Australian Indigenous youth’s participation in sport and associated health outcomes: Empirical analysis and implications

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ABSTRACT

Analysis of the 2012 Mission Australia Youth Survey (MAYS) finds that among Indigenous youth aged 15–19 years there is a positive relationship between self-reported participation in sport and two health outcomes: rating of overall health and risk of mental health disorder. We find that Indigenous youth who participate in sport are 3.5 times more likely to report good general health and 1.6 times more likely to have no probable serious mental illness. The significance of these findings is discussed in relation to potential future research and policy. In terms of research, the analysis illustrates the utility of brief and cost-effective measures of health outcomes that could be used in future evaluations of specific programs targeting Indigenous youth participation in sport. We also discuss the potential ramifications, for practitioners and management professionals, of the particular policy paths needed to address the current gaps in service delivery to Indigenous communities, and for the development of grassroots, evidence-based, well resourced, culturally sensitive, inclusive and community-led programs. This can, in part, be achieved by ensuring youth sport development programs are shaped by Indigenous youth themselves.

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1. Introduction

In September 2012 the Commonwealth Government’s House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs released a press release requesting submissions to: “inquire into and report on the contribution of sport to Indigenous wellbeing and mentoring” (House of Representatives Standing Committee on ATSI Affairs, 2012, p. 1). More specifically the committee was interested in understanding: how sporting bodies can increase opportunities for Indigenous participation, including for Indigenous women; how non-government organizations can use sport as a vehicle to improve outcomes for Indigenous people, and; how Indigenous sporting programs, as supplied by the

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sporting codes, the private and NGO sectors, and federal government assistance programs contribute to Closing the Gap targets.\(^1\)

After 10 months of consultation and 58 submissions, the resultant report Sport: More than just a Game was released in June 2013. This report lays out 11 recommendations, among them: to promote sport as a vehicle to Close the Gap by:

**Recommendation 1 – Framework for sport programs and Close the Gap outcomes**

The Committee recommends the Minister for Indigenous Affairs, in consultation with the Minister for Sport, develop an overarching framework of service delivery and evaluation for Commonwealth agencies which fund sport programs to clearly identify outcomes that align with Close the Gap targets (House of Representatives Standing Committee on ATSI Affairs, 2013, p. xiii).

The Closing the Gap targets reflect a range of outcomes which are dependent upon improving the health of Indigenous Australians. In this context, sport is seen as a potential lever in lifting the overall health status of Indigenous communities. Two interlocking approaches to the promotion of sport hold potential here: firstly programs which identify, support and promote Indigenous elite talent in sport and secondly, programs promoting grassroots participation in sport. In this study we focus on the latter, grassroots sports participation, and address a second recommendation “to promote participation in sport among Indigenous Australians through a range of strategies” including conducting “a comprehensive project to measure and compare the range of outcomes across gender and age from Indigenous participation in sport and cultural activities” (House of Representatives Standing Committee on ATSI Affairs, 2013, p. xiv).

In response to the report and the above recommendations this paper seeks to provide some evidence on the relationship between participation in sport and indicators of health in an already available data set. The Mission Australia Youth Survey is an important, national, annual survey of youth values, concerns and social participation (Hampshire & Di Nicola, 2011; Mission Australia, 2012b). The survey questionnaire also collects data on demographic and personal background information and on self-reported general health and mental health. Sport participation is operationalized in the survey by the question: “In the past year, have you been involved in … sports (as a participant)?”; thus in this study we refer to grassroots sport as any sport within a community in which a youth may have been involved.

Among the 2012 participants in the survey (\(N = 15,351\)) 4.2% identified as Aboriginal or Torres Strait Islander (\(n = 645\)). This sample enables examination of the relationship between reported participation in sport and self-reported general health (formatted from the ABS General Social Survey) and risk of mental health disorder (the ‘Kessler 6’ screener). Analysis of this data enables an empirical exploration of the relationship between sport and the general health and wellbeing outcomes in this youth population. The significance of these findings is discussed in relation to potential future research and current policy, particularly in relation to the challenges of overcoming the current gaps in service delivery to Indigenous communities and barriers to sport participation and how these might be addressed through culturally appropriate and evidence informed approaches.

In this paper we examine literature on the role of sport and its relationship to health outcomes in Indigenous communities, before presenting logistic regression analyses of the MAYS data to address the following research questions:

1. What is the association between self-reported participation in sport and self-reported general health status in young (15–19-year-old) Aboriginal and Torres Strait Islander people?
2. What is the association between self-reported participation in sport and risk factors for non-specific psychological distress for young (15–19-year-old) Aboriginal and Torres Strait Islander people?

Implications of our findings are then discussed in relation to sports management programs and policy, in particular how programs and policies might address the current gaps in service delivery to Indigenous communities through culturally appropriate, collaborative and evidence informed approaches.

### 2. The role of sport

Sport and recreational activities were established as pedagogical and life learning endeavors for Indigenous communities prior to colonization and the introduction of Anglo/Celtic games (Edwards, 1999, 2009; Maynard, 2011; Whimpress, 1999).

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\(^1\) In 2008 COAG set specific and ambitious targets for Closing the Gap:
- To close the life-expectancy gap within a generation.
- To halve the gap in mortality rates for Indigenous children under five within a decade.
- To ensure access to early childhood education for all Indigenous four year olds in remote communities within five years.
- To halve the gap in reading, writing and numeracy achievements for children within a decade.
- To halve the gap in Indigenous Year 12 achievement by 2020.
- To halve the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade.

\(^2\) In the Mission Australia Youth Survey participants identified as Aboriginal or Torres Strait Islander by answering ‘yes’ (as opposed to ‘no’ or ‘prefer not to answer’) when asked whether they identify as Aboriginal, Torres Strait Islander. For this reason we use the term Aboriginal and Torres Strait Islander or Indigenous when referring to the findings of this survey.
Sport has emerged on the global stage as an avenue to make a significant contribution to improving outcomes in areas where there is conflict and high levels of disadvantage (Kidd, 2008; Spaaij, 2009a). In this sense sport is viewed as being able to contribute to improving the wellbeing of marginalized groups of people. In Australia sport has been promoted as a panacea to many of the challenges facing Indigenous communities (Nelson, 2009).

Indigenous Australians have made a significant contribution to the national sporting landscape at all levels of competition (Tatz, 1987, 2009; Tatz & Adair, 2009). Indeed, sport has been one of the few areas of Australian culture in which Indigenous Australians have occupied prominent places on the public stage. However, despite a number of celebrated cases, the 2006 Human Rights and Equality Opportunity Commission Report found that “Aboriginal and Torres Strait Islander people are ... not represented proportionally in sporting organisations, and very few have represented at the elite and national level” (Oliver, 2006, p. 19). In response there has been a proliferation of sports programs among Indigenous communities and there is evidence that Indigenous representation is rising, however the impact of these programs upon community wellbeing is yet to be fully explored.

The significance of sport to Indigenous Australians has been demonstrated in a range of historical and community studies (i.e. Gorman, 2010; Hayward, 2006; Judd, 2010; Tatz, 1995; Thomson, Darcy & Pearce 2010). At the grassroots level, sport plays a critical role within Australian society and particularly in Indigenous communities throughout the country (Spaaij, 2009b, 2009c). For many Indigenous children and young adults sport is a vital vehicle through which they socialize and also find opportunities to overcome social inequities through opportunities to participate and excel (Hallinan & Judd, 2007; Lynch & Veal, 2006; Skinner, Zakus, & Cowell, 2008; Tatz, 1995).

At the community level, Indigenous Australians are also increasingly taking leadership roles in the management of community based sports activities (Thomson et al., 2010). For example, in 2012 the New South Wales Rugby League Association (NARLA) celebrated 40 years of coordinating the rugby league knock out tournament (Norman, 2012). There has also been the rise of organizations such as the Lloyd McDermott Rugby Development Program and the National Aboriginal Sports Corporation Association, to name a few. Each has moved toward providing Indigenous Australians with a pathway into both sport and sports management.

In recognition of the value of sports participation, some form of sport-development programming has been part of the policy response for redressing inequity amongst Aboriginal and Torres Strait Islander communities at both the national and sub-national level. In practice, however, a greater emphasis has arguably been placed on developing pathways for competitive sport at the elite level with less attention given to the importance of grassroots participation in sport among Indigenous communities. This aligns with sport development policy more generally, with elite sport development being a key policy priority for Australian federal governments for at least the past 25–30 years (Green & Houihan, 2005). Various football codes have “talent spotting” programs and the Federal Government has resourced Indigenous elite athlete recruitment and development through its provision of $8.8 m (2006–2010) to the Australian Institute of Sport (Magnay, 2006). Adair argues that “the tendency within sport to focus on elite athlete performance among Indigenous Australians is, arguably, a distraction from a far more pressing issue – overall Aboriginal health and physical activity regimes to improve it” (Adair, 2012, p. 27). Instead Adair argues for the need to develop programs that target as many Indigenous Australians as possible. Tatz (2012) highlights the value and contribution that sport has at a grassroots level in Indigenous communities:

> It is surprising that a nation so dedicated to sport has ignored its role in trying to alleviate youth suicide. Involvement in sport has shown to deflect, even deter, juvenile delinquency. Similarly, there is evidence (and reason) enough to show a strong connection between sport and suicide among the young. Sport is a major element in contemporary Aboriginal life: it provides meaning, a sense of purpose and belonging; it is inclusive and embracing in a world where most Aboriginal youth feel alienated, disempowered, rejected and excluded. (Tatz, 2012, p. 922)

While there are many positive developments, there is a discernible tension developing between programs which promote participation and leadership in elite sport and those which focus on grassroots participation and community development. Although these two are not mutually exclusive, there is a challenge in how to balance and integrate them productively so that maximum benefits can be realized.

It is important to note that Indigenous Australians are a youthful population with a median age of 21 years, 16 years less than the national median age of 37. More than one in three (36.6%) Aboriginal and Torres Strait Islander people are younger than 15, and just 3.8% of the Indigenous population are older than 65 (Australian Institute of Health and Welfare, 2011). Thus examination of sport within youth populations is particularly important.

3. Sport and health outcomes

There is a clear understanding that sport and physical activity have positive health benefits through the reduction of chronic diseases and the improvement of physical and mental health. A plethora of evidence supports strong empirical and theoretical links between sport and positive health outcomes (Janssen & LeBlanc, 2010; Priest, Armstrong, Doyle, & Waters, 2007; Sparling, Owen, Lambert, & Haskell, 2000). This evidence ranges from: experimental studies in animal models (Portugal et al., 2013; Vaanholt, Daan, Garland, & Visser, 2010) to biochemical and physiological marker studies (Richter & Ruderman, 2009; Neto, Lira, deMello, & Santos, 2011); to surveys in different populations, including in other Indigenous populations (Foulds, 2011; Stone, McKenzie, Welk, & Booth, 1998) and experimental studies examining the impact of sport
and physical activity interventions (Chan et al., 2007; Demetriou & Honer, 2012; Dugdill, Brettle, Hulme, McCluskey, & Long, 2008; O’Dea, 1984; Rowley, Daniel, & Skinner, 2000).

In terms of psychological well-being, research has demonstrated that young people’s mental health is promoted through regular exercise and sport (Biddle, Fox, & Boutcher, 2000; Edwards, 2002; Pate, Pratt, & Blair, 1995; Scully, Kremer, Meade, Graham, & Dudgeon, 1998). Psychological explanations of why exercise enhances psychological well-being include the following: enhanced feelings of control, improved self-concept, self-esteem and self-efficacy and more positive social interactions (Scully et al., 1998).

Despite this overwhelming evidence that sport promotes health and wellbeing, there is a dearth of research in this area relating to Indigenous populations. More than a decade ago Shilton and Brown argued that there is an urgent need for “fast tracking of research in this area into the scientific literature” (2004, p. 39). Such calls are prompted by other evidence that documents the inequality in both general and mental health outcomes of Indigenous and non-Indigenous Australians. Community level research, recently reviewed by Jorm et al. (2012), has highlighted the fact that Indigenous populations have a higher prevalence of self-reported psychological distress than the general community. Furthermore, the 2004/5 ABS National Aboriginal Torres Strait Islander Health Survey, which used measures similar to those reported in this study, found that Indigenous people overall were almost twice as likely as non-Indigenous people to report their health as fair or poor and reported feeling higher levels of mental distress on every item of the Kessler Psychological Distress Scale (Australian Institute of Health and Welfare, 2011).

Given the overwhelming evidence supporting a positive relationship between sport and health there is strong reason to believe that sport can play a positive role in improving the health outcomes of Indigenous youth. To date, however, some limited research has focused on how physical inactivity can have negative health effects. According to an ABS report “physical inactivity was the third leading cause of the burden of illness and disease for Indigenous Australians in 2003, accounting for 8% of the total burden and 12% of all deaths” (Australian Bureau of Statistics, 2003). However, it should be noted that findings regarding levels of participation in sport among Indigenous Australians are highly variable – see discussion of the variation in findings by Adair (2012, p. 24, 25). Still more research is required to establish sport–health links especially those that focus on the link between sport and potential positive health benefits among Indigenous youth. And, if such links can be demonstrated, what are the particular policy paths needed to implement effective Indigenous sports programs?

Below is an analysis of data from the 2012 Mission Australia Youth Survey (MAYS) which finds that there is a clear positive relationship between self-reported participation in sport and two health outcomes: rating of overall health and risk of mental health disorder.

We then discuss policies and strategies to support the development of grassroots, evidence-based, culturally sensitive, inclusive and community-led programs.

4. Methodology

Secondary data has been sourced from the 2012 Mission Australia Youth Survey – an annual self-reported questionnaire concerned with the attitudes, values and experiences of Australian youth aged 15–19. The survey is available through pen and paper and online questionnaire and obtains information on socio-demographic background, education and employment, participation in community activities, subjective wellbeing, issues of concern, and sources of advice and support. This analysis utilizes two measures to examine general and mental health of Aboriginal and Torres Strait Islander (ATSI) youth; the Kessler 6 generalized psychological distress screener (Harvard Medical School, 2005; Kessler et al., 2010) and the self-reported general health using a five-point indicator from the ABS General Social Survey (Australian Bureau of Statistics, 2011a). These measures are examined for association with self-reported participation in sport over the last year and how this relationship might vary in relation to gender and age.

4.1. Participants/samples

We examine data for the Indigenous subsample (n = 639) of the 2012 MAYS sample (N = 15 351). These participants identified as Aboriginal or Torres Strait Islander by answering ‘yes’ (as opposed to ‘no’ or ‘prefer not to answer’) when asked whether they identify as Aboriginal, Torres Strait Islander. These youth comprise 4.2% of the total sample.

Information about the 2012 MAYS and an electronic link to an online version of the study was distributed to secondary school principals, Commonwealth, state/territory and local government departments, youth organizations, Mission Australia services, a network of other service providers, peak bodies and corporate partners Australia-wide, as well as being made available as an online questionnaire (Mission Australia, 2012b). Due to this, Mission Australia undertook non-probability sampling as the sample was determined by whether the respondent was aware of the survey, able to access the questionnaire and finally, whether they chose to consent to and complete the questionnaire. Despite the non-probability sampling approach, the diverse range of sampling strategies and large sample obtained suggest that national representativeness is evident on at least some indicators. The sample was compared to data from the ABS census data (Australian Bureau of Statistics, 2011b) to determine representativeness in regard to gender and Indigenous status (see Table 1) and establish the generalisability of the study.
4.2. Data collection

4.2.1. Sport participation

The Youth Survey 2012 asked young people to identify the activities they had been involved in over the past year, including: arts/cultural, environmental, religious, political, volunteer, student leadership, youth group and club activities, and; sports (as a participant) and sports (as a spectator). Consistent with previous years’ results in 2012, sports (as a participant) and sports (as a spectator) were the top two most popular activities for both Indigenous and non-Indigenous respondents.

High proportions, 77.6% of ATSI youth and 78.5% of non-ATSI youth, reported that they participated in sport. Lower participation in sport was reported by girls in both ATSI (girls 72.8%, boys 82.2%) and non-ATSI groups (girls 77.0%, boys 80.9%). Similar levels of participation can be seen among ATSI and non-ATSI youth; although among females non-ATSI girls participated more and among males ATSI boys participated more.

4.2.2. General health scale

Young people were asked to rate their general health on a 1–5. The item asks “In general would you say your health is:” with response categories: excellent, very good, good, fair and poor. This item is based upon that used in the ABS General Social Survey (Australian Bureau of Statistics, 2011a). A dichotomous outcome measure classifying excellent, very good and good health (‘good health’) together and fair and poor health together (‘poor health’) is used for binary logistic regression.

Substantial proportions, 81.1% of ATSI youth and 86.9% of non-ATSI youth, reported ‘good’ health. Higher proportions of poor health were reported by girls in both ATSI (girls 20.4%, boys 19.9%) and non-ATSI groups (girls 14.8%, boys 10.2%). In all categories ATSI youth showed higher risk of poor general health.

4.2.3. The Kessler 6 non-specific psychological distress scale

The MAYS 2012 incorporates the use of the Kessler 6 scale, a six-item quantifier of non-specific psychological distress. This diagnostic tool asks the respondent how often in the past four weeks they have felt so sad nothing could cheer them up, nervous, restless or fidgety, hopeless, that everything was an effort, and worthless. Each of the six scale items has five categories, leading to a range of values between 0 and 24 in an unweighted scale. The K6 scoring was initially developed to reflect a dichotomy between serious mental illness and low or no probable mental illness, but a trichotomous categorization is also available (Kessler et al., 2010). The dichotomous scoring is the approach utilized here, reflecting ‘no probable serious mental illness’ and ‘probable serious mental illness’ and ‘probable serious mental illness’.

Substantial proportions of ATSI youth (71.6%) and of non-ATSI youth (82.2%), were classified as ‘no probable mental illness’. Smaller proportions of ATSI youth (28.4%) and of non-ATSI youth (17.8%) were classified as “probable serious mental illness”. Higher proportions of probable mental illness were reported by girls in both ATSI (girls 29.8%, boys 26.9%) and non-ATSI groups (girls 21.7%, boys 11.1%). In all categories ATSI youth showed higher risk of mental illness.

4.2.4. Covariates

Gender, age in years, socio-economic status (SES) and disability were also included in our analyses. SES was estimated using the participants’ post-code and drawing on ABS indices of SES based upon census data. Of these covariates only disability status was shown to have a significant impact upon health outcomes. Higher proportions of ATSI youth identified as having a disability (8.4%) than among non-ATSI youth (3.9%) and higher proportions of disability were reported by males in both ATSI (girls 7.2%, boys 11.0%) and non-ATSI groups (girls 3.6%, boys 5.6%).

5. Analysis

Our aim is to illustrate relationships between sport participation and the health outcomes. We examine these relationships across gender and age. Binary logistic regression was used to assess the impact of sport participation upon the dependent variable health outcomes (1. Kessler not probable/probable serious mental illness; and 2. general health excellent, very good, good health/fair or poor health, reclassified as good/poor health). These models included sport participation, age, gender and whether the respondent reported a disability as independent variables.
6. Findings

The proportions of youth reporting good/poor general health and probable/non-probable serious mental illness is shown in Table 2 with a break down for Aboriginal Torres Strait Islander and non-Aboriginal Torres Strait Islander youth and according to self-reported participation in sport.

It is clear that the proportion of Indigenous youth with negative outcomes is greater for both general and mental health measures. It is also clear that among youth who participate in sport there are substantially smaller proportions that are in poor health or at risk of serious mental illness. For example, in both ATSI and non-ATSI groups the proportion reporting no sport participation and ‘poor’ health is more than twice the proportion reporting sport participation and ‘poor’ health.

Among the ATSI youth in this sample the relationship between sport participation and general health is illustrated in Fig. 1, where the proportions in each of the five categories of health are displayed. Fig. 2 illustrates the same for mental health outcomes.

### Table 2

Sport participation and health outcomes among ATSI and non-ATSI youth in the MAYS.

<table>
<thead>
<tr>
<th></th>
<th>General health</th>
<th></th>
<th>Mental health – Kessler</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'Poor' health</td>
<td>'Good' health</td>
<td>No probable serious</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>mental illness</td>
</tr>
<tr>
<td>Non-Aboriginal or</td>
<td>Participates in sport</td>
<td>10.0%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Torres Strait Islander</td>
<td>Does not participate in sport</td>
<td>21.8%</td>
<td>78.2%</td>
</tr>
<tr>
<td>Aboriginal or</td>
<td>Participates in sport</td>
<td>14.5%</td>
<td>85.5%</td>
</tr>
<tr>
<td>Torres Strait Islander</td>
<td>Does not participate in sport</td>
<td>36.2%</td>
<td>63.8%</td>
</tr>
</tbody>
</table>

Fig. 1. Aboriginal & Torres Strait Islander youth sport participation and general health.
Focusing again on the ATSI sample within the data, binary logistic regression models were developed to determine the odds ratios or probabilistic risk of participation/non-participation in sport in relation to health. Health outcomes were coded ‘0’ for negative (‘fair’ or ‘poor’ general health and ‘probable serious mental illness’), ‘1’ for positive (‘good’, ‘very good’ and ‘excellent’ general health and ‘no probable serious mental illness’) therefore models are predictive of positive health outcomes.

Participation in sport was a significant predictor of positive health outcomes for both general and mental health. Our models initially included gender, age, disability and post-code socio-economic status; however none of these factors, except disability status, turn out to be significant in explaining the health outcomes. Thus these non-significant variables were removed from the models. Both models are reported in Table 3.

For general health the model was statistically significant, \( \chi^2 (2 \text{ df}; n = 516) = 31.94, p < .001 \), indicating that the model was able to distinguish between respondents who reported mental health risk and those who did not. The model explained 10% of the variance in general health, and correctly classified 84.9% of the cases. Only two independent variables (sport participation and disability status) made a statistically significant contribution to the model. Not surprisingly, disability status is the strongest predictor of general health, with an odds ratio of 4.2, with those without a disability being 4.2 times more likely to report good health than those with a disability. Sports participation produced an odds ratio of 3.5 (CI 2.07–5.94). This suggests that, after controlling for disability status, by participating in sport these ATSI youth were 3.5 times less likely to report poor general health. The confidence interval for the odds ratio suggests that sport participation may improve odds of general health by somewhere between 2 and nearly 6 times.
The mental health model, examining the Kessler 6, was also statistically significant, $\chi^2 (2 \text{ df}, n = 465) = 19.86, p < .001$, but showed lower odd ratios for sports participation. The model was able to distinguish between respondents who reported mental health risk and those who did not. The model explained 6% of the variance in risk of serious mental illness and correctly classified 75.2% of the cases. Again, only two independent variables (sport participation, $p = .06$; and disability status, $p < .001$) made a statistically significant contribution to the model and again disability status is the strongest predictor of general health, with an odds ratio of 4.3; thus those without a disability are 4.3 times more likely to have no probable serious mental illness. Sports participation produced an odds ratio of 1.59 (CI .99–2.57); suggesting that by participating in sport these ATSI youth were approximately 1.6 times more likely to be classified as having no probable serious mental illness. However, the confidence range for this odds estimate suggests that by participating in sport there may be only equal odds (OR 1) ranging up to 2.5 times the odds of good mental health.

7. Discussion

The high levels of ATSI youth participation in sport in this age group in the MAYS 2012 data is a particularly encouraging finding as previous research has suggested that participation in sport among ATSI Australians was lower than non-ATSI Australians. According to the ABS “after adjusting for differences in the age structure between the two populations, Indigenous Australians were more likely than non-Indigenous Australians to be sedentary or to exercise at low levels”. However, as Adair (2012) has noted, other studies contradict this. For example Hallinan and Judd (2009) have contended that Indigenous people take part in sport at rates far above those of Australians in general, although the authors acknowledge there are limitations with their data set (2009, fs6 & 7, p. 1233). The Human Rights and Equality Opportunity Commission report notes the inconclusive nature of existing data arguing that ‘while there is a plethora of information available on the general number and characteristics of Australian people who participate in sport and recreational activities (including age, gender, frequency and type of participation), very little data focuses on the ethnic or cultural background of participants’ (Oliver, 2006, p. 19). In response to a lack of conclusive data on Indigenous sport participation and consistent with the Sport-more than just game recommendations, we would advocate that ongoing monitoring and reporting of Indigenous participation in sport is needed and this should be reported for different age groups, including youth. In this regard, it is important to note that some of the most innovative and useful research initiatives have emerged from the third sector. In particular, Mission Australia has committed its resources to make a significant contribution toward filling this data gap.

In the MAYS data it is clear that youth sport participation predicts the reporting of good, very good and excellent general health (OR 3.5). The relationship with mental health is not as strong in the data, sport does predict a benefit (OR 1.6) but this is lower than for general health and confidence intervals suggest that the odds could range from one to 2.6. Thus our data would suggest strong, direct and large physical benefits from sport participation and smaller benefits to mental health, perhaps from both the physical and social aspects of sport.

One complicating factor in our analyses is that the only significant covariate, disability status, may not be entirely independent of sport participation. It is likely that different types of disability impact upon sport participation to different degrees and also differently in different sports. Thus there may be specific interaction effects between disability and sport participation that we have not been able to explore fully. We can say that, as sport participation predicts benefits in health over and beyond the influence of disability, future research should examine this relationship in greater detail and explore the prospect of increased sporting participation among ATSI youth with disabilities and how this participation might remediate the relationship between disability and more general health and mental health outcomes.

7.1. Policy implications

As Green and Collins remind us, “national policies for sport development have “local” consequences” (2008, p. 226). Our analysis offers insights into the relationship between participation in sport and the mental and physical health and well being of young Aboriginal and Torres Strait Islanders. It provides evidence to support the argument in the 2012 report of House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs that sport is more than just a game. The data provides a clear illustration of the positive relationship between self-reported participation in sport and rating of overall health and risk of mental health disorder. The findings here suggest that programs targeting grassroots participation, especially among girls where current participation is lowest, hold potential as a lever to lift health and wellbeing outcomes.

We argue that, because of the youthful demographic of Indigenous Australians, coming years will see more and more Indigenous children enter their teens, it is therefore critically imperative that Indigenous focused initiatives, based on empirical evidence, are identified or developed in order to lift sports participation and improve health outcomes in this age group. There is clear potential here to contribute to Closing the Gap.

Our findings underscore the value of:

1. resourcing programs that create greater opportunities for Indigenous youth, particularly girls, to participate in grassroots sporting activities;
II. establishing targeted programs that redress the barriers and fill the significant gaps in opportunities to participate in sport available for Indigenous youth; and

III. exploring the role of sport participation in the lives of Indigenous youth with disability, with a view to lifting sport participation and health outcomes

The MAYS 2012 findings add to what has to date been a limited body of evidence that Indigenous youth are likely to benefit from increased access to opportunities to participate in sport. Other literature has highlighted that barriers to various forms of Indigenous targeted services are often related to access to resources, particularly cost and transport. In 2010, the ABS reported that 71% of adult Indigenous Australians living in remote areas reported having no public transport in their local area, with 15% unable to reach places when needed due to lack of transport.

Another barrier is a lack of culturally safe and appropriate services and service provision models (Rossi & Rynne, 2012; Taylor & Guerin, 2010). A growing body of scholarly work is beginning to demonstrate that wellness and development strategies for Indigenous peoples are most effective when grounded in cultural and traditional knowledge systems (Blodgett et al., 2008; Chino & DeBruyn, 2006; Hallett, Chandler, & Lalonde, 2007; Riecken, Tanaka, & Scott, 2006). These findings underscore the value of developing culturally appropriate opportunities to participate in sport and that these opportunities take into account the specific needs and cultures in which each Aboriginal young person lives. In particular, that approaches not only take into account the often overlooked cultural and other socio-economic variations within Indigenous Australia, especially across rural and remote communities, but the inherent value in this cultural plurality and economic diversity (Altman, 2009). It is acknowledged that this in turn involves: building relationships based on trust and respect with local organizations and communities; and embracing inclusive principles such as participant-led sporting opportunities that facilitate direct youth engagement in initiating and managing programs and activities.

Our analysis here provides clear evidence of the potential of sports programs delivered at the grassroots level to deliver positive health benefits. However, as Stewart, Nicholson, Smith, and Westerbeek (2004) argue, elite sport development remains a paramount political and policy priority in Australia. This also remains the case with regards to Indigenous sport development programs. There are other substantial challenges to delivering effective grassroots sport development programs. Thus we now go on to discuss the current gaps in service delivery to Indigenous communities and how these might be addressed through culturally appropriate, collaborative and evidence informed approaches.

7.2. Program implications: addressing the gap in services for Aboriginal and Torres Strait Islander teens

Several service gap analyses have identified a lack of services, including sport and recreation initiatives, available in regional Australia (Australian Institute of Health and Welfare, 2008a,b; Cameron, 2013). To utilize the potential of sport in lifting health outcomes we first need to redress these gaps and produce equity of access to sport.

7.2.1. Culturally appropriate and collaborative service delivery

An important consideration in the design of community youth services and activities must be whether the needs of Indigenous young people are being met in both a context specific and culturally appropriate way (Thomson et al., 2010). A broad, one-size-fits-all model is unlikely to best address the critical differences found across Aboriginal and Torres Strait Islander and non-Aboriginal or Torres Strait Islander youth, as well as across geographic locations. Instead, a tailored, locally developed and culturally sensitive approach to Aboriginal and Torres Strait Islander youth programs is likely to prove more effective (Mission Australia, 2012a).

Achieving the goal of cultural appropriate service delivery is as much a management as a policy issue. Research indicates that in order to achieve cultural sensitivity and cultural integrity of service providers collaboration with local communities is critical (Thomson et al., 2010). Building collaborative relationships based on trust and respect with local organizations and communities can ensure service design is informed by local circumstances and culturally specific knowledge.

In the last decade, internationally non-government third sector organizations have become the preferred deliverers of sport for development initiatives (Banda, 2011; Kidd, 2008, 2011; Levermore, 2011). This trend is also observable in Australia, where, in the context of the pervasive neo-liberal policy agendas, governments have increasingly shifted responsibility to third-sector organizations to design, implement and run sport development programs (Lyons, 2001; Skinner et al., 2008). Yet, as Thomson et al. (2010) argue, while receiving funding to run programs, these organizations “receive limited guidance on culturally appropriate inclusive programming for Aboriginal and Torres Strait Islander people and are required to demonstrate only limited organisational capacity to deliver such programming” (2010, p. 314). For this reason, effective service responses require not only resources to run programs but to ensure culturally safe and appropriate services built through strong commitment on behalf of non-Indigenous service providers to foster collaboration with local organizations and develop cross cultural skills and cultural awareness. Thomson et al. (2010) also highlight the benefits of involving Indigenous people in the governance of these organizations; the need for collaboration between local communities and partners; the explicit need to empower local communities to develop the skills to sustain programs and outcomes; and the maintenance of mutually beneficial interactions. Engaging parents, local organizations and other parties within the community can greatly enhance the success of this strategy (Rossi & Rynne, 2012).
7.2.2. Rights based and inclusive service practice

It is also important for service providers to be mindful of overly adult-centric service models. Research has found that Indigenous led and implemented support structures and programs seem most likely to be successful in supporting Indigenous athletes (Nicholson, Hoye, & Gallow, 2011; Thomson et al., 2010). To ensure the needs of young Indigenous people are met, program funders and providers need to embrace the explicit need to empower local communities to develop the skills to sustain programs and outcomes.

Emphasis should be on facilitating direct youth engagement through the involvement of young Indigenous people in both initiating and managing programs and activities. This is consistent with research that argues for the need to reframe the childhood ‘needs discourse’ to a ‘rights discourse’ that acknowledges children as ‘social actors’ able to act on their own behalf and entitled to have a voice in decisions about them (Fernandez, 2011; Head, 2011; Wearing, 2009; Woodhead, 1997; Wyse, 2004). This can be achieved through the development of explicit frameworks on inclusive practice that strike the right balance between the involvement of government and program funders and providers and young people themselves as participants. Such services can be underpinned by youth participation where decision making on strategic planning, programs and resource allocation can be a shared process between young people and adults (Wearing, 2009). This ensures services are relevant and that they serve as an opportunity for young people to develop leadership skills. By developing youth capacity in this way we can also develop and empower future sport coaches, physical educators, parents and community leaders to become advocates for participation in sport.

7.2.3. Evidence-based approaches

The use of culturally sensitive, collaborative and inclusive practices in delivering services needs to be partnered with evidence that will help evaluate and monitor community needs, and target and provide effective sports participation programs that are built upon evidence. With a current dearth of research on effective grassroots sports programs there is a clear need for more research, this is recognized in the Sport – more than just a game report.

Our study has addressed only the broad relationship between sport and health; however there is an outstanding need for evidence on how specific sport programs targeting Indigenous communities are effective in increasing sport participation and improving health outcomes (Recommendation 2, House of Representatives Standing Committee on ATSI Affairs, 2012, p. 13).

Our research provides some methodological insights useful for future research to evaluate sports programs. In particular, the analysis illustrates the utility of two brief and cost-effective measures of health outcomes that could be used in future evaluation of specific programs targeting Indigenous youth participation in sport. The measures used here are useful and freely available and thus lower the costs of future program evaluations, an important consideration in the resource-poor, high demand environment affecting sport program providers. Furthermore, given the lack of specificity in how sporting participation was assessed in our study (“In the past year, have you been involved…?”) we were in fact surprised that the measures were sensitive enough to demonstrate the relationship between sport and health. This bodes well for future research assessing the effectiveness of programs where more detailed measures of sport participation levels should be recorded in terms of weekly or daily participation and hours spent on sport.

8. Conclusion

The finding that sports participation among Indigenous youth is associated with improved health outcomes suggests that advancing the development of quality, regular sport and physical education programs across Australian states is a key intervention for health promotion initiatives. To do this successfully, barriers to participation (particularly cost and transport) in Indigenous communities that have resulted in disadvantaged service provision must first be addressed.

Our analysis of the MAYS 2012 has highlighted the importance of targeting initiatives to lift sport participation among girls, who currently participate far less, and also among youth with a disability who may also benefit from sport. Furthermore the study illustrates the utility of several brief and cost-effective measures of health outcomes that could be used in future evaluation of specific programs targeting Indigenous youth sport.

Our research is weakened by several factors: first, a broad Indigenous youth sample that does not discriminate between different urban/rural/remote communities, nor provide sensitive analysis of the contexts these youth live in; second, a relatively weak measure of sports participation that does not reflect the length or intensity of participation; and third a lack of details that would provide insight into the role that disability plays in the sport and health equation. However, overall our findings highlight the potential of sport programs to contribute to closing the gap on health targets. Grassroots programs that are evidence-based, well resourced, culturally sensitive, inclusive and community-led are required. This can, in part, be achieved by ensuring youth sporting programs are shaped by young Indigenous people themselves.

The age demographics of the Indigenous population suggest that we currently have a timely opportunity to substantially improve Indigenous health outcomes by specifically focusing on youth sport participation. Raising awareness about the benefits of sport participation among policy makers, program funders and service providers is key to how this can be realized and further research is needed to provide insight into how it can be best achieved.
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