pathways and processes, with psychological and behavioural outcomes likely to be more proximally related to racial discrimination than physical health. In particular, weaker associations between racial discrimination and physical health outcomes for children and young people likely reflect delayed onset between racial discrimination exposure and outcomes such as blood pressure, obesity and other chronic illnesses, which often become evident long after damaging exposure occurs (Barker, Eriksson, Forsén, & Osmond, 2002; Ben-Schlomo & Kuh, 2002; Williams & Mohammed, 2009; Worthman & Panter-Brick, 2008). Use of more sensitive measures such as biomarkers of allostatic load and chronic disease in childhood and adolescence (e.g. salivary cortisol, inflammatory markers) is recommended to explore further these effects across the life-course (Sanders-Phillips et al., 2009; Worthman & Panter-Brick, 2008). Similarly, problem behaviours such as alcohol and drug use are uncommon in adolescents under 16 years and there is likely to be considerable time lag between racial discrimination exposure in childhood and the onset of such behaviours. Thus, the negative effects of racial discrimination in younger children on problem behaviours may be underestimated in current studies due to inadequate length of follow up, although further investigation is required as insufficient evidence is currently available to reject or support this hypothesis. Understanding the complex causal

Table 5
Significant effect modifiers of associations between reported racism (i.e. racial discrimination) and child and youth health outcomes.

Exposure	Modifier	Outcome	
		Attenuated	Intensified
Youth reported racism from peers in school	Adolescent low Anglo orientation for boys Maternal high Anglo orientation and high familism for girls		Externalising behaviour (Delgado et al., 2011)
Youth reported racism from peers in school	Adolescent low Anglo orientation for boys		Problem behaviours
Youth reported racism	Performing well academically	Conduct problems (Brody et al., 2006) Depression (Brody et al., 2006)	
Youth reported racism	Low in trait anger		Systolic BP & Diastolic BP (Clark, 2006)
Youth reported racism	"Accepting it"	BP status (Clark & Gochett, 2006)	
Youth reported racism	"Talking to Someone"	BP status (Clark & Gochett, 2006)	
Youth reported racism	High religious coping	Externalising problems (Ahmed, 2007)	
Youth reported racism	High majority cultural identification for boys High American Indian identification for girls		Delinquent behaviours Drug use problems (Jones, 2009)
Youth reported racism	High ethnic identity		Externalising problems
Youth reported racism	Males		Conduct problems (Brody et al., 2006)
Youth reported racism	Males		Drug use Self esteem (Zubrick et al., 2005)
Youth reported racism	High gender discrimination	Depression (Cogburn et al., 2011)	
Youth reported racism	Nurturant parenting	Conduct problems Depression (Brody et al., 2006)	
Youth reported racism	Supportive parenting	Substance use (Gibbons 2010)	
Youth reported racism	Supportive parenting	Violent Delinquency (Simons et al., 2006)	
Youth reported racism	High public regard		Depressive symptoms/perceived stress (Sellers et al., 2006)
Youth reported racism	High positive racial socialisation messages	Depression and problem behaviour (Neblett et al., 2008)	
Youth reported racism	Moderate negative racial socialisation		Problem behaviour (Neblett et al., 2008)
Youth reported racism	Absence of preparation for bias		Self esteem (Harris-Britt et al., 2007)
Youth reported racism	Presence of race pride socialisation	Self esteem (Harris-Britt et al., 2007)	
Youth reported racism	High family support	Externalising problems (Ahmed, 2007)	
Youth reported racism	Low community support for first generation youth	Internalising problems (Ahmed, 2007)	
Youth reported racism	Prosocial friends	Conduct problems Depression (Brody et al., 2006)	
Youth reported racism	Genetic status (carrying one or two copies of the short allele variant of 5-HTTLPR compared with those carrying two copies of the long allele variant)		Conduct problems Gender (Brody et al., 2011)
Youth reported racism	Family conflict		Loneliness Anxiety (Juang & Alvarez, 2010)
Youth reported racism	Family cohesion	Loneliness Anxiety (Juang & Alvarez, 2010)	
Youth reported peer discrimination	High maladaptive coping		Self esteem (Chatman, 2007)
Youth reported individual level racism	Being alienated (low racial centrality, low private regard and low public regard)		Depressive symptoms (E. K. Seaton, 2009)
Youth reported discrimination distress	High in communalistic coping		Anxiety (Gaylord-Harden & Cunningham, 2009)
Youth reported collective/institutional racism	Pre-formal reasoning		Self esteem (Seaton 2010)
Youth reported collective/institutional racism	Low school/neighbourhood diversity		Life satisfaction (Eleanor K. Seaton & Yip, 2009)
Youth perceived racism	Low white American identification		Substance use (Galliher et al., 2011)
Youth perceived racism	Multiracial youth compared to Asian or African Americans		Substance use (Choi et al., 2006)
Youth perceived racism	Increased connection to ethnic group	Problem behaviour (Wong et al., 2003)	
Maternal report of racism	John HeNRyism		Preterm delivery (Mustillo, 2002)
Maternal report of racism	Perceived adequate social networks		Low birth weight (Mustillo, 2002)
Maternal report of lifetime and past year racism	Getting violent	Preterm/LBW (Rankin et al., 2011)	
Maternal report of lifetime and past year racism	Active coping	Preterm/LBW (Rankin et al., 2011)	
Maternal perceived racism	No more than 12 years education		Preterm birth (Rosenberg et al., 2002)
Lifetime experiences of racism	Stress and prenatal depression		Preterm birth risk (Misra et al., 2010)
Fathers' reports of workplace racism	Less acculturated family context		Depression (Crouter et al., 2006)

The reference citations in Table 5 are listed in Supplementary data.

pathways between racial discrimination and health outcomes is also important in this context, given evidence that stress and poor mental health can lead to poor physical health outcomes and problem health behaviours such as alcohol and drug use, and vice versa (Sanders-Phillips, 2009; Sanders-Phillips et al., 2009). It is also plausible that poor physical/mental health and behavioural difficulties influence experiences and perceptions of racial discrimination. This further reinforces the need for longitudinal studies to determine direction of associations and causality, although evidence from longitudinal studies in adult populations suggests that racial discrimination does precede ill-health (Paradies, 2006a, 2006b; Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009).

While most studies included in this review show racial discrimination negatively impacts mental and physical health outcomes, some report findings in the opposite direction. The most plausible explanation for these results is some form of study bias, whether related to measurement error, selection bias, unmeasured or unaccounted for confounders, moderators or mediators, and/or analytic errors (Kirkwood & Sterne, 2003).

A range of mediators of the association between racial discrimination and various health-outcomes were also documented in this review, including: emotions such as anger, perceived threat, negative affect and (di)stress; individual factors related to cognition and behaviour as well as identity, cultural orientation, competence and self-esteem; and interpersonal factors relating to conflict, social support, peer and interethnic relations. These mediating factors are broadly similar to those noted in studies examining racial discrimination and health among adults.

A similar diversity of constructs was noted as effect modifiers in this review. Supporting the conceptual model developed by Sanders-Phillips (2009), findings relating to moderation indicate that positive parenting and socialisation as well as social support and ethnic attachment may be effective in ameliorating the detrimental effects of racial discrimination. Conversely, some forms of cultural orientation, identification and acculturation appear to intensify the ill-effects of racial discrimination.

The proportion of statistically significant associations between reported racial discrimination and health-related outcomes varied considerably between racial/ethnic groups but no clear patterns emerged. As noted in a previous review, the consistency of associations between racial discrimination and health for White participants is comparable with other ethnic/racial groups (Paradies, 2006b). However, this review confirms the overwhelming evidence that minority groups report more racial discrimination than White people.

Location and populations of studies

As noted in previous reviews (Pachter & Garcia Coll, 2009; Sanders-Phillips, 2009), the literature on racial discrimination and child health is dominated by studies conducted in US urban contexts with adolescent children. Although previous reviews have noted a predominance of studies involving African Americans (Pachter & Garcia Coll, 2009), this systematic review reveals a considerable proportion of studies also focussing on Latino/a and Asian (including East Asian, South Asian and other Asian populations).

Definition and measurement of racial discrimination

With only a third of studies explicitly defining racial discrimination, this review highlights a lack of attention to the conceptualisation of racism and racial discrimination both as a determinant of health (Paradies, 2006a) and as a more general phenomenon (Berman & Paradies, 2010). In particular, there was little recognition of racism and racial discrimination as an ideology of both inferiority and superiority (including White privilege). Consistent with discussions in recent literature (Dunn et al., 2007; Hartmann et al., 2011) in this review where studies did consider the health effects of discrimination due to religion, they predominantly did so in the same measure as racial discrimination and therefore considered them conceptually equivalent. Further exploration of these concepts and the health effects of religious- and racial discrimination, as well as other forms of discrimination, such as gender, age, physical appearance, is an important area for future work.

Racial discrimination was assessed using a wide variety of instruments within studies included in this review. Most instruments that were developed were only utilised in one study with the most popular two scales used in only five studies each. As a result, there remains a lack of convergence in relation to racial discrimination exposure assessment within this body of literature. While a number of instruments were checked for internal consistency (i.e. Cronbach's alpha), only a few scales were examined using factor analysis or cognitive testing, item response theory, extreme groups comparison, convergent/discriminant validity or test–retest reliability. Furthermore, as many of the instruments were originally designed for adults, it is unclear how effectively or comprehensively they tap into experiences relevant to children and young people (Pachter & Garcia Coll, 2009; Pachter, Szalacha, Bernstein, & Garcia Coll, 2010).

Debate continues regarding the aetiologically relevant time period for reported racial discrimination as it relates to various health outcomes. Specifying the timeframes of exposure measurement may help elucidate such aetiology, including consideration of lag times between exposure to racial discrimination and ill-health (Williams & Mohammed, 2009). It would also allow time-series analysis in longitudinal cohort or repeated cross-sectional studies (Paradies, 2006b; Williams & Mohammed, 2009). However, less than a third of studies in this review included a timeframe associated with exposure measurement.

Although assessment of setting-based exposure to interpersonal racial discrimination was common, comprehensive reporting of this information was neglected. There was also limited focus on perpetrators of racial discrimination and insufficient consideration of vicarious racial discrimination as a determinant of health for children and young people. Further exploration is needed of the differential effects of racial discrimination experienced by caregivers, family and peers, compared to experiences of racial discrimination by children and young people themselves. Greater clarity of measurement across levels of racial discrimination is also required, with institutional racial discrimination explicitly assessed by few included studies and internalised racial discrimination as a determinant of health examined by only one (Chambers et al., 2004). Only a handful of studies explicitly assessed systemic forms of racial discrimination, despite long-standing recognition of these phenomena as two of the three levels of racism experienced (Lipsky, 1978; Williams, 1985).

The scant existing literature on the linearity of the relationship between racial discrimination and ill-health (i.e. (curvi)linear dose–response relationship) (Paradies, 2006b) warrants further investigation in relation to child and youth health and wellbeing. Similarly, inconsistencies in the reporting of racial discrimination in studies involving adults (Hausmann, Kressin, Hanusa, & Ibrahim, 2010) suggest that further attention to the interplay between carer proxy-reports and child/youth self-reports of racial discrimination may add to our methodological understanding of racial discrimination.

There were relatively few variations in the associations between study/exposure characteristics and health-related outcomes. It is notable that longitudinal studies had the same proportion of

statistically significant associations between racial discrimination and health as cross-sectional studies, suggesting that racial discrimination leads to ill-health rather than vice versa. The findings also indicate that studies with larger sample sizes were much more likely to demonstrate statistically significant associations while the use of convenience sampling does not appear to affect the proportion of statistically significant associations.

Supplementary video related to this article can be found at http://dx.doi.org/10.1016/j.socscimed.2012.11.031.

Child age and study findings

Although the small number of studies involving preschool children precludes any firm conclusions, there are a number of plausible reasons for the much lower proportion of statistically significant associations amongst studies involving this age group. Although strong associations between racial discrimination and birth-related outcomes were evident, the association between racial discrimination and mental health in particular may not have accumulated by this age. It is also possible that carers are able to effectively buffer children of this age from the detrimental effects of racial discrimination. Alternatively, these finding may reflect additional challenges involved in valid and reliable measurement of racial discrimination among very young children. Few studies in this review engaged with the developmental challenges particular to the study of racial discrimination and health among children. Such challenges depend on a range of cognitive, situational and individual variables including classification skills, social comparisons and moral reasoning as well as aspects of awareness, identity, stereotypes and attitudes (Brown & Bigler, 2005).

In addition to the lacunae identified above, the study of racial discrimination and health among children and young people would benefit from a more explicit and sophisticated consideration of the contribution of racial discrimination to ethnic/racial disparities in health. This would require a relatively greater focus on between as well as within group differences in studies that investigate racial discrimination in concert with a range of other social factors that either facilitate or compromise health and wellbeing.

Limitations

Our search strategy included only electronic databases that mainly contain English language articles. The fact that this review relies so heavily upon articles written in English, can be considered as a source of bias. There is also potential for null or negative findings to be under-represented due to publication bias, since researchers and academic journals have traditionally minimised the importance of these findings (Quintana & Minami, 2006). The inclusion of theses and non-peer reviewed sources in this review sought to minimise this bias. While a meta-analysis was not possible due to significant heterogeneity among studies, further scholarship may be able to utilise meta-analysis to examine the effects of racial discrimination on a range of specific health and wellbeing outcomes (e.g. depression) for which greater homogeneity is likely.

Conclusions

The data synthesised in this review provides strong evidence for racial discrimination as a critical determinant of child and youth health and wellbeing, demonstrating the detrimental effects of racial discrimination on child and youth health outcomes across age groups, racial/ethnic groups, study locations and methods. In order to build understanding of pathways by which racial discrimination influences health and wellbeing outcomes and to inform development of effective evidence based strategies for ameliorating its harmful effects, there is a need for high-quality longitudinal research in this field using robust multidimensional measures of racial discrimination as well as examination of potential moderators and mediators.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.socscimed.2012.11.031.

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