

1 Running head: ATTITUDES TOWARDS DISABILITY AND PARASPORT

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7 Examining the impact of integrated and non-integrated parasport events

8 on volunteer attitudes towards disability

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Abstract

1
2 Attitudes, and attitudinal change towards persons with disabilities, is an important area of
3 research as it can potentially enable greater understanding of the constraints that may preclude
4 full participation in society (e.g., Daruwalla & Darcy, 2005; Deal, 2003, 2007). In the realm of
5 sport and recreation mega sporting events have been suggested as a potential catalyst for positive
6 societal change and shifting negative attitudes (e.g., Ritchie, 2000). Much of the event research
7 to date, however, has focused on able bodied sport events, with parasport events being largely
8 overlooked (e.g., Misener et al. 2013). As a result, the impact of major parasport events on
9 attitudinal change towards persons with a disability is assumed by sport practitioners, policy
10 makers, and politicians but not justified by empirical evidence. The current study thus presents a
11 starting point by examining the benefits of hosting mega sport events and in particular focuses on
12 an important event stakeholder group; volunteers (Doherty, 2009). More specifically, the current
13 study addresses volunteer's perceptions of attitudes towards disability at two major parasport
14 events: the 2014 Commonwealth Games (where parasport was integrated with the able-bodied
15 sport) and the 2015 Pan Am/ParaPan American Games (where parasport was separated from the
16 able-bodied sport). Data were collected at two time points for each event: pre-Games, and post-
17 Games. Results revealed that both events had an impact on volunteer awareness levels of
18 disability and accessibility related issues, as well as positively impacting attitudes towards
19 persons with disability. Interestingly, the integrated events at the Commonwealth Games
20 appeared to impact attitudes to a greater degree than the non-integrated events at the ParaPan Am
21 Games. Implications are discussed pertaining to the impact of an integrated vs. non-integrated
22 major parasport event on disability/accessibility awareness, and attitudes towards disability.

23 *Keywords:* parasport, disability, events, volunteers, attitudes, awareness, leveraging

1 With the aforementioned discussion about social legacy in mind, the focus here is on one
2 particular aspect of potential impact: attitudes towards disability. There is a small, but growing,
3 body of literature that focuses on the role of events in bringing about attitudinal changes. For
4 example, Sherry, Karg, and O'May (2011) demonstrated that attitudinal changes were evident
5 towards the issue of homelessness following Melbourne's hosting of a targeted social event, the
6 Homeless World Cup. Similarly, reports from the London 2012 Paralympic Games suggested
7 that it had a significant impact on peoples' attitudes towards disability and even increased
8 employment opportunities for persons with disabilities (Thornton, 2012), yet others have
9 questioned the sustainability of these changes (e.g., Brittain & Beacom, 2016) Researchers have
10 also suggested that sport could be a context for transformation to support attitudinal change that
11 empowers persons with disabilities (e.g., DePauw, 1997; 2000; Hodges, Jackson, Scullion,
12 Thompson, & Moleworth, 2014; Jackson, Hodges, Molesworth, & Scullion, 2014). Other
13 reports, meanwhile have highlighted the lack of sustained benefits or changes after hosting a
14 Paralympic Games (Darcy, 2003; Weed & Dowse, 2009; Brittain & Beacom, 2016), with little
15 empirical evidence to support claims of attitude change of spectators or the wider public. Even
16 less is then known about the influence of the event on attitudinal change of volunteers, and no
17 research to our knowledge has focused on this issue specific to events where athletes with a
18 disability (i.e., parasport athletes) are integrated into the main sporting program with able-bodied
19 athletes (i.e., Commonwealth Games). Given the parasport communities' emphasis on how
20 events can impact attitudes towards disability, it is extremely important to understand, yet the
21 psychological construct of attitude change for volunteers, specifically towards disability, has yet
22 to be studied. The purpose of the current research then was to address this omission and examine,
23 compare, and contrast the attitudes of volunteers pre- and post at a large scale integrated

1 (Commonwealth Games) and non-integrated (ParaPan American Games) parasport event. The
2 goal is then to gain a more thorough understanding of the influence of such events on volunteer's
3 attitudes towards disability and awareness of disability and accessibility related issues.

4 **Social Inclusion and Critical Disability Studies**

5 The current study was framed around the concepts of inclusion. Inclusion emphasizes the
6 need for valued recognition, understanding, and respect of all individual needs and differences.
7 This respect comes through valuing human development through the nurturing of skills,
8 capabilities, life choices and not limiting opportunities based on disabilities (Misener & Darcy,
9 2014). Inclusion also encompasses the necessary resources, for individuals to participate fully in
10 community life. For example, a mere lack of sidewalks can negatively impact leisure time
11 physical activity for persons with disabilities (Arbour-Nicitopolous, Martin Ginis, & Wilson,
12 2010). The emphasis of this 'rights based' approach to inclusion, which is the cornerstone of a
13 critical disability perspective, highlights ablest assumptions, institutions, and structures which,
14 typically disadvantage persons with disabilities from full participation in community life
15 (Goodley, 2013). In this way, we move away from the predominant understanding of disability
16 as a medicalized, individual impairment to one where disability is socially constructed in relation
17 to broader societal structures. From this social model of disability perspective, (dis)ability is an
18 ideological construction emphasizing oppressive binaries such as normal/pathological and
19 autonomous/dependent (Goodley, 2014). As a complex political and social creation, dismantling
20 the social structures which create disability requires an understanding of the socially constructed
21 barriers that would allow access to full participation in society, but is often difficult to
22 breakthrough as they are there to exclude. It is the interplay between discriminatory attitudes,
23 negative stereotypes, and environmental variables, including infrastructure and transport, that

1 thus create the barriers to full participation (e.g., Barnes, Mercer, & Shakespeare, 1999;
2 Chadwick, 1996; Goodley, Hughes, & Davis, 2012) and are those that we seek to address in the
3 current research.

4 From a critical disability perspective, social structures such as individuals' attitudes, social
5 support and services, information and communication, and physical structures influence the
6 opportunity for all individuals to participate in community life (Pothier & Devlin, 2006). The
7 focus then remains on the complex social structure of attitudes towards disability. Typically, a
8 more positive attitude, or not underestimating the potential of persons with disabilities, enhances
9 opportunities that can help dismantle disabling structures. This offers a powerful mechanism for
10 addressing inequality and the broader social processes that can enhance quality of life for persons
11 with disabilities (Pothier & Devlin, 2006).

12 **Importance of Attitudes**

13 The importance of an empirical examination and understanding of attitudes cannot be
14 understated. From a social-psychology perspective, Allport (1935) suggested that "The concept
15 of attitude is probably the most distinctive and indispensable concept in contemporary social
16 psychology" (p. 798), and represents an interaction between an individual's thoughts and
17 feelings, alongside learned behaviours. Attitudes are learned, global evaluations of a person,
18 object, or issue that influence thoughts and actions, which can apply to either the dispositions of
19 single individuals or the broad patterns of culture and society (Allport, 1935). Although the study
20 of attitudes has been around for some time, it remains an important construct particularly given
21 how they are learned. More specifically understanding how attitudes develop is important from a
22 person's own health and security, to prejudices, and societal values. Further, implicit and explicit
23 attitudes help to determine a wide variety of important factors (Petty & Wegener, 1998) such as

1 intent and decision making (e.g., Ajzen, 1991), persuasion (e.g., Petty, Wegener, & White,
2 1998), and behaviour change (e.g., Ajzen & Fishbein, 1970).

3 The understanding of attitudes had its genesis with Allport (1935) whose early definition of
4 attitudes remains relevant today. Allport (1935) defined attitudes as a mental or neural state
5 organized through experience that exerts a directed or dynamic influence upon the response to all
6 objects and situations to which it is related. According to Ajzen (1988), positive and/or negative
7 attitudes towards something or someone can then be demonstrated through both verbal and non-
8 verbal responses. Responses can come in cognitive, behavioural, and affective forms (Ajzen,
9 1989; Ajzen & Fishbein, 1977). Prejudice, a form of negative attitude, can be demonstrated
10 through cognitive, behavioural, and affective responses.

11 Prejudice can be defined as “an unfair negative attitude toward a social group or person
12 perceived to be a member of that group (Dovidio, Kawakami, & Gaertner, 2000, p. 137).
13 Prejudicial attitudes demonstrated towards persons with disabilities are referred to as disableism,
14 defined as “discriminatory, oppressive, or abusive behaviour arising from the belief that disabled
15 people are inferior to others” (Miller, Parker, & Gillinson, 2004, p. 9). This definition
16 emphasizes overt forms of prejudicial attitudes towards persons with a disability. However, more
17 recently, Deal (2007) has argued that “much of the prejudice faced by disabled people is in fact
18 more subtle in nature” (p. 95). As a result, Deal (2007) advanced the term “aversive disableism”
19 (p. 95) reflecting more-subtle forms of prejudice. However, there are several challenges when
20 trying to recognize and identify subtle forms of prejudice especially coupled with the self-
21 presentation and social desirability motives. “It is possible that people have learnt acceptable
22 behaviours and verbal expressions towards disabled people, thus exhibiting non-prejudicial
23 behaviours, but at the same time holding prejudicial feelings and beliefs” (Deal, 2007, p. 95).

1 Recognizing that attitudes are developed through social and educational experiences, there
2 is a desire to understand how particular education/learning events (such as a sporting event) can
3 shape attitudes. A significant body of research has addressed how particular opportunities have
4 influenced attitude formation and attitudes. Similarly, there has been a long-standing interest in
5 understanding peoples' attitudes towards persons with disabilities (e.g., Makas, 1981; Schrodel,
6 1979; Soder, 1990), in relation to the socially constructed nature of that understanding. It has
7 also been established that attitudes can be measured and operationalized (e.g., Thurstone, 1928).
8 The development of the Scale of Attitudes Towards Disabled Persons (SADP) is representative
9 of the research interest in attitudes towards disability in a variety of domains (e.g., Antonak,
10 1982; Beattie, Anderson, & Antonak, 1997; Tervo, Azuma, Palmer, & Redinius, 2002; Tervo,
11 Palmer, & Redinius, 2004). More specifically the SADP has been employed in educational
12 health care settings to demonstrate the value of training modules for nursing students (Tervo,
13 Palmer & Redinius, 2004).

14 The purpose of the present study thus built upon work in the area of attitudinal change. It
15 did so using two-approaches: the first was to assess whether the Glasgow 2014 Commonwealth
16 Games and the Toronto 2015 ParaPan American Games had any impact on volunteer awareness
17 and attitudes towards disability and accessibility related issues, over two time points, from pre-
18 to post-Games; second, the current study aimed to assess the relationship between attitudes
19 towards disability and accessibility issues and awareness of disability sport (i.e., parasport)
20 programming over the same two time points for the two events. The following two research
21 questions were thus posed: 1) How does involvement and exposure to an integrated and non-
22 integrated parasport event influence volunteer's attitudes towards disability? 2) What is the
23 relationship between awareness of the event and attitudes towards persons with disabilities?

1 **Method**

2 **Participants**

3 Out of a total of 12 500 volunteers at the Commonwealth Games, a pool of 3000
4 volunteers who had self-selected into participating in research associated with the Games were
5 contacted via email, which can be attributed to the high rate of initial response. A total of 2860
6 volunteers, $n = 1086$ (37.9%) male, $n = 1711$ (59.9%) female, $n = 63$ (2.2%) undisclosed,
7 completed the survey at Time 1 (pre-event) and 1555 volunteers, $n = 580$ (37.3%) male, $n = 916$
8 (58.9%) female, $n = 59$ (3.8%) undisclosed, completed the follow up at Time 2 (post-event).
9 Likewise at the ParaPan American Games, a total of 3127 volunteers, $n = 847$ (27.1%) male, $n =$
10 1870 (59.8%) female, $n = 410$ (13.1%) undisclosed, completed the survey at Time 1 (pre-event)
11 and 1500 volunteers, $n = 416$ (27.7%) male, $n = 904$ (60.3%) female, $n = 180$ undisclosed (12%),
12 completed the follow up at Time 2 (post-event). The survey was open for volunteers to respond
13 approximately 3-4 months pre-Games (prior to receiving any volunteer training) and 1-2 months
14 post-Games. Volunteers were asked to disclose their annual household income, education, if they
15 identified as having a disability or if someone close to them identified as having a disability. The
16 sample is generally representative of volunteer populations reported in other studies, with
17 moderate to high levels of education, income, and more females volunteering than males (e.g.,
18 Dickson, Benson, & Terwiel, 2014).

19 **Measures**

20 The Scale of Attitudes Towards Disabled Persons (SADP) was originally designed as a
21 summated rating scale based on 24 items (Antonak, 1981). The scale was designed to assess
22 global attitudes based on domains broadly classified in terms of civil and legal rights, equity and
23 equality, and stereotypes of personality and social characteristics. For the purpose of the current

1 research, in conjunction with a panel of experts ($n = 5$) in disability sport research, the scale was
2 adapted to include measures of awareness of disability and parasport, and the attitudes measure
3 included 17 items that accurately reflected the context. The modified SADP was tested with a
4 sample of 40 undergraduate and graduate students to assess clarity of items and instructions.
5 Minor adjustments with item wording were made to clarify some items.

6 ***Attitudes.*** Attitudes towards disability were measured using an adapted version of the
7 SADP (Antonak, 1980, 1981, 1982, Antonak & Livneh, 2000). The survey consisted of 17 items
8 which assessed two subscales for the purposes of the current study. The first subscale (12 items;
9 $\alpha = .74$) assessed global attitudes towards persons with disabilities, encompassing affective and
10 cognitive dimensions of attitude. A sample item from this subscale was “People’s attitudes are a
11 greater impairment than a lack of physical ability for persons with disabilities.” The second
12 subscale (5 items; $\alpha = .71$) assessed attitudes towards disability sport (parasport) and physical
13 activity which was adapted specifically for the current study. A sample item from this subscale is
14 “Sport events for persons with disabilities are equally impressive as nondisabled sport events”.

15 ***Awareness.*** A four item ($\alpha = .88$) awareness measure was developed specifically to assess
16 awareness levels of certain aspects pertaining to disability sport at the Glasgow 2014
17 Commonwealth Games and the Toronto 2015 ParaPan American Games. An example item was
18 “I am aware that parasport events are represented in the marketing of the Commonwealth
19 Games/ParaPan American Games”.

20 **Procedure**

21 Ethics approval was obtained from the lead author’s research ethics board to conduct the
22 current study. Upon obtaining approval, participants were recruited via email from a database of
23 volunteers who agreed to be contacted to participate in research pertaining to the Glasgow 2014

1 Commonwealth Games and the Toronto 2015 ParaPan American Games. Participants were
2 recruited via email approximately six months pre-Games, prior to receiving any volunteer
3 training (Time 1) and sent a link to an online questionnaire. Participants who completed the
4 survey at Time 1 were then contacted again approximately six weeks post-Games (Time 2) after
5 having undergone volunteer training and completion of their volunteer duties at their respective
6 Games. Upon completion of the questionnaire at Time 2, participants were then given the option
7 to be entered into a draw for a tablet computer with all being thanked for their participation.

8 ***Volunteer Educational Training.*** It should be noted that volunteers for each of the events
9 received educational training specifically related to disability. For the Commonwealth Games,
10 this training consisted of a short (30 minutes) online presentation regarding accessibility of
11 venues, language around disability, and access requirements for the Games. For the ParaPan
12 American Games, the online training mirrored the Accessibility for Ontarians with Disabilities
13 Act training modules that were adapted specifically for Games volunteers. This involved a short
14 online presentation and a series of questions to answer. Additionally, the 42 volunteers who were
15 working in the sports demonstration zones received an additional one-hour, in-person training
16 session using the Canadian Paralympic Committee's Changing Minds Changing Lives module.
17 However, due to a lack of statistical power with a relatively small sub sample and in the interest
18 of maintaining anonymity, they have not been separated from the larger group for analysis.

19 **Results**

20 **Data Analysis**

21 All data were taken from the online survey tools and transported into SPSS 22.0 for
22 analysis. The analyses for the present study were then conducted with the goal of addressing two
23 main research questions: 1) How does involvement and exposure to an integrated and non-

1 integrated parasport event influence volunteer's attitudes towards persons with disabilities?
2 2) What is the relationship between awareness of the event and attitudes towards persons with
3 disabilities? To answer the first question, a series of analysis of variance tests (ANOVAS)were
4 conducted to assess group differences in volunteers' attitudes and awareness overall and based
5 on gender, education, income backgrounds. In the current paper, only the significant results are
6 presented, to demonstrate what impact the educational training and the event had, and highlight
7 the distinctions between the events. To answer the second question, a multiple regression was
8 conducted to assess the relationship between awareness and attitudes amongst volunteers. The
9 following hypotheses were advanced:

10 H1: Both events will have a significant impact on attitudes towards disability

11 H1A: The non-integrated event (ParaPan American Games) will have greater impact on
12 attitudes towards disability than the integrated event (Commonwealth Games)

13 H2: Higher levels of awareness of disability will be related to higher levels of positive
14 attitudes pre and post event.

15 H2A: Greater levels of awareness will be shown for the non-integrated event (ParaPan
16 American Games) than the integrated event (Commonwealth Games) and thus share a
17 more salient relationship with attitudes towards disability and parasport.

18 **Descriptive Statistics**

19 All data pertaining to the Commonwealth Games can be found in Tables 1-3 and to the
20 ParaPan American Games in Tables 4-6. The demographic breakdown of each sample can be
21 found in Tables 1 and 4. Descriptive statistics, including means and standard deviations of
22 awareness and attitudes of volunteers from each of the Games, are found in Tables 2 and 5.

1 Finally, bi-variate correlations between awareness and attitudes from each Games are found in
2 Table 3 and 6. Results are presented based on two main research questions listed above.

3 **Comparison between Commonwealth Games and Pan American Games**

4 One of the unique contributions of the current study was the ability to draw comparisons
5 between two different types of parasport events: integrated (i.e., Commonwealth Games) and
6 non-integrated (i.e., ParaPan Am Games). The nature and format of each may influence
7 volunteers' experiences in different ways. Both Games demonstrated a significant impact on
8 attitudes and awareness, demonstrating increases from pre- to post-Games. In terms of awareness
9 levels for volunteers before their respective events (Time 1) those at the ParaPan Am Games
10 (non-integrated event) had significantly ($t = 30.72, p = .00$) greater awareness levels than their
11 counterparts at the Commonwealth Games (integrated event). After the experience of being a
12 volunteer (Time 2) both groups experienced significant increases in awareness, however this
13 significant difference between those at the ParaPan versus Commonwealth Games remained
14 intact ($t = 6.18, p = .00$).

15 Interestingly, at Time 1 for the Commonwealth Games' (integrated event) volunteers had
16 significantly ($t = 30.43, p = .00$) more positive attitudes than the ParaPan Am Games (non-
17 integrated event) volunteers. Similarly, at Time 2, this significant difference again remained
18 intact ($t = 25.88, p = .00$). When examining the differences in attitudes towards parasport
19 amongst the volunteers, a similar trend emerged again at both Time 1 ($t = 6.62, p = .00$) and Time
20 2 ($t = 3.19, p = .0014$) where the Commonwealth Games (integrated event) volunteers had
21 significantly more positive attitudes than the ParaPan Am Games (non-integrated event)
22 volunteers. Interestingly, 51% of volunteers from the Commonwealth Games sample said that
23 the Games had changed their attitudes towards disability and accessibility related issues.

1 Hypothesis 1 was, therefore, supported in that both events had a significant impact on improving
2 volunteer attitudes and awareness. However, Hypothesis 1A was not supported. Although both
3 events demonstrated positive attitudinal changes, the integrated event had a greater impact on
4 attitudes. Hypothesis 2 and 2A were thus supported. Although volunteers of the integrated event
5 experienced a greater increase in awareness, the non-integrated event had higher levels of
6 awareness and shared a more salient relationship with positive attitudes towards both disability
7 and parasport. This demonstrates the value of using an integrated event to increase awareness.

8 ***Overall impact.*** One of the main objectives of the current study was to assess if there was
9 an impact from the Games demonstrated through significant positive change from Time 1 (pre-
10 Games) to Time 2 (post-Games) in volunteers' awareness and attitudes of disability and
11 accessibility issues and disability sport (parasport). In terms of the Commonwealth Games
12 sample, there was a significant change ($t = 27.78, p = .00$) from Time 1 ($M = 4.95$) to Time 2 (M
13 $= 6.11$) for awareness amongst all volunteers. There was also a significant change ($t = 10.18, p =$
14 $.00$) from Time 1 ($M = 5.77$) to Time 2 ($M = 5.97$) for attitudes towards disability amongst all
15 volunteers. However, there was no improvement demonstrated from Time 1 ($M = 6.22$) to Time
16 2 ($M = 6.07$) for attitudes towards parasport.

17 In terms of the ParaPan Am Games' volunteers, there was a significant change ($t = 17.13, p$
18 $= .00$) from Time 1 ($M = 5.90$) to Time 2 ($M = 6.30$) for awareness. There was also a significant
19 change ($t = 4.70, p = .00$) from Time 1 ($M = 5.29$) to Time 2 ($M = 5.38$) for attitudes towards
20 disability. However, there was no improvement demonstrated from Time 1 ($M = 6.10$) to Time 2
21 ($M = 5.98$) for attitudes towards parasport.

22 ***Moderating Variables: Gender, Income, and Education***

1 **Gender.** ANOVAS were conducted to assess differences between awareness and attitudes
2 based on the self-identified gender of volunteers. At the Commonwealth Games, a significant
3 difference was demonstrated suggesting that males had higher levels of awareness than females
4 about the Games at Time 1; $F(1, 2795) = 10.69, p = .01$. At Time 2; $F(1, 1495) = 1.07, p = .30$,
5 no significant difference was found. A comparison of Time 1 and Time 2 awareness levels,
6 however, demonstrated that both females and males significantly improved their awareness
7 levels (see Table 2). This suggests that the Commonwealth Games had an impact on awareness
8 for both males and females and nullified any gender differences at Time 2.

9 At the ParaPan Am Games, no significant difference in awareness was found at Time 1
10 $F(1, 2757) = 1.39, p = .25$. At Time 2, a small significant difference did emerge $F(1, 1336) =$
11 $2.99, p = .050$, suggesting that females had slightly higher awareness levels than males. A
12 comparison of Time 1 and Time 2 awareness levels, however, indicated that females and males
13 significantly increased their awareness levels (see Table 5). This suggests that the ParaPan Am
14 games had an impact on awareness for males and females, with females especially at Time 2.

15 At the Commonwealth Games, females had more favourable attitudes towards persons
16 with disabilities than males at Time 1; $F(1, 2795) = 49.45, p = .00$. Likewise a consistent finding
17 was yielded at Time 2; $F(1, 1495) = 15.78, p = .00$. A comparison of Time 1 and Time 2
18 demonstrated that both females and males significantly improved their attitudes (see Table 2).

19 At the ParaPan Am Games, similar results emerged with females having more favourable
20 attitudes at Time 1; $F(1, 2757) = 31.31, p = .00$ and Time 2; $F(1, 1336) = 26.31, p = .00$. A
21 comparison of Time 1 and 2 demonstrated that females and males experienced a significant
22 improvement in their attitudes (see Table 5). This suggests that the Games also had an impact on
23 improving attitudes towards disability for both males and females, with females especially.

1 At the Commonwealth Games, females held more favourable attitudes towards parasport
2 than males at Time 1; $F(1, 2795) = 120.72, p = .00$ and at Time 2; $F(1, 1495) = 35.79, p = .00$.
3 However, there did not appear to be any significant improvement over time (see Table 2).

4 At the ParaPan Am Games, similar trends were once again revealed in that a significant
5 difference was found where females held more favourable attitudes towards parasport at Time 1;
6 $F(1, 2757) = 31.92, p = .00$ and Time 2; $F(1, 1336) = 21.82, p = .00$. However, there did not
7 appear to be any significant change in attitudes over time for either sex. No increase was found
8 for females or males (see Table 5). This suggests that the Games may not have had a direct
9 impact on changing attitudes towards parasport for either gender but females held more positive
10 attitudes compared to males regardless. Given that attitude scores were already fairly-high for
11 both males and females (i.e., $\sim 6/7$), it would seem that there appears to be a bit of a ceiling
12 effect here, in that there was not much room for attitude scores to increase in the first place.

13 ***Income and Education***

14 Similar tests were conducted to assess any differences between categorizations of income
15 and educational levels amongst volunteers (See Tables 2 and 5). Small differences emerged
16 amongst some of the income brackets and educational levels but these differences seemed
17 random and not significant. Considering attitudes scores were already generally positive across
18 the board, not much could be surmised from these findings.

19 ***Relationship between attitudes and awareness.*** Bivariate correlations are found in Table 3
20 and 6. For the Commonwealth Games, significant correlations were present for both pre- and
21 post-Games between: a) awareness and attitudes towards persons with disabilities (Time 1: $r =$
22 $.123, p < .01$; Time 2: $r = .159, p < .01$), b) awareness and attitudes towards parasport (Time 1: $r =$

1 = .206, $p < .01$; Time 2: $r = .337, p < .01$), and c) attitudes towards persons with disabilities and
2 attitudes towards parasport (Time 1: $r = .625, p < .01$; Time 2: $r = .431, p < .01$).

3 For the ParaPan Am games, significant correlations were present both pre- and post-Games
4 between: a) awareness and attitudes towards persons with disabilities (Time 1: $r = .158, p < .01$;
5 Time 2: $r = .200, p < .01$), b) awareness and attitudes towards parasport (Time 1: $r = .281, p <$
6 $.01$; Time 2: $r = .310, p < .01$), and c) attitudes towards persons with disabilities and attitudes
7 towards parasport (Time 1: $r = .396, p < .01$; Time 2: $r = .409, p < .01$).

8 For the Commonwealth Games, the regression model was significant at Time 1: $F(2, 2857)$
9 = 63.60, $p = .00, R = .21$. Here there was a significant relationship between awareness and
10 attitudes towards parasport ($\beta = .21, p = .00$), accounting for 21% of the variance. There was no
11 significant relationship between awareness and attitudes towards disability ($\beta = -.01, p = .68$).
12 The regression model was also significant at Time 2: $F(2, 1552) = 99.80, p = .00, R = .34$. There
13 was a significant relationship between awareness and attitudes towards parasport ($\beta = .33, p =$
14 $.00$) accounting for 33% of the variance. There was no significant relationship between
15 awareness and attitudes towards disability ($\beta = .02, p = .52$).

16 For the ParaPan Am Games the regression model was significant at Time 1: $F(2, 3126) =$
17 $138.22, p = .00, R = .29$. There was a significant relationship between awareness and attitudes
18 towards disability ($\beta = .05, p = .003$) accounting for 5% of the variance. There was also a
19 significant relationship between awareness and attitudes towards parasport ($\beta = .26, p = .00$)
20 accounting for 26% of the variance. The regression model was also significant at Time 2: $F(2,$
21 $1499) = 85.48, p = .00, R = .32$. There was a significant relationship between awareness and
22 attitudes towards disability ($\beta = .09, p = .001$) accounting for 9% of the variance. There was also

1 a significant relationship between awareness and attitudes towards parasport ($\beta = .27, p = .00$)
2 accounting for 27% of the variance. As such, Hypothesis 2 and 2A were supported.

3 **Discussion**

4 The purpose of the present study was two-fold: 1) to assess whether the Glasgow 2014
5 Commonwealth Games and/or the Toronto 2015 ParaPan Am Games had any impact on
6 volunteer awareness and attitudes towards disability; and 2) to assess the relationship between
7 awareness and attitudes. In terms of awareness about the Commonwealth Games, there was a
8 statistically significant increase in awareness levels (~17%) among Games volunteers from pre-
9 to post-Games. Likewise, Volunteer's attitudes towards disability also significantly increased
10 (~3%) pre- to post-Games, though less so than for awareness. However, there was no significant
11 increase demonstrated in attitudes towards parasport. In terms of awareness about the ParaPan
12 Am Games there was a statistically significant increase in awareness levels (~6%) from pre- to
13 post-Games. Likewise, attitudes towards disability also slightly but significantly increased (~1%)
14 pre- to post-Games. However, there was no significant increase found in attitudes towards
15 parasport. It is possible to say that both events had an impact on changing attitudes and
16 awareness, however the integrated event (Commonwealth Games) seemed to have a greater
17 impact than the non-integrated event. Certainly, it should be noted that the volunteers from the
18 Commonwealth Games started out with lower awareness levels at Time 1 leaving more room for
19 improvement, whereas counterintuitively awareness of the ParaPan Games seemed to be greater
20 at Time 1. These findings lend some support to the notion that hosting parasport events can have
21 some positive impact on enhancing disability awareness and attitudes, however it is also
22 important to note that the attitude levels towards disability and parasport were already relatively
23 positive pre-Games for both events.

1 As per Section 5 of the International Paralympic Committee handbook, the intention of
2 hosting parasport events is to change attitudes towards disability aligning with the social
3 understanding of disablement. Whereas to date there has been little evidence beyond anecdotes
4 to support this idea, these findings offer some initial evidence that hosting such events may have
5 a modest impact on increasing disability awareness and general attitudes towards disability.

6 It would also seem that the Games had differing impacts on males and females from pre-
7 to post-Games. The key finding here is that females had more positive attitudes than males both
8 pre- and post-Games towards disability in general and in terms of attitudes towards parasport.
9 This is the first empirical demonstration that a parasport event may have positively impacted
10 awareness and general attitudes toward disability. Gender differences were deemed important to
11 assess since previous literature suggests females tend to have a more favourable attitude towards
12 persons with disabilities than males (e.g., Nowicki & Sandieson, 2002). The findings of males
13 having greater awareness and females having more positive attitudes is consistent with similar
14 sport event research surrounding the Homeless World Cup (Sherry et al., 2011) which found
15 similar trends in awareness of the event and attitudes towards homelessness. The finding of more
16 positive attitudes towards disability from females is also supported through previous literature
17 and seems to be evident even from a young age. A meta-analysis of attitudes towards persons
18 with disabilities in school-aged children suggested that girls were generally more accepting of
19 individuals with disabilities than boys (Nowicki & Sandieson, 2002). Likewise, females tend to
20 demonstrate greater empathy than males do towards others different from themselves (Eisenberg
21 & Lennon, 1983; Hoffman, 1977; Rueckert & Naybar, 2008; Sherry et al., 2011). Again it is
22 important to note that attitude levels for both males and females were already relatively positive,
23 amongst groups of people who had demonstrated altruistic tendencies by volunteering for a

1 large-scale sporting event. It has been suggested in the educational literature that integration and
2 personal contact with persons with disabilities helps to break down negative stereotypes and may
3 result in the development of positive attitudes (Hastings & Graham, 1995). The fact that there
4 were even some modest increases in attitudes may speak to the importance of this contact and
5 being a part of hosting a sport event where disability sport is fully integrated (Kaipainen, 2013).

6 The income levels of the volunteers produced some interesting findings. Positive
7 relationships have been consistently demonstrated between income, education, and volunteering
8 (Deery, Jago, & Shaw, 1997; Hardee, 1961), although, some research also suggests that “blue
9 collar” volunteers are more likely to volunteer for sports than “white collar” volunteers (Costa,
10 Chalip, Green, & Simes, 2006; Deery, Jago, & Shaw, 1997). This might be due to the restrictive
11 guidelines for becoming a volunteer (i.e., time commitment, hours, transportation, etc.) and
12 suggests that motivations for involvement in disability sport events might differ from others
13 (e.g., Dickson, Benson, & Blackman, 2013). That being said, at the Commonwealth Games,
14 69% of volunteers represented the lowest three income brackets compared to just 21% from the
15 highest three income brackets. At the ParaPan Am Games 53% of volunteers represented the
16 lowest three income brackets compared to just 28% from the highest three income brackets.
17 Given the scope of this finding, we expected to see a greater variation in attitudes.

18 Likewise, interesting observations also emerged pertaining to the educational levels of the
19 volunteers. At the Commonwealth Games, 55% from the sample of volunteers held some sort of
20 university degree while at the Para Pan Am Games, 42% from the sample volunteers held some
21 sort of university degree. Previous research in Canada suggests that 35% of volunteers typically
22 held a university education (Pold, 1990) while event research in Australia suggested that about
23 20% of volunteers held a university education but 36% had some post-secondary study (Costa et

1 al., 2006). The increase could reflect societal changes as more and more people are earning
2 university education, and four Universities in the Glasgow area had a direct relationship of some
3 sort with the Games. It could also be a function of a major Games drawing out well educated
4 volunteers who leverage their own connections to be a part of the Games. Despite these patterns,
5 no significant findings resulted among education levels as related to attitudes towards disability.

6 The already positive attitudes demonstrated by volunteers could be explained by previous
7 research which suggests that interaction, contact, or having friends with disabilities influences
8 attitudes towards the referent 'other' (e.g., Tripp, French, & Sherrill, 1995; Rosenbaum,
9 Armstrong, & King, 1988). Interestingly, previous research has also demonstrated that persons
10 with disabilities can also hold negative attitudes towards others with impairments (Deal, 2003).
11 Both persons with disabilities and persons without disabilities, may not want to be associated
12 with other impairment groups (Deal, 2003; Howe & Jones, 2006), thus the positive attitudes of
13 volunteers may speak to the positive strides that society has made regarding attitudes towards
14 persons with disabilities (Daruwalla & Darcy, 2005). It may also suggest that integrating
15 disability events with able-bodied events, also increases the acceptance, inclusion, and 'normalcy
16 of disability' sport (Gilbert & Schantz, 2008).

17 The final point of discussion pertains to the relationship between awareness and attitudes
18 towards disability and attitudes towards parasport. The bi-variate correlations suggest that
19 significant positive relationships existed between all three variables. However, when entered in
20 to a regression model, only the relationship between awareness and attitudes towards parasport
21 yielded significant variance, whereas the relationship between awareness and attitudes towards
22 disability did not account for any further significant variance at the Commonwealth Games. This
23 was not true for the ParaPan Am Games however, as both attitudes towards disability and

1 towards parasport accounted for significant variance in the relationship with awareness. It has
2 been suggested that hosting major sport events can derive social benefits that bring a community
3 together (Chalip, 2006; Kellett, Hede, & Chalip, 2008; Misener, 2015) and certainly, having an
4 integrated event helps to bring the able bodied and parasport communities together. The finding
5 in the current study seems logical in that volunteers were asked about their awareness
6 specifically towards the Games, and about their attitudes towards parasport that were a part of
7 the Games. Therefore, we could expect to see a link here with awareness and attitudes towards
8 parasport. However, awareness may not necessarily translate into a direct link between pre-
9 conceived attitudes towards disability in general (e.g., Silva & Howe, 2012). It is important to
10 note that the relationship between awareness and attitudes towards parasport also became
11 stronger over time in that it accounted for 21% of the variance at Time 1, pre-Games, and 33% at
12 Time 2, post-Games. This also suggests that the Games had an impact on the strength and
13 saliency of this relationship.

14 Overall, results demonstrated some promising developments, providing some empirical
15 evidence that hosting a major parasport event has a positive impact on improving individual
16 awareness and attitudes towards disability. It is also important to note that volunteers for the
17 ParaPan Am Games were given disability-specific training as part of the volunteer training,
18 whereas the Glasgow volunteers were not provided with this training. The findings suggest that
19 the event itself and not the training may have impacted awareness and attitudes. To recap, the
20 two events seemed to have moderating influences of gender, income, education for improving
21 awareness and attitudes towards disability from pre- to post-Games. There was also a significant
22 relationship between awareness and attitudes towards parasport at both time points which also

1 increased from pre- to post-Games. These findings are a useful starting point to help address
2 some of the gaps in the literature about the impact of a major sporting event on attitudes.

3 **Limitations, Implications, and Future Directions**

4 The current study is one of the first to examine the role of events on attitudes towards
5 disability and specifically on volunteers. Thus there were limited means to address this particular
6 question in the context of event related research, which in itself presented numerous challenges
7 and limitations. While we were afforded a great opportunity to tap into a willing sample
8 population, volunteers were self-selecting participants in the research when they signed up , thus
9 we cannot guarantee a representative sample. That being said our sample represented
10 approximately 25% of the total volunteer pool and our demographics mapped well onto the
11 overall volunteer population data collected by the host organising committee. An additional
12 consideration regarding the volunteers is that each volunteer may have had varying degrees of
13 exposure in their experiences in terms of witnessing parasport based on their volunteer
14 assignments. This is an unavoidable issue due to the nature of volunteering at a major sport event
15 but should be considered. A second limitation was that the data were collected via an online
16 survey. The SADP survey has been widely employed, but is also certainly not without its
17 limitations. It was designed to elicit specific, implicit reactions from respondents, and thus there
18 may be a tendency towards social desirability. Given the nature of the provocative questions, it is
19 possible that individuals would respond in order to show themselves in a more complementary
20 light. Further to this, with the potentially controversial nature of the survey, individuals might be
21 more inclined to respond favourably because they feel a particular way, but discrimination often
22 occurs in subtle ways (Deal, 2007) that cannot always be captured by such a survey design.

1 Another important consideration that was not prioritized in design of the current study was
2 the potential impact of the London 2012 Paralympic Games on people's attitudes and awareness
3 towards disability. We chose not to include any questions about London 2012, however in
4 hindsight, given the very high values in terms of attitudes and awareness, we should have
5 included some questions helping us understand the potential influence of the London 2012
6 Paralympic Games particularly given the highly positive media coverage across the UK (e.g.,
7 Beacom, French, & Kendall, 2016) and the close geographical proximity to Glasgow.
8 Anecdotally, we do know that many of the volunteers for the Glasgow 2014 Games, also
9 volunteered for events associated with the London 2012 Games and thus it is possible that this
10 volunteering opportunity also had an impact on their attitudes.

11 Finally, there is an important link that was unexplored in the current study and warrants
12 further consideration. We still know very little about the link between attitudes towards disability
13 and resulting actual behaviours as any sort of legacy from hosting a major parasport event (Legg
14 & Gilbert, 2011; Misener, 2012; Misener et al., 2013). The results of the current study would
15 suggest that given the highly positive attitudes towards disability, positive behaviours should
16 follow. However, as numerous reports suggest (e.g., Independent Living in Scotland, 2014), the
17 rights of individuals with disabilities in all realms are still far from achieving universal access
18 and understanding. Routinely, individuals with disabilities are discriminated against and
19 excluded from all realms of society (Deal, 2007). That said, conscious efforts are being made in
20 both the UK and Canada towards equal rights and improving opportunities for persons with
21 disabilities and the Games have been utilised and identified as an important catalyst for change
22 (e.g., Independent Living in Scotland, 2014). For example, £1.25 million was spent to make
23 Glasgow 2014 the most accessible Commonwealth Games ever (Glasgow Official Post-Games

1 Report, 2014). The dubious nature of cause and effect of the impact of the Games was brought to
2 light in part because of the aforementioned London 2012 Paralympic Games which focused
3 officially on diversity, equity, and inclusion in its legacy plans (Misener & Darcy, 2014;
4 Thornton, 2012). Where some reports highlighted the positive impact the event had on attitudes
5 towards disability, numerous high level athletes still spoke out about the lack of impact on
6 people's behaviours towards them and the lack of changes to their everyday life.

7 Although it is encouraging to see that events such as London 2012 and the two assessed in
8 the current study did have a positive influence on attitudes and awareness, education and policy
9 changes are still necessary to ensure greater opportunities to ensure full participation in society
10 for persons with disability (e.g., Claydon, 2014). This particular area of research is a potentially
11 very important one in terms of understanding the long-term impacts of disability sport events,
12 and any lasting positive impression on the everyday lives of persons with disabilities.

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Table 1

Commonwealth Games Volunteers Demographic Breakdown

	Time 1 (n =)	Time 2 (n =)
Overall	2860	1555
Gender		
Male	1086	580
Female	1711	916
Undisclosed	63	59
Income		
£9999 or less	171	94
£10000-£29999	809	427
£30000-£59999	996	579
£60000-£79999	306	131
£80000-£99999	146	81
£100000 or more	144	77
Undisclosed	288	166
Education		
Intermediate/Highers	388	169
National Certificate	220	117
HNC/HND	436	258
Undergraduate Degree	947	534
Postgraduate Degree	577	344
Doctoral Degree	66	36
Undisclosed	226	97
I Identify with a Disability		
Yes	161	97
No	2579	1364
Prefer not to answer	65	30
Undisclosed	55	64
Someone close has a disability		
Yes	880	495
No	1848	967
Prefer not to answer	71	27
Undisclosed	61	66

Table 2

Commonwealth Games Descriptive Statistics of Awareness and Attitudes at Time 1 and Time 2

	Awareness Mean (SD) Time 1	Awareness Mean (SD) Time 2	Disability Attitudes Mean (SD) Time 1	Disability Attitudes Mean (SD) Time 2	Parasport Attitudes Mean (SD) Time 1	Parasport Attitudes Mean (SD) Time 2
Overall	4.95 (1.49)	6.11 (.95)*	5.77 (.62)	5.97 (.63)*	6.22 (.69)	6.07 (.78)
Male	5.07 (1.49)	6.08 (.99)*	5.67 (.67)	5.89 (.67)*	6.04 (.78)	5.92 (.90)
Female	4.88 (1.48)	6.14 (.91)*	5.83 (.58)	6.02 (.61)*	6.33 (.60)	6.17 (.70)
£9999 or less	4.90 (1.66)	6.04 (1.33)*	5.52 (.77)	5.88 (.68)*	6.10 (.79)	6.33 (.73)*
£10000-£29999	4.98 (1.48)	6.15 (.93)*	5.79 (.60)	5.98 (.65)*	6.26 (.64)	6.14 (.76)
£30000-£59999	4.95 (1.46)	6.12 (.87)*	5.81 (.59)	5.98 (.61)*	6.25 (.67)	6.04 (.80)
£60000-£79999	4.92 (1.43)	6.12 (.92)*	5.80 (.61)	5.98 (.65)*	6.23 (.64)	6.04 (.78)
£80000-£99999	4.96 (1.51)	5.96 (.91)*	5.79 (.57)	5.94 (.72)*	6.18 (.67)	6.06 (.75)
£100000 or more	4.83 (1.57)	6.04 (1.12)*	5.80 (.67)	6.02 (.58)*	6.10 (.84)	5.88 (.82)
Intermediate Highers	4.83 (1.50)	6.18 (.89)*	5.62 (.70)	5.87 (.69)*	6.17 (.73)	6.12 (.84)
National Certificate	5.15 (1.48)	6.30 (.93)*	5.74 (.61)	5.94 (.67)*	6.31 (.60)	6.19 (.74)
HNC/ HND	5.02 (1.50)	6.18 (.93)*	5.73 (.62)	5.95 (.67)*	6.17 (.71)	6.16 (.76)
Undergraduate Degree	4.91 (1.47)	6.03 (.97)*	5.81 (.59)	5.99 (.61)*	6.24 (.66)	5.98 (.80)
Postgraduate Degree	4.97 (1.45)	6.13 (.87)*	5.85 (.59)	6.03 (.60)*	6.21 (.71)	6.11 (.75)
Doctorate Degree	4.58 (1.58)	5.85 (.99)*	5.80 (.66)	6.01 (.66)*	5.93 (.78)	5.75 (.86)
(Yes) I identify with a disability	5.12 (1.38)	5.85 (1.21)*	5.73 (.73)	5.91 (.74)*	6.29 (.69)	5.98 (.93)
(No) I do not have a disability	4.96 (1.49)	6.14 (.91)*	5.78 (.61)	5.98 (1.18)*	6.22 (.68)	6.07 (.78)
(Yes) one close has a disability	4.96 (1.53)	6.08 (.97)*	5.75 (.65)	6.00 (.62)*	6.27 (.68)	6.12 (.76)
(No) one close has a disability	4.96 (1.46)	6.15 (.91)*	5.78 (.61)	5.96 (.65)*	6.20 (.68)	6.05 (.80)

Table 3

A. Bivariate Correlations between Awareness and Attitudes Pre-Commonwealth Games

Variable	Awareness	Attitudes towards persons with disabilities	Attitudes towards parasport
Awareness	-		
Attitudes towards persons with disabilities	.123**	-	
Attitudes towards parasport	.206**	.625**	-

Note. Correlation is significant at the .01 level

B. Bivariate Correlations between Awareness and Attitudes Post-Commonwealth Games

Variable	Awareness	Attitudes towards persons with disabilities	Attitudes towards parasport
Awareness	-		
Attitudes towards persons with disabilities	.159**	-	
Attitudes towards parasport	.337**	.431**	-

Note. Correlation is significant at the .01 level

Table 4

ParaPan Am Games Demographic Breakdown

	Time 1 (n =)	Time 2 (n =)
Overall	3127	1500
Gender		
Male	847	416
Female	1870	904
Undisclosed	410	180
Income		
\$29999 or less	541	215
\$30000-\$59999	568	266
\$60000-\$89999	536	279
£90000-£199999	383	226
£120000-£149999	231	108
£150000 or more	255	135
Undisclosed	613	271
Education		
Elementary School	200	50
High School Diploma	621	289
College Diploma	580	277
Undergraduate Degree	864	462
Postgraduate Degree	421	225
Doctoral Degree	40	23
Undisclosed	401	174
I Identify with a Disability		
Yes	139	82
No	2497	1190
Prefer not to answer	108	57
Undisclosed	383	171
Someone close has a disability		
Yes	980	512
No	1625	761
Prefer not to answer	131	56
Undisclosed	391	171

Table 5

ParaPan Am Games Descriptive Statistics of Attitudes and Awareness at Time 1 and Time 2

	Awareness Mean (SD) Time 1	Awareness Mean (SD) Time 2	Disability Attitudes Mean (SD) Time 1	Disability Attitudes Mean (SD) Time 2	Parasport Attitudes Mean (SD) Time 1	Parasport Attitudes Mean (SD) Time 2
Overall	5.90 (.75)	6.30 (.73)*	5.29 (.60)	5.38 (.63)*	6.10 (.71)	5.98 (.78)
Male	5.91 (.85)	6.08 (.99)*	5.16 (.63)	5.20 (.67)*	5.94 (.81)	5.92 (.90)
Female	5.91 (.77)	6.14 (.91)*	5.36 (.62)	5.47 (.61)*	6.18 (.70)	6.17 (.70)
\$29999 or less	5.80 (.92)	6.10 (.95)*	5.24 (.67)	5.26 (.73)	6.11 (.77)	5.90 (.90)
\$30000-\$59999	5.89 (.82)	6.31 (.83)*	5.36 (.62)	5.48 (.63)*	6.15 (.71)	6.03 (.83)
\$60000-\$89999	5.97 (.75)	6.29 (.78)*	5.31 (.63)	5.42 (.67)*	6.09 (.76)	6.03 (.82)
\$90000-\$119999	5.94 (.75)	6.42 (.59)*	5.30 (.60)	5.38 (.63)	6.08 (.72)	5.91 (.83)
\$120000-\$149999	5.94 (.72)	6.37 (.59)*	5.26 (.62)	5.34 (.62)	6.06 (.78)	6.00 (.78)
\$150000 or more	5.99 (.67)	6.40 (.68)*	5.33 (.58)	6.02 (.58)*	6.13 (.73)	5.96 (.82)
Elementary School	5.77 (.87)	6.14 (1.01)*	5.18 (.56)	5.35 (.59)	6.15 (.72)	6.00 (.82)
High School Diploma	5.85 (.87)	6.23 (.89)*	5.23 (.64)	5.37 (.68)*	6.08 (.77)	6.06 (.76)
College Diploma	5.99 (.74)	6.35 (.77)*	5.40 (.68)	5.45 (.68)	6.13 (.77)	6.00 (.91)
Undergraduate Degree	5.92 (.76)	6.31 (.70)*	5.34 (.62)	5.38 (.64)	6.12 (.70)	5.94 (.82)
Postgraduate Degree	5.92 (.77)	6.35 (.69)*	5.34 (.61)	6.03 (.60)*	6.06 (.76)	5.97 (.72)
Doctorate Degree	5.98 (.82)	6.42 (.62)*	5.09 (.47)	5.41 (.62)*	6.32 (.53)	6.20 (.86)
I identify with a disability	6.09 (.74)	6.18 (1.05)	5.29 (.79)	5.32 (.70)	6.21 (.78)	6.04 (1.01)
I do not identify with a disability	5.91 (.79)	6.31 (.75)	5.31 (.62)	5.38 (.64)	6.11 (.73)	5.98 (.80)
Someone close has a disability	5.97 (.83)	6.38 (.76)	5.35 (.62)	5.45 (.66)	6.23 (.72)	6.14 (.74)
No one close has a disability	5.89 (.76)	6.27 (.75)	5.28 (.63)	5.36 (.65)	6.04 (.72)	5.89 (.85)

Table 6

A. Bivariate Correlations between Awareness and Attitudes Pre-Games

Variable	Awareness	Attitudes towards persons with disabilities	Attitudes towards parasport
Awareness	-		
Attitudes towards persons with disabilities	.158**	-	
Attitudes towards parasport	.281**	.396**	-

Note. Correlation is significant at the .01 level

B. Bivariate Correlations between Awareness and Attitudes Post-Games

Variable	Awareness	Attitudes towards persons with disabilities	Attitudes towards parasport
Awareness	-		
Attitudes towards persons with disabilities	.200**	-	
Attitudes towards parasport	.310**	.409**	-

Note. Correlation is significant at the .01 level