An investigation into the prevalence and impact of breast pain, bra issues and breast size on female horse riders

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Running Title

Breast health issues in female horse riders

Key words

Health Education, Pain Perception, Sports Performance, Equestrian

Abstract

For female horse riders, breast pain, bra issues and breast size may be important concerns which have yet to be considered. This study aimed to establish the prevalence of breast pain and bra issues in female horse riders and explores the impact of breast size on breast pain and bra issues. A 6-part, 32 question on-line survey was completed by 1324 females who participated in horse riding activities. Descriptive and chi-squared analyses were utilised; data for 1265 participants were included in the final analysis. Breast pain was experienced by 40% of all participants and this was significantly related to self-reported cup size ($\chi^2 = 54.825$, $P < 0.001$), increasing linearly. Breast pain was experienced most frequently during sitting trot and 21% of symptomatic participants reported that breast pain affected their horse riding performance. At least one bra issue was reported by 59% of participants; larger-breasted participants reported experiencing all bra issues more frequently than smaller-breasted participants ($P < 0.001$). These results demonstrate that educational initiatives are needed to ensure female horse riders are informed about appropriate bra fit and breast support during horse riding to increase comfort and help reduce the potential negative associations with performance.

Introduction

The vast majority (90%) of horse riders are female with around 304,000 women in England taking part in equestrian activities at least once a week (Sport England, 2011). For female horse riders, breast pain, bra issues and having large breasts may be important concerns. Previous studies have investigated breast pain and bra issues in the general population (Burnett, White & Scurr, 2014; Scurr, Hedger, Morris &

Brown, 2014) and a marathon running population (Brown, White, Brasher & Scurr, 2013; Brown, White, Brasher & Scurr, 2014) but to-date no research has investigated a horse riding population. Breast pain, breast size and bra issues can impact upon the performance, health and well-being of women and should be investigated as they can be a barrier to participation in physical activity (Burnett et al., 2014).

Breast size and the type of activity undertaken are factors that affect the magnitude of breast movement. Greater breast displacement has been reported in studies with larger-breasted women compared to smaller-breasted women and running elicited more breast displacement than walking when both were tested in the same study (Mason, Page & Fallon, 1999; Scurr, White & Hedger, 2009). The highest breast displacement reported in the literature (0.19 m) is during two-step star jumps in a J cup participant (Bridgman, Scurr, White, Hedger & Galbraith, 2010). Horseback riding produces vigorous vertical movements (Terada, Clayton & Kato, 2006), and although breast displacement during horse riding has not been investigated, it is proposed to be similar to other high-impact activities like running and jumping.

Design features such as a firm under band, adjustable padded shoulder straps and a high neckline differentiate a sports bra from an everyday bra (Zhou, Yu & Ng, 2012) and have been shown to significantly reduce breast movement and breast pain when exercising (Scurr, White & Hedger, 2010, White, Scurr & Smith, 2009); sports bras are also recommended for women who experience cyclic and non-cyclic breast pain, as a supportive bra can reduce pain without the need for drugs that can cause undesirable side-effects (Hadi, 2000). The prevalence of sports bra usage within a horse riding population is currently unknown. Sports bra use in the general

Australian community has been reported to be as low as 41% (Bowles et al., 2008), although within a population of women taking part in the London Marathon 91% reported wearing a sports bra for vigorous activity (Brown et al., 2014). As breast pain increases with vigorous activity and poor breast support (Burnett et al., 2014), there is rationale to investigate breast pain during activities involving dynamic movements such as horse riding.

Regardless of how good the design of the bra, if the size is wrong, then it is speculated that it will not provide effective support (Page & Steele, 1999). It is suggested that 70% to 100% of women are wearing the wrong-sized bra (Greenbaum, Heslop, Morris & Dunn, 2003; McGhee & Steele, 2010; White & Scurr, 2012; Wood, Cameron & Fitzgerald, 2008). A correctly fitting bra for exercise is essential as an incorrect fit can contribute to upper body musculoskeletal problems, poor posture and deep bra furrows in the shoulders caused by excessive strap pressure (BeLieu, 1994; Ryan, 2000). It is particularly important for women with large breasts to wear a well-fitted and supportive bra, as insufficient support for large breasts can also lead to upper body pain and poor posture (BeLieu, 1994; Wood et al., 2008), yet they are more likely to have an incorrect fit (Greenbaum et al., 2003; White & Scurr, 2012). Bra issues (rubbing/chafing, shoulder straps or underwire digging in, upper body pain and poor posture) were reported by 75% of marathon runners (Brown et al., 2014), with significantly more issues reported by larger-breasted runners, highlighting consumer dissatisfaction with exercising bras.

The extent to which female horse riders suffer with bra issues is currently unknown, yet this is important to establish as increased upper body pain and poor posture could

lead to interference in the rider-horse interface. The ridden horse is trained to respond to subtle cues given by the rider's body, but as a species can detect and respond to physiological changes that the rider may be unaware of. Keeling, Jonare and Lanneborn (2009) investigated the effect of the rider on horse behaviour and heart rate, establishing an increase in horse heart rate as a direct response to tension in handler or rider. The physical application of cues to the horse relies on good postural control by the rider (Symes & Ellis, 2009), which can be negatively impacted by pain or discomfort leading to postural asymmetry (Alexander et al., 2015). Although research establishing the influence of rider performance on the subsequent performance of the horse is in its infancy, initial findings suggest that subtle changes in posture can impact equine stride kinematics (Randle, Edwards & Button, 2010) and ultimately ridden horse welfare (Hockenhall & Creighton, 2012).

Breast size in the UK is seemingly increasing, which may be linked to the current obesity epidemic (Brown & Scurr, 2016). The trot and canter see large vertical excursions of the horse's body (Terada et al., 2006) so considerable effort is required by the rider to maintain postural stability (Lovett, Hodson-Tole & Nankervis, 2005). This effort may be higher for women with larger breasts due to the greater breast momentum created, which may impact on their performance and overall experience in horse riding.

For female horse riders, breast pain, bra issues and breast size may be important issues that have implications for their performance and well-being in this activity and there may be a need for specific guidance on breast support and breast health issues for this population. Therefore the proposed study aimed to:

- Identify the prevalence of breast pain in female horse riders and assess factors that may influence breast pain during horse riding activities
- Assess the prevalence of bra issues in female horse riders
- Explore the impact of breast size on breast pain and bra issues in female horse riders
- Identify the need for educational initiatives on breast support and breast health issues in a female horse riding population

Method

A 6-part 32 question on-line survey (Google® Forms) was made available to females who were aged 18 and over and participated in horse riding activity, following full institutional ethical approval (SFEC 2014-058). The on-line survey was accessible for a 4 month period between August 2014 and December 2014, no incentive was offered to participants. An online survey was chosen as they reduce time, cost and potential error arising from the transcription of paper questionnaires, in addition to allowing participants to respond at their convenience (Vehvar & Manfreda, 2008). Volunteer participants were recruited from personal contacts via email and posters were placed within local riding stables. In addition, a number of specialist equestrian social media sites (such as the Horse & Hound forum) were identified and a link to the survey was posted on these sites. A snowball sampling technique was employed where those receiving an email regarding the survey were asked to send on the email to other female horse riders that they knew. Due to the anonymity of the survey, completion of the form was considered as consent to take

part in the study (as explained to them in the participant information sheet preceding the survey).

The survey included Likert scale, multiple-choice and free-text format questions and was designed to take no longer than 15 minutes to complete. Breast health questionnaires used in previous research with a general population (Burnett et al., 2014) and a marathon runner population (Brown et al., 2013; Brown et al., 2014) were modified for this study to ensure questions were tailored to horse riders. Section 1 identified bra usage and bra issues; to identify bra usage during horse riding a checkbox question with 12 common bra types was presented (participants were asked to identify all the bra types they used for horse riding) and the frequency of bra issues experienced during horse riding were identified using a 5-point Likert scale (Never, Rarely, Sometimes, Very Often, Always). Section 2 identified the participant's horse riding commitments and level using multiple choice questions and barriers to participation in horse riding were identified (to be reported elsewhere). Section 3 of the survey explored breast pain and questions were adapted from the McGill Pain Questionnaire (Melzack, 1975), these were a mixture of Likert scales, closed and free-text questions. Section 4 asked participants for their suggestions on how bras could be improved to reduce any breast health issues experienced, the results of which will be reported elsewhere. Sections 5 and 6 identified demographic information on breast history and personal characteristics. Prior to distribution the survey was piloted on horse riders ($n = 8$) to ensure the wording and timings were appropriate.

In total there were 1324 survey responses and data from Google Forms were downloaded into a Microsoft Excel (2010) spreadsheet. Of the 1324 completed surveys, 59 were removed due to a missing or invalid self-reported bra size (a key variable of interest), resulting in a final sample size of 1265 for subsequent analyses. The mode body mass range of participants was 55-64 kg (29%); age was negatively skewed with the mode age range of participants being 18-24 years (33%). Sixty-four per cent of participants owned a horse and rode most days; the most popular equestrian activity participated in was dressage (38%), followed by leisure hacking and trekking (19%), show jumping (17%) and eventing (12%). Out of the 1265 valid bra sizes self-reported there were 81 different bra sizes represented (Table 1); cup size ranged from an AA cup to a J cup and underband size ranged from 28 to 44 inches. The modal self-reported bra size was a 34B (n = 112).

****Table 1 near here****

Data analysis

Descriptive analysis was used to summarise participants' demographic profiles and prevalence of breast pain and bra issues. Pearson's chi-square (χ^2) goodness-of-fit tests were utilised to assess the association of breast pain or bra issues with self-reported cup size, body mass, and the frequency, type and level of horse riding participation. Self-reported cup sizes were condensed into seven categories ($\leq$ A, B, C, D, DD, E, $\geq$ F), body mass ranges were condensed into six categories ($\leq$ 54 kg, 55-64 kg, 65-74 kg, 75-84 kg, 85-94 kg, $\geq$ 95 kg) and the responses 'Very Often' and 'Always' were combined for Likert scale questions to meet Chi-squared

assumptions. Self-reported cup sizes AA to C were classed as small-breasted (49% of participants), with cup sizes D and above classed as large-breasted (51% of participants) (Scurr et al., 2010) for the χ^2 analysis. Cramer's V effect sizes have been presented, with 0.10, 0.30 and 0.50 representing a small, medium and large effect, respectively (Cohen, 1992); 95% confidence levels have also been reported to aid data interpretation. Standardised adjusted residuals greater than ± 2 indicate the value is significant at $P < 0.05$ (Sharpe, 2015). All statistical analysis took place using the IBM SPSS 22 statistics package with an alpha level of 0.05.

Results

Forty per cent ($n = 532$) of participants reported experiencing some type of breast pain within the last two years and this was significantly related to cup size ($\chi^2 (6) = 54.825, P < 0.001, V = 0.208, 95\%CI [0.16, 0.27]$; Figure 1) and body mass ($\chi^2 (5) = 13.186, P = 0.022, V = 0.102, 95\%CI [0.07, 0.17]$), increasing linearly. Of the 532 participants who reported experiencing breast pain 60% reported that this was always or sometimes linked to their menstrual cycle and 29% felt their breast pain was either sometimes, very often or always a result of horse riding (exercise-induced breast pain); this highlights the complex nature of breast pain and all subsequent results presented on breast pain are acknowledged to be a mixture of different types. Over half of symptomatic participants described the severity of their breast pain as discomforting (56%), with 8% describing it as distressing, horrible or excruciating.

****Figure 1 near here****

There was no association of breast pain with the frequency of horse riding participation ($\chi^2 (2) = 1.504, P = 0.471, V = 0.034, 95\%CI [0.01, 0.11]$), whilst 21% of symptomatic participants felt that breast pain sometimes, very often or always affected their performance during horse riding. Breast cup size was significantly associated with the extent participants felt their breast pain affected their performance ($\chi^2 (3) = 31.579, P < 0.001, V = 0.248, 95\%CI [0.18, 0.33]$), with more larger-breasted participants stating that breast pain sometimes, very often or always affects their performance in horse riding compared to smaller-breasted participants.

There was a significant association between the frequency of breast pain experienced and the pace (e.g. cantering, sitting trot) of horse riding participated in ($\chi^2 (9) = 86.711, P < 0.001, V = 0.268, 95\%CI [0.23, 0.33]$) (Table 2). Results confirm that sitting trot was the pace that pain was experienced most frequently in, with 21% of symptomatic participants very often or always experiencing breast pain during sitting trot compared to 8% during cantering, galloping or jumping, 6% during rising trot and 1% during walking or hacking. Larger-breasted participants reported experiencing breast pain more frequently during sitting trot than smaller-breasted participants ($\chi^2 (3) = 16.441, P = 0.001, V = 0.287, 95\%CI [0.19, 0.42]$). In addition, significantly more participants reported never experiencing breast pain during walking or hacking (64%) compared to other paces. There was however no association between the level of competition participants reported to take part in and their breast cup size ($\chi^2 (1) = 0.908, P = 0.341, V = 0.027, 95\%CI [0.01, 0.13]$).

****Table 2 near here****

A sports bra was reported as the most frequently used breast support garment during horse riding for both small-breasted (24%) and large-breasted (39%) riders (Figure 2). However, only 14% of smaller-breasted riders and 19% of larger-breasted riders exclusively wore a sports bra for horse riding (i.e. they opted to always wear a sports bra as opposed to wearing a sports bra and a variety of everyday bra styles when riding). A range of everyday bra styles were cited, with full-cup bras being more popular for larger-breasted riders, and plunge and t-shirt style bras more popular for small-breasted riders.

Figure 2 near here

At least one bra issue (rubbing/chaffing, shoulder straps digging into skin, upper body pain, poor posture, underwire digs into skin) was reported by 59% of all participants. “Shoulder straps digging into the skin” was reported as the most frequent bra issue for participants of all bra sizes (Table 3). Larger-breasted participants reported experiencing all bra issues more frequently than smaller-breasted participants ($P < 0.001$).

****Table 3 near here****

Discussion

The prevalence of breast pain was relatively high in a horse riding population (40%) and the severity was similar to that reported by Brown et al. (2013) for marathon runners, with over half describing it as discomforting and in some cases quite

distressful. This highlights the need to investigate this important quality of life issue in females who exercise. Reported breast pain was however slightly lower than the general population (51%; Scurr et al., 2014). Prevalence of breast pain increased with cup size (Figure 1), confirming previous research (Burnett et al., 2014; Brown et al., 2013; Scurr et al., 2014) and stressing the need for appropriate breast support in this activity to help reduce breast pain, especially for riders with larger breasts. Increased body mass was also associated with increased breast pain in this study, although further analysis found a significant positive relationship between self-reported cup size and body mass ($r_s = 0.350$, $P < 0.001$, $R^2 = 0.123$), highlighting that a higher body mass may be detrimental to breast health.

As breast pain can manifest itself in different ways, for example being related (or not) to the menstrual cycle, it can be difficult to ascertain the cause. However, nearly 30% of symptomatic participants felt that their breast pain was at least sometimes caused by their participation in horse riding activity and the frequency of breast pain varied depending on the horse riding pace, suggesting horse riding can cause exercise-related breast pain. This demonstrates a requirement for supportive bras when participating in horse riding, which have been shown to reduce exercise-related breast pain likely caused by increased breast motion during other activities (Scurr et al., 2010; White et al., 2009). Of interest, 21% of symptomatic participants reported that breast pain, bra issues or their breast size at least sometimes affected their performance in horse riding activity; of these participants, 57% competed at either an affiliated, regional, national or international level. This is a concern as changes in rider performance can have implications for the subsequent performance of the horse (Hockenhall & Creighton, 2012; Randle et al., 2010) and further investigation into

the association between breast health issues and performance in horse riding is justified.

The type of physical activity undertaken has been found to affect the amount of breast motion and pain experienced (Mason et al., 1999; Scurr et al., 2009) and a significant association was also found in this study between the frequency of breast pain and horse riding pace. Sitting trot was the pace that pain was experienced most frequently in, higher than vigorous paces such as cantering, galloping and jumping (Table 2). The bouncing motion imparted to the rider is especially obvious at sitting trot due to the vertical motion of the horse's trunk, which riders have to learn to accommodate without relying on the reins to maintain balance (Terada et al., 2006). The frequency of this two-beat trot pace compared to the canter, which also has an aerial phase but is a three-beat pace, appears to be leading to increased levels of breast pain. As the sitting trot is a fundamental aspect of horse riding activities, especially dressage, research into breast biomechanics during this activity is warranted to help understand why the perception of pain is increased and to help inform sports bra design. Appropriate breast support for riders who regularly perform the sitting trot could help to reduce levels of breast pain experienced. In addition, breast pain during walking or hacking was significantly lower than other paces and could be promoted as a suitable exercise for larger-breasted riders to participate in.

It is well documented that an appropriate sports bra can help to reduce breast pain and breast motion compared to everyday bras (Scurr et al., 2010; White et al., 2009). Although sports bras were the most frequent type of bra worn for horse riding

(Figure 2), only 14% of small-breasted riders and 19% of large-breasted riders opted to exclusively wear a sports bra when they rode a horse. This compares to 82% and 91% of marathon runners who reported to always wear a sports bra when they took part in moderate or vigorous physical activity respectively (Brown et al., 2014). This is a substantially lower frequency of sports bra use for this population. Perhaps this is due to the vast majority of sports bras available for purchase being marketed towards runners, leading to the perception that sports bra use during other sports such as horse riding is not as important. It would be useful to explore this notion further to understand the perception of sports bra use by horse riders and investigate whether the design requirements for a sports bra during horse riding are different to running.

A high proportion of participants experienced bra issues suggesting that bra fit (either sports or everyday bra) was often not appropriate; “shoulder straps digging in” was reported as the most frequent issue with 43% of participants reporting experiencing this (Table 3). Shoulder straps were also highlighted as the most problematic area in a study into the features of sports bras most disliked (Bowles, Steele & Munro, 2012). This reinforces that more work needs to be done in the bra industry to improve shoulder strap design, as well as more awareness of how shoulder straps should fit in order to improve the wearer experience. The frequency of all bra issues increased for participants with larger breasts (Table 3), confirming that despite women with larger breasts being more in need of a supportive bra they are also less likely to find one that fits appropriately (Greenbaum et al., 2003; White & Scurr, 2012).

Upper body muscle pain and poor posture were reported to be an issue by 21% and 18% of all participants (respectively). These two bra issues in particular could have significant implications for horse riding performance. If bra issues (such as poor fit or insufficient support for larger-breasted riders) are contributing to poor posture then this could negatively affect dressage performance where maintaining an upright posture is crucial (Terada, 2000); a rider's posture also plays a significant role in the oneness of horse and rider (Alexander et al., 2015; Symes & Ellis, 2009). Increased muscle tension due to pain caused by bra issues may adversely be associated with performance as rider influence over the movement of the horse is communicated via subtle physiological cues; increased pain can result in an increased heart rate for example (Tousignant-Laflamme, Rainville & Marchand, 2005), which the horse is capable of detecting and responding to (Keeling et al., 2009).

In light of the relatively high prevalence seen in breast pain and bra issues, along with the low number of female riders who exclusively wear sports bras for this activity, this study has identified a need for the development of specific guidance for female horse riders. Educational initiatives for this population, which could include the provision of information resources on bra fit, breast pain and appropriate breast support, are warranted. These resources should be developed and promoted, preferably in conjunction with relevant national organisations, which all female horse riders can access.

Conclusion

In summary, results from this survey suggest that 40% of female horse riders experience breast pain and this was significantly related to breast size and body mass. Horse riding can elicit exercise-related breast pain and the bouncing motion of sitting trot was reported as the most painful horse riding pace for the breast. Sports bra use was relatively low for this population and increased awareness of the importance of sports bras to reduce breast pain is needed. Bra issues were prevalent and poor posture and upper body muscle pain in particular may be negatively associated with the horse-rider interaction; there may be performance implications for riders who experience breast pain and bra issues. It is especially important that larger-breasted riders, who experienced breast pain and bra issues more frequently, are educated in the importance of appropriate breast support during horse riding. Resources should be specifically developed to help educate female horse riders and raise awareness of appropriate breast support for this activity. In addition, results from this study provide justification to investigate breast biomechanics during horse riding to aid bra design, along with research into how pain may be affecting horse riding performance.

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Table 1. Distribution of participants self-reported bra size (UK underband and cup size) (n = 1265)

Underband (inches)	Cup size														Total
	AA	A	B	C	D	DD	E	F	FF	G	GG	H	HH	J	
28			1			1	1		1	3					7
30		1	3	8	4	4	6		3	5	4		2		40
32		20	52	71	52	33	29	11	2	7	3	1			281
34	1	40	112	111	77	55	33	11	11	7	4	6	3	1	472
36	3	17	50	73	38	43	27	12	3	9	6	1	2		284
38		3	14	27	33	20	15	9		3	1	4	1		130
40			5	4	8	13	7	2		1	2	1			43
42			1	1	1							1		1	5
44						1	1	1							3
Total	4	81	238	295	213	170	119	46	20	35	20	14	8	2	1265*

Table 2. Frequency of breast pain experienced during different horse riding paces by symptomatic participants (n = 513)

		Pace of horse riding			
		Cantering, Galloping, Jumping	Sitting trot	Rising trot	Walking, Hacking
All (n = 513)	Never	26%	16%	35%	64%
	Rarely	35%	26%	36%	30%
	Sometimes	31%	37%	24%	5%
	Very Often-Always	8%	21%	6%	1%
<i>Standardised</i>	<i>Never</i>	-2.2	-4.6	-0.1^	7.0
<i>Adjusted</i>	<i>Rarely</i>	0.8^	-1.4^	1.0^	-0.4^
<i>Residuals</i>	<i>Sometimes</i>	1.8^	3.5	-0.1^	-5.2
	<i>Very Often-Always</i>	-0.4^	4.9	-1.2^	-3.2
χ^2	86.711*				

* = significant association between horse riding pace and frequency of breast pain experienced ($P < 0.010$). ^ standardised adjusted residuals that do not exceed ± 2.0 .

Table 3. Frequency of bra issues during horse riding reported by participants with smaller ($\leq$ C cup) and larger ($\geq$ D cup) breasts (n = 1265)

		Issue experienced as a result of bra use					χ^2 (between fit issues)
		Rubbing/chaffing	Shoulder straps dig into skin	Upper body pain	Poor posture	Underwire digs into skin**	
All (n = 1266)	Never	51% (-0.7 [^])	35% (-13.1)	62% (7.9)	64% (9.3)	48% (-3.2)	338.962*
	Rarely	23% (2.5)	21% (0.9 [^])	17% (-3.4)	18% (-2.2)	12% (2.2)	
	Sometimes	22% (1.4 [^])	31% (10.4)	15% (-5.5)	13% (-7.4)	22% (0.9 [^])	
	Very Often-	5% (-4.7)	12% (7.7)	6% (-1.4 [^])	5% (-2.9)	8% (1.3 [^])	
	Always						
Smaller breasts (n = 618)	Never	61% (-0.7 [^])	45% (-9.7)	76% (7.5)	76% (7.8)	54% (-4.8)	222.553*
	Rarely	21% (2.3)	20% (1.6 [^])	12% (-4.3)	14% (-2.8)	22% (3.1)	
	Sometimes	16% (-0.3 [^])	28% (8.7)	10% (-4.6)	8% (-6.0)	19% (2.1)	
	Very Often-	2% (-2.5)	7% (4.8)	2% (-1.6 [^])	2% (-2.6)	5% (1.8 [^])	
	Always						
Larger breasts (n = 647)	Never	41% (-0.5 [^])	26% (-8.8)	49% (4.0)	52% (5.4)	42% (0.0 [^])	140.771*
	Rarely	24% (1.0 [^])	23% (0.0 [^])	21% (-0.7 [^])	22% (-0.5 [^])	23% (0.2 [^])	
	Sometimes	29% (2.5)	34% (5.6)	19% (-3.6)	18% (-4.3)	24% (-0.3 [^])	
	Very Often-	6% (-4.0)	17% (6.1)	11% (-0.5 [^])	8% (-1.9 [^])	11% (0.2 [^])	
	Always						
χ^2 (between breast sizes)		62.541*	64.041*	95.648*	87.203*	26.780*	

* = significant association ($P < 0.010$). **excludes 133 participants who said this issue was not applicable to them due to not wearing underwired bras. *Standardised adjusted residuals* in brackets. [^] standardised adjusted residuals that do not exceed ± 2.0 .

- Table 1. Distribution of participants self-reported bra size (UK underband and cup size) (n = 1265)
- Table 2. Frequency of breast pain experienced during different horse riding paces by symptomatic participants (n = 513)
- Table 3. Frequency of bra issues during horse riding reported by participants with self-reported smaller ($\leq$ C cup) and larger ($\geq$ D cup) breasts (n = 1265)
- Figure 1. Prevalence of breast pain across self-reported breast cup size (n = 1265)
- Figure 2. Bra types worn for horse riding activity reported by participants with self-reported smaller ($\leq$ C cup) and larger ($\geq$ D cup) breasts (n = 2259)