

# Through Pain, More Gain?

## *A Survey into the Psychosocial Benefits of Sadomasochism*

Andrea Duarte Silva



Department of Psychology-Faculty of Social Sciences

UNIVERSITETET I OSLO

October 14, 2015



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*M.K. Mercury*



Department of Psychology-Faculty of Social Sciences

A collaboration of Cognitive Neuroscience &  
Health Psychology programs

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## *Mein*

*Take me somewhere beautiful. Take me to where the eucalypt-scent softly anaesthetises me, where the ground is so steep that I start to lift out of myself, where the sea sings below us, soft and dangerous. [...] A lover not a slave, I am ready to receive your marks. I give you my body with full consent. I am vulnerable and it is only you, my other, that gives me strength. I hang before you, a piece to play with, to make writhe and bleed and hurt. I'm giving this to you, letting you see the spaces I go to. What do you see? Do you like what you see?*

*You beat me like some pre-human criminal, dragging me back through my past, through our past, to a time and place where I had not yet been invented [...] and when the blows rain on me too hard to hold, I swell and draw in and explode in cries of pain for your pleasure. [...] There is a point where I start to lose sense of it all, a point where it starts to make sense. This is the point you are searching for, watching me patiently as I unravel [...] The world around us has disappeared and we huddle together, breathing in each other's warmth, waiting for reality to fill these spaces you have made. Here, in this tiny space, we make the world infinite again.*

*The rivers of blood you have opened wash me clean. You have broken me, you will heal me. Holding me, your warmth, your strength, seeping into the cuts in my flesh: the point from which I start to rebuild. [...] My life is punctuated by the marks you cut into me - as they will heal, I will grow. [...] By destroying me, you bind me to this earth, to yourself. The more you destroy me the more I exist. Every limit shattered, every horizon expanded, every way you have shown me what I can endure. What we do changes me. It discards my past and lets me live again.*

By Ivan, for Love Hard (Vanting & Harrington, 2014)



## Abstract

Historically, physical pain has often been used as a form of punishment for misdeeds as well as self-atonement for guilty feelings and other forms of emotional and psychological distress. Psychological and emotional relief is a particularly common side effect of physical and emotional pain, especially when pain is controlled and manageable. In the practice of sadomasochism (SM), physical and emotional pain is often included in role play activities where guilt and punishment are dramatized for sexual pleasure. However, contrary to popular opinion, many SM practitioners argue that they do not actually like pain, but that pain within SM is used as a tool for psychological release. Neural and physiological mechanisms involved with contextual modulation of pain might render SM pain not as painful as it seems. Pain has also been associated with positive consequences which may be involved with the reasons why SM practitioners choose to engage in these activities. Could SM practitioners be using physical and/or emotional pain as a way to balance negative moods or other adverse psychological states? The current study explored the reported reasons why SM participants engage in painful activities and specifically whether mood altering or therapeutic benefits were amongst the perceived benefits. Participants ( $n = 510$ ) completed an online questionnaire exploring reasons for engaging in SM pain, its potential benefits and whether therapeutic benefits were experienced. Data were analyzed using contingency tables, discriminant analysis, and factor analyses, and multiple linear regression analyses. Acknowledgment of psychological benefits from SM pain was expected and confirmed, with only 12% of the sample finding no therapeutic value in their SM pain interactions. Reports of reasons to engage in SM pain and therapeutic relief from SM pain varied according to a number of demographic and sexual/SM characteristics. In conclusion, SM pain was significantly associated with relief from emotional strain and overload, with women, experienced participants, strong masochists and strong sadists reporting relief most frequently.





## Acknowledgements

The questions explored in this research have intrigued my mind for many years. Through personal experience and casual reports from friends within the community, I had a strong suspicion that there was a lot more to the experience of SM pain than meets the eye. Although the yearning for an answer was there, it took a long time and the combined encouragement and support of multiple people to get me to embark on this project and take it to completion. So many in fact, that if I were to name each and every one of them it would require many pages for a comprehensive account. Yet, a few individuals have had an indispensable role in the project.

First and foremost, I owe my eternal gratitude to my soul partner, Vegar, who played many roles in this journey, including (but not limited to): sounding board for the many ideas and theories; supportive anchor in my moments of despair and confusion; and motivational coach when I needed that extra kick in the derriere to move forward in spite of the many challenges and obstacles I encountered. I would also like to show my appreciation to my advisor/fairy godmother, Bente, who guided me through the rough spots, keeping my focus on the end result, showed endless patience with my trials and tribulations, and used creative means and discipline to help me find strength to persevere. Hilde & Erling, thank you for all your support and kindness; it brought light into my days and making me feel like I had a family again. A number of friends from the Land Down Under have made the effort to fight time zones and technological difficulties to keep me company, cheering me up when winter and culture shock got the best of me and gave me great feedback as the theories slowly materialized (in alphabetical order, because you are all so special to me): Alanjohn, Anthony, Damon, Darryl, Hollie, Keith, Sam & Savannah. My gratitude also extends to the Oslo friends Regina, Morten, Ingunn, Ane & Knut who went out of their comfort zone to physically and emotionally support me in the last dramatic weeks. Big thanks to Jenny, Hans and the crew from the Philosophy of Kink for the fantastic feedback on my writing. Anne-Marie & Arne, thank you for all the help with my statistics; you really saved me from drowning in the mathematics of my results! Speaking of results, there would be none if not for the hundreds of participants who filled the survey and for the key leaders in the BDSM community who helped spread the survey, improving the geographical scope and variety of the sample; thank you being a part of this! Finally, I would like to acknowledge my family who always supported me and believed in my abilities to do something extraordinary, even when you may not currently understand its value or be physically here to witness this success.

Thank you everyone! I couldn't have done it without you!

Hugs & Spanks (to those who deserve it)!

Andrea, aka MK Mercury



## Table of Contents

Introduction .....	13
Why Study Sadomasochism?.....	13
What Is Sadomasochism? .....	15
The Purpose of this Study .....	18
The Study’s Conceptual Model .....	18
Hypothesis .....	22
Previous Research .....	23
The Biological Foundations of Pain and Pleasure .....	24
The Purpose of Pain .....	24
Mind Tricks: Physiological Modulation of Pain.....	26
Psychological & Social Benefits of Pain .....	28
Methods .....	34
Participants.....	34
Recruitment & Ethical considerations .....	34
The Questionnaire .....	35
The Sample .....	35
Independent Variables .....	37
Dependent Variables .....	39
Statistical Procedures .....	39
Results .....	41
Sexual and BDSM Experiences .....	41
Masochism: Reasons for Receiving SM Pain.....	42
Sadism: Reasons for Inflicting SM Pain.....	48
Therapeutic Benefits of SM Pain for Masochists .....	49
Therapeutic Benefits of SM Pain for Sadists.....	51
Discussion .....	52
Main Findings .....	52
Reasons for Receiving Pain SM Pain .....	53
Reasons for Inflicting Pain SM Pain.....	55
Therapeutic Benefits of Receiving SM Pain.....	56
Therapeutic Benefits of Inflicting SM Pain .....	58

BDSM as Therapy? Considerations & Risks.....	58
Limitations .....	59
Conclusions & Future Research .....	60
References .....	62
Appendices .....	69
Appendix A: Benefits of Pain Survey Questions.....	69
Appendix B: Factorial Analysis. Reasons for Receiving Consensual Pain .....	78
Appendix C: Factorial Analysis. Therapeutic Benefits, Masochism Section.....	78
Appendix D: Factorial Analysis. Therapeutic Benefits, Sadism Section. ....	79

## **Introduction**

### **Why Study Sadomasochism?**

Ordinarily, pain is an aversive experience. While the general population predominantly aims to avoid pain, practitioners of sadomasochism (SM) consent to receive pain from mild to extreme levels. On the surface, SM defeats logic and the common human aversion to pain, yet in comparison to the large literature on the aversive nature of pain, there are disproportionately few psychological studies on the potential benefits of pain; SM being one area where these benefits may manifest. Rather than treat the seemingly paradoxical nature of masochist practices as a paraphilia of human nature; it ought to be explored scientifically and integrated into the larger contexts of pain and sexual research.

Currently, there is still debate surrounding the inclusion of sadomasochistic paraphilias within the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-V). While some researchers have claimed that listing it helps in diagnosing cases when a paraphilia becomes detrimental and potentially criminal, others argued that SM should not be listed in the paraphilia section due to the small percentage of forensic/criminal cases in comparison to the widespread healthy expression of the behavior in the general population (for a detailed review of this debate, see Khan, 2015). While the term sadomasochism may still be strongly associated with pathology, BDSM, standing for “bondage & discipline”, “dominance & submission” and “sadomasochism”, is a more widely accepted term for “kinky” activities. The Kinsey Institute New Report on Sex estimates that occasional BDSM activity within the United States range between 5 and 15% of the population, depending on geographical location and demographic background (Reinisch, Beasley & Kent, 1990). However a more recent non-representative survey of over 300,000 people distributed across 41 countries found that while only 5% of respondents identified as BDSM practitioners, 20% of respondents occasionally used some form of kinky toys, for instance blindfolds or handcuffs, (Durex Global Survey, 2005). Additionally, even if the majority of the population does not participate in SM, research shows that more than 50% of men and women both had fantasies about domination (Joyal, Cossette, & Lapierre, 2014). The recent increase in SM visibility, greatly due to the success of the novel *Fifty Shades of Grey* (James, 2012), may also increase popular interest in SM activities.

At the same time, while curiosity and participation in SM activities may be growing, the increased visibility of the lifestyle has also raised criticism and pseudo psychological

explanations for the behavior as well as unrealistic, sensationalist portrayals within popular culture. In popular media such as television shows, video clips and movies, BDSM has often been displayed in a scandalous way, in order to shock and arouse, often failing to point out that most BDSM practitioners adhere to safe, sane and consensual guidelines. Police investigation and forensic television shows often dramatize fictional accounts of kinky play which becomes criminal. When this extreme portrayal of BDSM is all that the general population is exposed to, it creates a stigma connecting kink to mental illness and criminal behavior, which is detrimental for BDSM participants.

Being part of a stigmatized group carries severe implications, including verbal and physical harassment. Aside from prejudice from society, kinky inclinations can also cause psychological strain from internalized shame surrounding activities and fantasies (Powls & Davies, 2012). This stigma may carry over into clinical environments, where uninformed or judgmental therapists might misdiagnose BDSM participants suffering from stigma as having a paraphilic disorder. Overall, pathologizing BDSM creates a feedback loop that promotes distress and need of therapy for participants, which in turn can lead society and clinicians to see BDSM participants as mentally unstable (Khan, 2015).

Additionally, recent empirical studies strongly contradict the societal stigma that BDSM participants have mental or sexual dysfunctions. In a large scale study with over 19,000 participants, Richters and colleagues (2008) found that while BDSM practitioners were more open to sexual variety, they did not differ from the general population in feeling sexually coerced, unhappy or distressed. Psychometric and personality assessment studies found BDSM participants to be within the expected normative range in terms of incidence of depression, obsessive-compulsive disorder, anxiety (Connolly, 2006), honesty-humility, emotionality, desire for control, self-esteem, life satisfaction and empathy (Hébert & Weaver, 2014). Further, Wismeijer & Assen (2013) even found that BDSM participants experienced higher subjective well-being, were more open to new experiences, more extroverted and conscientious, and were less neurotic and sensitive to rejection than controls.

Studies also hint at a potential reversal of this stigma, where BDSM activities show signs of potential therapeutic benefits. Barker, Gupta, and Iantaffi (2007) discuss how a large number of BDSM participants perceive their activities to be healing and transformative. Turley and colleagues (2011) found that role play and BDSM allowed for an escape from the burdens of daily life and promoted spiritual and therapeutic benefits. In sociological research,

professional dominatrices reported their sessions had a psychologically relieving effect for their clients (Lindemann, 2011). The frequent reports of therapeutic and psychological relief from BDSM activities indicate an area that deserves further examination.

### **What Is Sadomasochism?**

Sadomasochism resides under the larger term “BDSM”, which stands for the three interconnected components of “kinky” interaction: bondage and discipline (BD), dominance and submission (DS) and sadism and masochism (SM). Bondage represents different forms of physical restraint, such as ropes or leather cuffs, while discipline refers to modes of physical punishments, such as spanking or whipping. Yet restraint and punishment can also be applied in non-physical ways, through mind games, role plays and humiliation. Dominance and submission relate to consensual power exchange dynamics, where the *submissive* or *bottom* surrenders their control to the *dominant* or *top*. Often participants choose either side as their main role for interaction (their BDSM orientation/role), but a percentage of participants chooses to take either side (*switch*) depending on partner or situation. Finally, sadomasochism relates to inflicting and/or receiving pain and other uncomfortable/extreme sensations and experiences. SM does not involve only physical sensations. Humiliation, teasing and other forms of psychological games are also included (Wismeijer & Assen, 2013). Though not all BDSM participants (from here onwards also referred as BDSMers or *kinksters*) may engage in all three sections of the acronym, they tend to be used together.

Although BDSM is often equated to the idea of “kinky sex”, it does not necessarily involve erotic elements; rather it can be seen as a serious form of adult recreation (Newmahr, 2010b). BDSM interaction can take place as finite intervals of play (*scenes* or *sessions*), or as an ongoing lifestyle where participants aim to maintain their roles on a 24/7 basis (Dancer, Kleinplatz, & Moser, 2006). Interaction can take place in intimate environments or in public kink/fetish events. Like other forms of recreation and sport, it has many rules for interaction; the most important being that play is “safe, sane and consensual”. Participants should aim to identify and prevent health risks, as well as maintain a sensible, non-exploitative mindset during play; for instance, it is widely encouraged for participants refrain from using alcohol and drugs before or during play. Finally and crucially, all participants must give their adult consent to the negotiated activities (Wiseman, 1996).

The range of BDSM activities and role play options is so varied that it is paramount for participants to discuss preferences before interaction begins. Scenarios can be intricate and

scripted, or informal and spontaneous. During pre-scene negotiations, roles are established, activity preferences and limits are discussed, and safewords are agreed upon. Importantly, both participants contribute to the negotiations regardless of role. In fact, the submissive/masochist's fetish interests and limits are often the foundation for scenes. Communication (both direct and indirect) is a big part of the play, so the interaction is two-way-street with inputs from both sides of the power scale (Cross & Matheson, 2006). Further, the use of safe-words or gestures allows submissives to retain a certain level of control during play (Wiseman, 1996). Rigorous safety codes are almost always a part of hobbies involving risky activities, such as mountain climbing or scuba diving. Likewise within BDSM, this strong ethical framework of "safe, sane, and consensual" acts like a safety net, allowing participants more freedom of expression within activities that contain varying levels of risk (Easton & Hardy, 2003).

More specifically within SM, pain can be physical or emotional. Sometimes what appears to be pain is actually experienced as a strong sensation, similarly to a deep tissue massage. Many kinksters affirm that, more often than not, pain is not the main objective of play; but rather, pain is used to achieve a certain emotional experience (Cross & Matheson, 2006; Wismeijer & Assen, 2013). For instance, pain can be used as a symbol to intensify the power differential between dominant and submissive (Newmahr, 2010a; Richters et al., 2008). SM pain is usually connected to a story and is infused with meanings and emotions. It can be used as punishment for misdeeds thus encouraging training and behavior modification, explorative to push the boundaries of body and mind, or playful when combined with humorous role plays.

Although not all of BDSM activities involve pain per se, many of them are extreme versions of activities commonly used in normative sexuality (Santtila, Sandnabba, Alison, & Nordling, 2002). While in the general population, rough sex may include some hair pulling and light scratching, within BDSM, hair might be tied up to a bondage harness, or sharp objects may be used for intense body scratching. In a comprehensive study of BDSM behavior, Alison and colleagues (2001) organized BDSM activities into four distinct categories, namely 1) hypermasculinity, 2) inflicting of pain, 3) humiliation, and 4) physical restriction. Though category 2 is most obviously connected to SM, all of them may involve a certain level of pain. For example, under the humiliation category, face-slapping and verbal insults are both connected with emotional pain. Santtila and colleagues (2002) also observed that beginners often explored mild BDSM activities and gradually moved to more extreme



forms of the behaviors. BDSM literature reflects the research, where participants were recommended to begin with soft stimuli and move on to harsher or more intense activities as they gain experience and confidence, thus promoting safety within the interactions (Easton & Hardy, 2003).

Importantly, SM scenes are not composed exclusively of painful and/or challenging activities. In a study that included observing public BDSM scenes, Sagarin and colleagues (2009) noted that aside from the activity categories mentioned above, scenes also included numerous forms of caring behaviors and pleasure stimulation, such as kissing, caressing and light stroking. These pleasant behaviors were often interspersed with painful activities during the scene, possibly creating hedonic reversals, where pain may begin to feel pleasant as the body adapts to the roller coaster of sensations. The authors also observed a higher concentration of caring and pleasant behaviors during the conclusion of scenes, a practice known as *after-care*. In the majority of BDSM scenes, *after-care* is recommended as a way to re-orient participants from the intensity of the scene back into a more casual way of relating, usually including supportive talking, gentle touch, praise and nurturance (Easton & Hardy, 2003).

Fortunately, the recent academic interest in BDSM has begun to explore a neutral or even positive view of BDSM. Powls and Davies (2012) thoroughly reviewed a number of BDSM studies and found results to be inconsistent with popular assumptions of BDSM being linked to mental instability or abusive pasts. For instance, BDSM participants were shown to exhibit similar attachment styles to that of control groups, with the majority of kinksters having grown up in a traditional, two-parent household (Sandnabba, Santtila, & Nordling, 1999). BDSM participation was also found to be uncorrelated with previous child sexual abuse or sexual dysfunction (Richters et al., 2008). In the data above, the overall majority (between 54% and 87%) of BDSM practitioners reported higher education levels (with college or other post graduate degrees), better incomes and higher social status than the general population, suggesting that BDSMers are able to function well within society. Dysfunctional cases of BDSM were often connected to having been verbally or physically harassed due to their kinky orientation (Powls & Davies, 2012). Social rejection and aggression from the general population could be more damaging to kinksters than the actual whips and chains of consensual scenes. Hence, aside from the scientific interest, further research into BDSM may also benefit participants by reducing the stigma attached to such behaviors among academics, psychology health practitioners and the population at large.

Although BDSM encompasses a range of behaviors that are also present in heteronormative sexuality (Santtila et al., 2002), probably one feature which may create the most confusion and attrition towards kink is the eroticization of painful stimuli. This study focuses on sadomasochism specifically due to its seemingly paradoxical nature. Yet, sadomasochism is not the only behavior where humans accept and even seek out pain. Hedonic reversal activities, such as the enjoyment of spicy foods, extreme sports, or body piercing, all may seem equally strange and paradoxical for outsiders, while participants vouch for the benefits and pleasures derived from such activities. Rather than simply judge people who enjoy painful activities, one should first look deeper into the physiological and psycho-social effects of pain paying special attention to these groups that appear to deviate from the norm. To the author's knowledge, this study is the first empirical investigation into the potential therapeutic benefits of SM.

### **The Purpose of this Study**

The present study was designed to explore perceptions about pain within the BDSM community using an online self-report questionnaire (see Appendix A for full set of questions). The survey investigated whether BDSM pain had any psychological and/or social benefits for the participants, which type of benefits were reported and whether demographic (gender, sexual orientation and level of education) and BDSM characteristics (BDSM role, level of experience, level of masochism/sadism) affected the reporting of such benefits. Hence, the purpose of the present study was: 1) to explore the self-reported reasons for receiving and inflicting consensual SM pain among masochists and sadists respectively, and to empirically test which reasons separate respondents of different BDSM roles and levels of masochism, and what relationships exist between the reasons for receiving pain, socio-demographic factors (gender, sexual orientation and level of education), and BDSM characteristics (BDSM experience, BDSM role and level of masochism); and 2) to explore whether masochist and sadist participants reported mood enhancing or therapeutic benefits from consensual SM pain, to test if there are any separate dimensions within this form of benefit and if so, what relationships exist between the therapeutic dimensions, the socio-demographic factors and BDSM characteristics as described above.

### **The Study's Conceptual Model**

The conceptual model underlying this project is depicted in Figure 1 below. The inclusion of variables is based on previous research on similar outcomes or comparisons of the variables between the BDSM community and the general population, as explained in

detail below. When little or no previous findings were available, theoretical concepts were used to justify the inclusion of socio-demographic and BDSM variables of potential relevance. This ensures an interdependent theoretical-empirical process whereby variables already known to be of relevance to the outcomes as well as possible new ones were included. The two central dependent variables in this study (denoted “outcomes”) were 1) reasons for and 2) therapeutic benefits from either receiving or inflicting pain within a BDSM context. The model depicts a relationship between the outcomes and two sets of independent variables: three socio- demographic characteristics (gender, sexual orientation, level of education), and three BDSM characteristics (BDSM role, level of BDSM experience and level of masochism or sadism). The study explored the relative contribution of each of these independent variables to the reasons for and therapeutic benefits from engaging in SM pain.

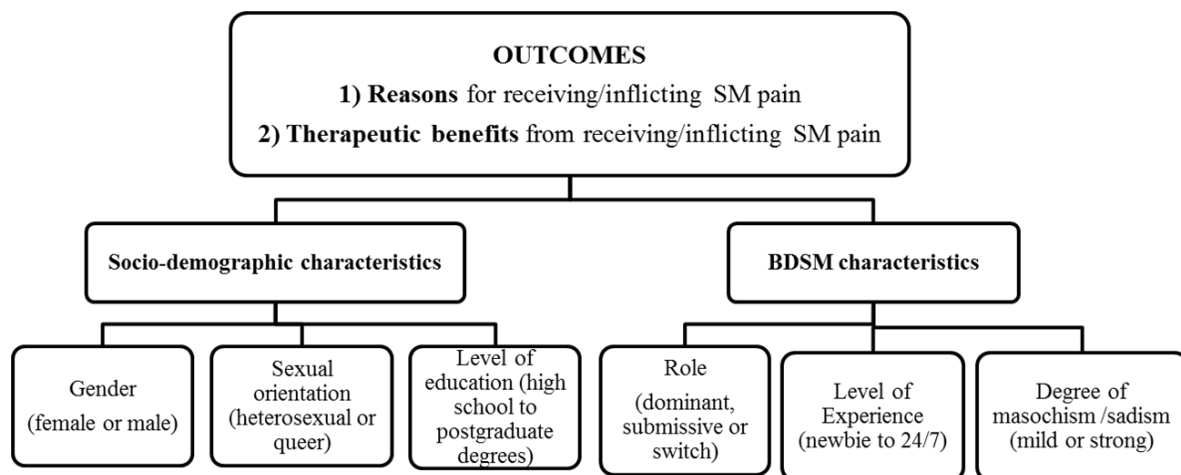


Figure 1: Benefits of Pain survey conceptual model.

**Reasons for and therapeutic benefits from receiving/inflicting SM pain.** Although no previous literature has directly explored the relationship between the independent variables and the outcome variables in the present study, the inclusion of these variables is based on qualitative research which questioned BDSM participants about their motivations to engage in the behaviors and what advantages they gained from the activities. In terms of the outcomes, ethnographic research has found a number of themes of framing pain within BDSM play (Newmahr, 2010a), three of which were used within the current study under the outcome “reasons to receive/inflict SM pain”: 1) transformed pain (“pain enhances pleasure” dimension), 2) sacrificial pain (“I enjoy pain because it pleases my partner” and “pain as power exchange” dimension), 3) investment pain (“pain is challenging; I feel a sense of achievement and pride afterwards”). Previous literature denotes power exchange to be among

the most cited reasons to engage in SM pain (Cross and Matheson, 2006), hence reasons relating to submission enhancement (for receiving pain) and increased sense of power (for inflicting pain) were also included in the study. SM pain as an escape from psychological strain and stresses of daily life has also been previously reported (Baumeister, 1989; 1997), forming the basis of the second outcome (therapeutic benefits of receiving and inflicting pain). Biologically, SM interactions have been shown to reduce cortisol levels, a clear measure of stress relief (Sagarin et al., 2009). Recent qualitative research also confirms therapeutic-like effects from SM pain interactions (Hébert & Weaver, 2015).

In the absence of previous literature linking the outcomes with the independent variables from the present study, the inclusion of these variables was based on previous research showing gender differences within BDSM roles, masochism styles and pain perception, as well as socio-demographic variation between BDSM participants and the general population.

**Socio-demographic characteristics.** Gender has been a major comparative variable within a number of studies of the BDSM community. Probably the clearest and most repeated finding has been that the majority of women, up to 75% in some cases, prefers the submissive role, while men are usually split evenly between dominant, submissive and switch (Connolly, 2006; Wismeijer & Assen, 2013; Yost & Hunter, 2012). Baumeister (1989) also found qualitative gender differences within masochism style. For female masochists in his sample, pain within a punishment/training context was a central component of the relationship, emphasizing emotion and subservience to the dominant partner. The “sacrificial” framing of pain (pain for the good of the partner/relationship) was also more common among women in a more recent study (Newmahr, 2010a). Comparatively, male masochists placed a bigger emphasis on extreme sensations, including heavy pain framed in a challenge/pride context, and on humiliation and degradation of status, thus promoting a strong escape from daily life burdens (Baumeister, 1989). Newmahr’s (2010a) results also matched this finding, with males more frequently reporting this “investment” framing of pain (pain as a challenge or payment for benefits). Physiologically, women were found to have lower pain tolerance for pressure pain (Racine et al., 2012), which is one of the most common forms of pain stimulation within BDSM (spanking, whipping, etc.), potentially explaining some of Baumeister’s (1989) gender differentiation in masochism styles.

It is important to note that although the independent variables in the model are shown as independently linked to the outcomes, gender could indirectly affect the development of

BDSM experience and levels of masochism. Although this study has not explored this question, women may have more access to BDSM due to heteronormative sexual scripts where women often take a receptive/submissive role within sexual interaction. For many women, being submissive does not directly contradict sexual expectations, as it does for men. Further, certain aspects of sexual interaction persist within BDSM communities, as the fact that women are still the “gate keepers” of play. A woman who is new to the scene will have more willing dominant partners and thus more options for play than men will. Therefore, if she chooses to, she can develop her experience at a fast pace. As confirmed by Baumeister (1989), beginners in the BDSM community often start as submissive simply because the dominant role usually requires specific skills and techniques that must be first be learned. There is a disproportional distribution between dominants and submissives, the latter often making up the majority of the BDSM community (Hébert & Weaver, 2014; Wismeijer & Assen, 2013). The gender differences in BDSM roles, with very few women taking up a dominant role (Wismeijer & Assen, 2013; Yost & Hunter, 2012; Connolly, 2006) makes it easier for submissive women to find play partners, as compared to submissive males. Similarly, as pain threshold has been positively correlated to frequency of BDSM practice (Defrin, Arad, Ben-Sasson & Ginzburg, 2015) women may also move up the masochism scale faster because they have more access to BDSM play. Hence as well as directly affecting reasons and therapeutic benefits of SM pain, gender might also have a secondary loading effect by indirectly affecting BDSM experience and masochism development.

The two other socio-demographic variables included in the model, sexual orientation and level of education, have been explored in previous literature through comparisons between BDSM samples and control samples and/or general population data. Compared to the 3-6% homosexual or bisexual figures in the general population (Mosher, Chandra, & Jones, 2005), BDSM samples usually contain much higher percentages of non-heterosexual orientations, in certain cases up to 50% bisexual/homosexual (Connolly, 2006; Wright, 2008; Yost & Hunter, 2012). Yost & Hunter (2012) further propose that BDSM in itself may be a form of sexual orientation, in that participants place more emphasis their BDSM role (dominant or submissive) and are less concerned with the gender of their play partner. Hence self-reports of sexual orientation could be linked with the outcomes in the model. The level of education within BDSM research samples has also been widely shown to be higher than the general population (Connolly, 2006; Richters et al., 2008; Santtila et al., 2002; Wismeijer & Assen, 2013; Yost & Hunter, 2012), suggesting that this variable may contribute to reasons

why participants engage in the behaviors in the first place. Baumeister (1989) proposes that higher education levels are often associated with more challenging expectations and intellectual burdens within the workspace, hence increasing the attraction towards pain's sensate focus, and its ability to draw attention away from abstract and mental pursuits, suggesting that level of education might also affect the present outcomes.

**BDSM characteristics.** The inclusion of BDSM characteristics as independent variables in the model is partially due to previous research and partially deductive. Previous research on the BDSM community has found significant variation of results according to participants' BDSM role (Connolly, 2006; Hébert & Weaver, 2014, 2015; Wismeijer & Assen, 2013). For example, Connolly (2006) found that submissive participants scored higher in a few personality measures including anxiety and dependence, while dominant participants scored higher in histrionic and narcissistic personality features. Hence, such differences might also affect the present study's outcomes. Although no previous research used level of BDSM experience as a specific measure, one recent study found correlations between the frequency of SM interactions and variables such as pain threshold, fear of pain and pain intensity in everyday activities (Defrin et al., 2015). As one becomes more experienced within BDSM, the frequency of SM play is likely to increase, thus affecting the outcomes within the model. Unfortunately, previous studies did not clearly discriminate between BDSM roles and masochism/sadism levels. While a few studies do use the terms masochist and sadist (Cross & Matheson, 2006; Santtila et al., 2002), these were not precisely related to receiving and inflicting pain, but rather described a passive or active role within BDSM interactions (similar to this study's BDSM roles variable). Connolly (2006) also used a scale of light-extreme play to describe her sample, but did not use that variable as a discriminant for explaining variation among her results. Hence, the present study is pioneering the inclusion of the masochism and sadism scales and, to a mild extent, BDSM experience, as variables within this area of study. Logically, one can expect that the level to which one enjoys receiving or giving pain to be related to reasons for participating in such activities as well as benefits obtained. Similarly, as participants gain more BDSM experience they are more likely to engage in activities more frequently and also develop deeper insights about their BDSM practice.

## **Hypothesis**

In brief, the model puts forward specified associations between independent and dependent variables, and it was expected that some or all independent variables would be interrelated. Based on what is found in previous research, it can be expected that participants

self-identifying as submissive and masochist would be more likely to report experiencing therapy-like benefits from their pain experiences. Further, it can be expected that patterns of report would be clearer within reasons for receiving pain (masochists) than within reasons for inflicting pain (sadists). Gender differences are expected within the types of reasons reported for engaging in SM pain and in the prevalence of therapeutic benefits, though the exact direction is not predicted. Sexual orientation, level of education and BDSM experience can also be expected to contribute to the outcomes, yet the direction of these effects are not specified.

### **Previous Research**

Confusion and stigma surrounding SM behaviors could be related to definitions of pain associated with the common aversive responses to typically painful stimuli. However, of many philosophic arguments for pain, dimensionalism describes the phenomenology of both pain and pleasure without the two being mutually exclusive. It proposes that, like volume is a characteristic of auditory stimuli, pain and pleasure are qualities that can be associated with most experiences, both physical and psychological (Moen, 2013). Moreover, the opposite of pleasure is not necessarily pain, but rather, “un-pleasure”, whereas pain may occupy another scale altogether. Hence, an experience could fall anywhere on either the pleasure (hedonic) scale or the pain scale depending on the situation and on individual variation.

Even within the BDSM community, pain is generally still considered as aversive, however participants might frame their pain experiences or consciously guide their awareness in ways that makes the pain more palatable. Within the framing of *transformed pain*, physical stimulation that would normally be experienced as pain does not feel as aversive, but rather it is experienced as pleasure or intensity (Newmahr, 2010a). In expectation of a harsh punishment during a BDSM scene, one may find the actual stimulation “not as bad as expected” or even pleasant in comparison. Strong painful stimuli early in the scene could create a ceiling effect where less intense pain may be perceived as neutral or pleasant. Additionally, for a person suffering from chronic pain or emotional strain, SM pain could comparatively be evaluated as less intense. Within BDSM, the combination of expected and unexpected sensations and the interchange between pleasant and painful stimuli might activate neural modulation and cognitive processes which may reduce pain perception or transform pain into pleasure.

## **The Biological Foundations of Pain and Pleasure**

The context surrounding a sensation will affect the perception of whether it is painful, pleasurable or simply neutral. For instance, ice water swimming may normally feel painful, while the same ice bath can feel invigorating and pleasant after stepping out of a hot sauna. Pain tolerance can also vary according to a number of factors, such as whether pain is experienced during a stressful situation (Butler & Finn, 2009). Although pain and pleasure are often seen as opposites, it appears that these concepts are controlled by the same neural systems in the brain (Leknes & Tracy, 2008), suggesting that they can occur simultaneously within two overlapping scales, rather than one continuous scale with pain in one extreme and pleasure on the other. A simple overview of how the nervous system processes pain and pleasure can provide deeper insights into the nature of hedonic reversal behaviors, such as sadomasochism.

The sensation of pain often begins with the triggering of nociceptors – receptors specialized in processing potentially damaging stimuli. Once activated these receptors communicate with the brain via the spinal cord through the ascending and descending pathways. The ascending pathway transmits impulses from the body to the midbrain and the thalamus, where information can be redirected to a number of brain areas which contribute to processing emotion and physical bodily information (Løseth, Ellingson & Leknes, 2013). The descending pathway directs signals from the brain to the body, and is regulated by the limbic system, a network associated with emotion and social processing, cognitive attention, motivation and learning (Leknes & Tracey 2008). Finally, signals from the limbic system are directed via the periaqueductal grey, a structure which can block or stimulate impulses from the body, thus generating analgesia or intensifying sensations (Løseth, et al., 2013). The inhibiting or facilitation of pain/pleasure sensations is mostly an unconscious and automatic process, which can be activated by stress, emotions or context of the stimulus, and could explain some of the transformation from pain to pleasure within SM.

## **The Purpose of Pain**

Pain and pleasure fulfill important roles in survival and reproduction of an organism via adapting to a diversity of environments, stimuli and social interactions. The purpose of a stimulus fluctuates according to the state of the body/mind and affects one's perception of pain and pleasure. Stimuli that are more effective at rebalancing homeostasis are perceived as more pleasant (Leknes & Tracey, 2010), and those creating imbalance will feel painful.



Extreme emotions (such as anger) are also deviations from a relaxed homeostatic state, yet many are not socially accepted. Hence, emotional reactions from everyday life can easily build up creating an imbalance which can lead to severe psychological strain.

In modern society, particularly within western cultures, strong emotional displays are often deemed unprofessional or immature, hence coping with unexpressed emotions can be a challenge. Exchanging internal and vague psychological pain for distinct yet controlled physical pain may be one explanation of masochism. Pain's contrasting effect can make aversive stimuli feel pleasant if they are relieving other more painful sensations (Leknes et al., 2007) or negative emotional states. There is a neurological overlap in networks modulating physical and emotional pain, and pain has been shown to promote subsequent pleasures (Bastian Jetten, & Hornsey, 2014a). Hence physical pain might reduce emotional pain. This effect has been tested experimentally where pain reduced feelings of numbness and negative emotions (Flanklin et al., 2010). Baumeister (1989) proposed this balancing effect explains masochism as a mechanism for temporary escaping emotional burdens and responsibilities. Additionally, when pain ceases to be an injury warning, but may actually inhibit behaviors that are beneficial, neural modulation may block pain sensation giving preference to whichever stimulus/behavior is most important to survival or reproduction of the organism (Fields, 2006). Because SM pain is consensual and controlled it loses its evolutionary warning purpose, thus allowing more important stimuli to take precedence, such as building intimacy or relieving emotional stress.

The enjoyment of painful stimuli could be simplistically explained as a neurochemical imbalance or dysfunctional neural networks, yet, these would cause a more generalized pain insensitivity not just particular pain related to certain contexts. Self-proclaimed masochists do not enjoy pain indiscriminately, they are rather specific about the type of pain they enjoy and this is usually limited to an SM context (Defrin et al., 2015). Actually, new evidence has shown that people engaging in consensual painful activities may have specific coping mechanisms for pain. Compared to the control group, participants who routinely engaged in masochistic behaviors exhibited lower levels of pain catastrophizing and fear of pain, both of which were negatively correlated with the frequency of SM behaviors (Defrin et al., 2015). Additionally, although the masochist group had higher pressure pain thresholds, which were positively correlated to the frequency of SM sessions, they held similar unpleasant attitudes towards everyday pain as the control group. A closer investigation into the factors which

influence pain modulation networks is a first step into finding answers for how context can have such a powerful effect on how pain is experienced.

### **Mind Tricks: Physiological Modulation of Pain**

The nervous system's flexibility when reacting to stimuli can influence how people perceive pain and pleasure. In the case of SM interactions, what an external observer may perceive as painful stimuli may actually be comfortable or even pleasurable for the participant. Sensitization of the skin can make it numb to pain and enhance subsequent pleasure. Pleasure and pain have been shown to modulate one another, where pleasure reduces pain and vice versa. Neurochemicals act as modulators of pain networks so that certain mood states, such as stress or urgency, can make pain less noticeable. During SM interaction, each or a combination of these biological factors may affect the participant's experience of pain and pleasure.

Pain can promote increased pleasure perception through sensitization of the skin and *sensate focus*. Painfully hot spices have been linked to sensitizing the palate and making it more open to textures and tastes (McGee, 2004). Within BDSM, a similar effect is known as the "warm-up", where a dominant will use mild pain stimulation, increasing blood flow to the area and creating sensitization such that further pain may be experienced as intensity or pleasure (Wiseman, 1996). Additionally, as pain often promotes a focusing of attention on the body's sensations, commonly referred in sexual therapy as *sensate focus*, then it is likely to also enhance pleasure experienced simultaneously or subsequent to the pain stimulus. Masochists have reported pain taking attention away from abstract thoughts and towards the present moment and physical body, thus enhancing focus on the activities, including pleasure and emotional components of the interaction and relationship (Baumeister, 1989).

Hormonal interactions and neurotransmitter activation (by pain or pleasure) can also enhance pleasure and/or reduce pain. The common effect of stress induced analgesia (SIA), a pain reduction response after exposure to stress or fear, involves the descending inhibitory pathway and a cascade of neurotransmitters (Butler & Finn, 2009). Although safewords and negotiations are used, stress in the form of anticipation is still strongly present within SM scenes, as evidenced by elevated cortisol levels (Sagarin et al., 2009), which could be inducing an analgesic effect, particularly for submissives. The runner's high, which has been linked to opioid activation (Boecker et al., 2008) is often compared to sub-space, the euphoric effect commonly experienced by submissives within BDSM scenes (Williams, 2006). As a

strong indicator for hormonal interaction, gender differences in pain perception have been thoroughly studied, with unfortunately few conclusive results. Overall, only pressure pain displayed robust divergence between the genders; in 86% of the studies, women exhibited lower pain tolerance than their male counterparts (Racine et al., 2012). Considering how a large part of SM pain is related to pressure pain (e.g. spanking, whips, and heavy bondage), this gender difference in pain tolerance could explain why most masochist men tend to prefer more extreme forms of pain than masochist women (Baumeister, 1989).

Pain literature has also shown some curious pain attenuating effects from pleasant stimuli. Positive images have been shown to reduce pain sensitivity, with an opposite effect for negative images (Kenntner-Mabiala & Pauli, 2005). Pleasant music had a similar pain reducing effect for thermal pain (Roy, Peretz & Rainville, 2008) and odors reduced reports of heat pain unpleasantness (Villemure, Slotnick, & Bushnell, 2003). A series of studies found that genital stimulation produced an analgesic effect without a decrease in touch sensation (Komisaruk & Whipple, 1986; Whipple & Komisaruk, 1988) and also increased the pain threshold in women with spinal cord injuries (Whipple, Gerdes, & Komisaruk, 1996). These effects might explain the potential reduction in pain perception within SM contexts. BDSM scenes are not purely composed of painful stimulation, but rather they also include a variety of pleasant stimuli such as sensual music, gentle touch or massage, pleasant visual stimulation (e.g. fetishized objects such as high heels, or watching the partner wearing fetish clothes), and fragrances from the partner or particular fetishes such as leather (Easton & Hardy 2001, 2003). As least for women, genital stimulation during SM play would also reduce their pain perception, thus making other sensations more pronounced and intense. Therefore pleasant stimuli may reduce the *submissive's* sensitivity to pain, thus promoting an overall experience where “painful” stimuli are perceived as intensity or pleasure.

The perception of pain within BDSM scenes may also be affected by Kahneman's *peak end rule* (1993), which posits that an individual's memory of an event is strongly influenced by the final moments of the event. In most cases, BDSM scenes follow a structure where pain and pleasure intensities are gradually built up through cycling of different activities, peaking in an orgasm-inducing activity or similar intense pleasure, and closing with *after care* activities, such as cuddling and gentle stroking (Sagarin et al., 2009; Wiseman, 1996). This format intensifies the *peak end rule*, potentially forming long term habituation to painful stimulation and also promoting a positive mental association towards pain within a BDSM context.

This chapter evaluated a number of psycho-physical processes involved in the experience of pain, in particular how pain sensation can vary according to context, expectations and the presence of other stimuli. An overview of pain brain networks was provided, taking special note to the descending pathway's ability to block pain sensation according to context. Pain sensitivity was also shown to be dependent on a variety of mechanisms, such as level of stress, conditioning, and the relevance of pain for the health and reproduction of the organism. This chapter also briefly explained the mechanisms by which physical pain might reduce emotional pain (more details further). With so many aspects potentially reducing pain sensation within SM scenes, it is understandable why so many BDSMers are motivated to engage in seemingly painful activities. Yet, pain as a pleasure enhancer is only one of the reasons explored within the present study. In situations where there may be no direct pain reduction, humans still participate in painful activities due to secondary benefits derived from the pain experience.

### **Psychological & Social Benefits of Pain**

Although physiological mechanisms may reduce an individual's sensation of pain, within SM, pain is not always completely removed, but rather, some amount of pain may actually be desired due to indirect benefits an individual may receive from it. Historically, humans had to cope with a lot more pain than we currently experience. Higher mortality, inequality and harsher living conditions all translated into psychological and emotional pain. In a world where pain was commonplace, coping mechanisms flourished in the form of value systems which continue to affect how we interact with painful experiences to this day.

**Pain as investment for virtues & pleasure.** Bodybuilders worldwide go through high levels of physical pain on a regular basis with the purpose of transforming their bodies. Their popular motto, *no pain – no gain*, originally referred to the pain of muscle tearing which brings about new muscle growth and weight gains. This adage has been appropriated for a wide variety of painful activities which also generate benefits, some physical others psychological, exhibiting an intricate value system where pain becomes an investment. Framed in this way, pain becomes a challenge to be overcome. The achievement and conquering the pain bestows rewards of virtues, such as resilience, strength, and will-power. Notably, without the aversive pain sensation, this form of reward is not possible; if it is not an ordeal, there is nothing to conquer.

Pain has often been used as punishment and “payment” for one’s transgressions. Physical pain as payment for misconduct is so deeply ingrained within the human psyche, that physical pain can reduce guilt feelings, even without direct contextual connection. Bastian and colleagues (2011) found that after pain stimulation, guilt primed participants had a reduction in guilt feelings compared to those who did not receive any pain. Additionally, even though guilt primed participants reported the pain as more intense, they still withstood the pain for longer than the neutral priming control group, showing they may have been “self-punishing” even though the guilt was not directly related to the experiment. Within BDSM, using punishments to discipline real life misconduct is more common among practitioners who live it 24/7 (Dancer et al., 2006), while in the majority of interactions, the “penance” is theatrical with mistakes relating to role play scenarios or the submissive's performance during the scene (Easton & Hardy 2001). For example, a typical scenario within teacher-student role plays could be spanking as punishment for “cheating on a test”, a transgression that only has weight within the context of the scenario, but not inducing real life guilt. Without real guilt, experiencing pain may actually give rise to another beneficial effect of pain: pleasure seeking.

When pain is unjustified, it has been shown to promote self-indulgence in the form of immediate or so called “guilty pleasures” (Bastian, Jetten, & Stewart, 2013). Experiencing unjust social pain also promoted immediate self-gratification, suggesting that both physical and emotional pains bolster this effect (Twenge, Catanese, & Baumeister, 2002). Shame and guilt towards taboo fetish pleasures could be a subconscious motivation for participating in painful SM play, such that tolerating the pain provides justification for enjoying the fetishized pleasures. Importantly, for this effect to work, the pain recipient must feel their suffering is unjustified. The concept of unfair treatment is another theme often implemented within BDSM scenarios where participants are expected to “earn their pleasure” (Easton & Hardy, 2001). So not only are faults unrealistic within punishment role plays, but certain role plays actually dramatize injustice such that the pain experienced would be explicitly unfair, and thus probably giving rise to strong feelings of entitlement to pleasure and self-indulgence.

Suffering and pain are also necessary to the establishment of certain valuable virtues, such as determination, strength and patience. Because pain is often an involuntary reaction to aversive stimuli, it interferes with abstract thought, subjective goals and emotional pursuits. Being able to remain composed and sustain attention to higher level objectives during a painful episode demonstrates will-power and self-discipline. The nature of the virtues elicited from pain are reflective of the pain's purpose, thus a soldier’s injuries are associated with

patriotism and honor, while the mental strain and social isolation associated with writing a novel may induce values related to patience and self-mastery (Bastian, Jetten, Hornsey & Leknes, 2014b). Meaningful pain confirms personal value, but also communicates these virtues to others. In kinky interactions, pain is often symbolic, while meanings vary between participants. Sacrificial pain, or suffering for a higher cause, such as devotion to the dominant partner is a common theme within BDSM, particularly among women (Newmarh, 2010a). Having a high pain tolerance is also a source of pride even in the general population, as evidenced by pain research participants who regularly seek to know whether their pain tolerance was stronger than others' (Leknes & Bastian, 2014). Masochists often display a strong interest in building pain tolerance with marks and bruises often being exposed proudly at BDSM parties or online networks as proof of their resilience as a submissive and commitment towards their dominant partner (Newmahr, 2010b).

Applying meaning or a level of control can change a pain experience from threat to challenge. In cases where pain is too intense for the recipient to manage, it is experienced as threatening or traumatic. However, when pain is controllable, the recipient is more likely to experience it as a challenge. In one experiment, participants who were informed that the pain stimulus would improve muscle tone displayed significantly higher pain tolerance than the control group who were not given any positive meaning to the pain (Benedetti, Thoen, Blanchard, Vighetti, & Arduino, 2013). Completing a painful challenge evokes feelings of accomplishment, positive self-view, competence and mastery (Schneider, 2009). Although submissives explicitly relinquish control during SM sessions, they still maintain a high level of implicit control. In most cases, BDSM activities and pain levels are negotiated prior to the beginning of a scene. Further, in the event of a miscommunication or if pain is intolerable, participants still have safewords which can stop the action immediately. Seeing as the pain within BDSM interactions is controllable, escapable and meaningful, then it is probably experienced as challenge rather than threat; which in turn affirms personal identity and provides feelings of achievement, competence, and even empowerment. Pain as challenge is another major theme within the outcomes explored in the present study.

### **Pain as escape from the burdens of the self.**

*“In masochism, pain operates as a kind of narcotic: It blots out broader, symbolic patterns of thought, including meaningful definitions of self that stretch across time, space and multiple roles” (Baumeister, 1997).*

Self-identity values vary between individuals, but in general, people seek dignity, respect, esteem and control over their life situation, all of which are mostly abstract, high level, mental pursuits. Yet, achieving and maintaining these qualities is challenging, as competition and expectations for an acceptable and valuable identity require people to be attractive, independent, capable, and so on (Baumeister, 1997). Particularly since the rise of the Internet, people are regularly blasted with images, videos, and messages of spectacular identities and extraordinary accomplishments, making our average successes pale in comparison (Manson, 2015). Not being able to live up to societal expectations, coping with rejection, and simply being aware of impending failures can easily become stressful and overwhelming.

Masochists crave to relinquish control and to suffer humiliation and pain, all of which run contrary to the usual self-identity pursuits. Baumeister (1989; 1997) advocates that this reversal of self-valuation is not accidental, but rather that they are purpose used in order to make it impossible to maintain one's regular sense of self. As pain directs attention onto the physical experience and reduces high-level abstract thought, it would logically also promote the withdrawal from the self as a symbolic construct. BDSM literature confirms this advantage in taking a submissive role, where surrendering promotes letting go of identity, allowing participants to simply exist as a "tabula rasa" (Easton & Hardy, 2001). Other forms of pain inducing behaviors, such as self-injury, have also been associated with relief of self-focus, suggesting that pain could be used as a coping mechanism to reduce negative emotions (Williams, 2010). The process of escaping the self in this manner may be possible without pain, yet the intense body focus pain generates makes it an ideal catalyst for this practice.

Additionally, these temporary respites in self-awareness are also conducive to identity management. When one shifts from a high level thinking into a low level experience of corporeal sensations and movement, it allows for a re-calibration of the self (Bastian et al., 2014b). Moving away from one's usual self-identity and high level pursuits, makes it easier to take on novel perspectives for creating a new view of the self upon re-engaging in high-level thought. This process is explicitly explored in the film *Love Hard*, where masochists express their journeys of self-discovery through extreme pain play (Vanting & Harrington, 2014). The relief of emotional strain which accompanies this form of escape from self is the central focus of the therapeutic benefits explored within the present study. Additionally, letting go of one's identity promotes stronger identification with BDSM roles, improving the power differential among participants and thus intensifying the authenticity of interactions.

**Pain as catalyst for power exchange & empathy.** One well researched effect of pain is the ability to reinforce hierarchical status. In an ethnographic study of the armed forces, Harper (2006) established that the acceptance of pain without complaint emphasized the recruits' subordinate status. Within these forms of hierarchies, one's needs and pains are to be withstood for the sake of the greater good of the group. The symbology of suffering for a higher, more important purpose or for someone else effectively demotes one's ranking. Self-sacrifice is dramatized and eroticized within BDSM where a submissive is to suffer while the dominant is to be served and pleased. Usually romanticized and more common among women, this "sacrificial" framing of pain allows for more authentic portrayals of the power differentials within a scene/partnership, thus enhancing trust and intimacy between participants (Newmahr, 2010a; see also Cross & Matheson, 2006). As partners often hold equal status outside of SM interaction, the use of pain in a scene helps clearly establish who is in control, making the role play seem more real.

Empathy is another biopsychosocial reaction from observing expressions of pain. In a recent review, Bastian and colleagues (2014b) meticulously demonstrate the automatic empathic effect of painful expressions, with over ten studies documenting each step of this process. When an observer beholds others in pain, an immediate emotional and mild physical reaction occurs. Witnessing social pain provokes empathic reactions such that the observer nearly feels the pain observed as his own. In both physical and social pain expressions, empathy occurs concurrently to activation of brain regions associated with pain. Additionally, empathic support also induces a reduction in pain perception, an additional element in turning SM pain into a pleasurable experience. In SM interactions, although pain is negotiated and controlled, it still activates empathy, which is endorsed as one major benefit of SM for the dominant partner.

*"As tops in role, we are often called upon to present ourselves as cold, cruel and unfeeling, when in fact we are getting our rocks off on empathy so profound that it can approach the telepathic"* (Easton & Hardy, 2003).

Although sacrificial framing of SM pain may appear to be victimizing the receiver and emotionally isolating the inflictor, in fact both parties benefit by experiencing authenticity within their BDSM roles, empathy exchange, and increased intimacy (Newmahr, 2010a; Sagarin et al., 2009). BDSM activities can be challenging and intense, requiring a great deal of courage, trust and communication from both *dominant* and *submissive*. The *submissive*



should feel safe and trust that the *dominant* will respect the pre-established negotiations and limits. The *dominant* should feel confident that the *submissive* really wants what was negotiated, trusting that he/she will communicate if limits are approached and especially that post scene remorse will not lead to accusations of abuse or rape. The intensity of activities brings about strong physiological and emotional reactions, which may leave the *submissive* in a euphoric state and the *dominant* in a strong empathic and nurturing state. Perhaps these post-scene complementary states of arousal affect the development of intimacy. Pain as power exchange and empathic reasons for SM participation are among the variables explored within the current study.

**Pain as cathartic relief.** Pain can theoretically focus attention to the present moment and away from abstract high level thought, thus reducing self-awareness and stress associated with self-identity pursuits (Baumeister, 1997). Concentrating on the now is also one functional feature of some depression therapies, such as mindfulness based-therapy (Williams & Kuyken, 2012) or regular exercise (Stanton & Reaburn, 2014). Also, as pain reduces perceptions of guilt (Bastian et al., 2011), kinksters might be motivated to use pain for cathartic purposes. Thus, the use of SM pain may help participants manage their negative emotional states, by either being distracted away from them or by expressing suppressed negative emotions within a safe, non-judgmental space.

The dramatizing of punishment may be a safe way to cleanse oneself of latent guilt or other negative emotional states. Studies using affective priming found that participants who received painful stimulation exhibited a steeper decline in their negative emotions than those with non-painful stimulation (Bastian et al., 2011; Bresin & Gordon, 2013; Franklin et al., 2010). Additionally, the considerable overlap between brain networks associated with pain, cognitive/affective controls and behavior inhibition is not accidental (Cavanagh & Shackman, 2015). Evolutionarily, pain from injury would require enhanced cognitive and emotional management to address the best course of action (Shackman et al., 2011). This mood enhancing effect of pain, perhaps triggered by neural activation, may also occur within SM scenes where pain can act as a catalyst for expressing negative emotions safely, without hesitation or fear of judgment, as commonly documented within BDSM literature (Easton & Hardy, 2001).

Emotional pain can also activate strong catharsis, which may explain the mood enhancing effects experienced during psychological SM pain (such as humiliation). Rozin and

colleagues (2013) found that for some people who enjoyed aversive experiences, the edge of intolerable was the preferred level of pain. Rozin explained this preference for the most intense thrill as mastery over or as distancing from the negative emotion. For example, viewing a sad or scary movie promotes the expression of sadness/fear without the threat of real circumstances. The cathartic effects of mastery and distancing can both be operating during SM pain stimulation. The use of negotiations and safewords and the focus on returning to “normality” through aftercare behaviors creates a safe space where participants can explore the limits of their emotional challenges and gain a sense of triumph over them (Sagarin et al., 2009) without the emotions being connected to real life pressures.

## **Methods**

### **Participants**

This study used a cross-sectional survey design with multiple measures to address whether BDSM practitioners are aware of any benefits from their consensual pain activities and to analyze the differences between grouping variables. A convenience sample of five hundred and ten (n = 510) participants consented to fill out the online survey between October and December, 2014.

### **Recruitment & Ethical considerations**

The Benefits of Pain online survey was hosted at [surveymonkey.com](https://www.surveymonkey.com) and made accessible via a specific link (<https://www.surveymonkey.com/r/benefitsofpain>, see Appendix A for full survey questions). The research was promoted in a dedicated Facebook page, and in fetish & BDSM social networking groups within Fetlife.com and Facebook.com, and via word of mouth during SM parties and conferences (Sept-Dec. 2014). The survey link was also shared with leaders of BDSM groups and events in Melbourne, Sydney, Brisbane, Oslo and London for promotion within their respective social networks. The survey website parameters were set up such that no IP addresses were collected, thus ensuring complete anonymity for the participants. The first page of the survey included a short description of the research questions and a consent statement where participants were informed about the anonymous and voluntary nature of the questionnaire. They were also informed that they could skip questions they found uncomfortable and that they could quit at any time. Considering BDSM is still viewed as taboo by the general population and in order to ensure the anonymity of participants, the questionnaire did not collect any personal identifying information (such as names or addresses). The study was approved by the University of Oslo’s Internal Review Board and by the Norwegian Social Science Data Services (NSD).

## The Questionnaire

The survey was composed of 24 multiple-choice and sub-questions and 2 open-ended questions covering sample demographics, sexual and BDSM experience and questions relating to the hypothesis of the study. Previous BDSM studies have used some of the same variables but scales may vary between the current study and previous ones. The questions created solely for this study included “Reasons for engaging in painful stimulation (receiving or inflicting)”, “Therapeutic benefits of SM pain”, as well as the masochism and sadism scales.

## The Sample

Of the original 510 participants who consented to fill out the survey, 138 did not fill out at least 50% of the survey (138); these were excluded from the analysis. For the remaining 372, 54.5% of the sample was female, 42.1% were male and 16 participants reported “other gender” (3.4%; mostly transgender or gender-fluid). Due to the low number of the third gender participants, this latter group was removed from further analysis. Table 1 details the socio-demographic distribution of the final valid sample (N = 356). Young adults were over-represented in the sample, with 55.2 % being under 35 years old and the remainder (44.8%) being 35 years or older (mean = 35.4 years, SD = 12.1, range 18-72, N = 337). Yet, the age distribution was not even among the genders, with the majority of women being under 35 years, while the male majority was 35 years and older. The sexual orientation within the sample was close to evenly divided between heterosexual (55.3%) and alternative sexualities (44.7%, from here on referred to as *queer* for ease of discourse). Within the queer orientations, the sample was represented as homosexual (3.1%), bisexual (26.8%), pansexual (8.5%), hetero-flexible (5.0%), and asexual/demi-sexual (1.3%). The two largest groups of participants were either living with a partner (37.6%) or currently single, but had previous committed relationships (30.2%); singles who had never been in a relationship comprised only 8.1% of the group while the remainder were either in a polyamorous living arrangement (more than one committed partner, 5.5%) or in other forms of relationship, such as “24/7 *Master-slave*” (1.3%). The sample was quite well educated with 61.4% of participants having completed either a bachelor’s degree or college/technical school; 20.8% of participants had finished high school and a total of 17.7% had postgraduate degrees. It is important to note that this survey was targeted towards a BDSM audience, so distributions are not to be deemed representative of the general population.

**Table 1.** Socio-demographic characteristics of the sample in the Benefits of Pain Survey (percentage).

	<b>Female</b>	<b>Male</b>	<b>All</b>
<b>Gender</b>	58.7 (n = 209)	41.3 (n = 147)	(n = 357)
<b>Age</b>			
18-24 years	34.3	7.5	23.7
25-34 years	32.4	30.1	31.5
35-44 years	18.1	27.8	22.0
45+ years	15.2	34.6	22.8
	(n = 204)	(n = 133)	(n=337)
<b>Sexual orientation</b>			
Heterosexual	39.2	75.5	55.3
Homosexual	4.3	1.4	3.1
Bisexual	36.4	15.0	26.8
Pansexual	13.4	2.7	8.5
Hetero-flexible	4.8	4.1	5.0
Asexual	1.9	1.4	1.3
	(n = 209)	(n = 147)	(n = 356)
<b>Relationship status</b>			
Single, never in a committed relationship	2.9	11.6	8.1
Single, been in a committed relationship	32.1	27.4	30.2
In a committed relationship, not cohabiting	20.1	11.6	17.3
Living with a partner (cohabiting/married)	37.3	41.8	37.6
Polyamorous	7.2	5.5	5.5
Alternative Relationships	0.5	2.1	1.3
	(n= 209)	(n = 146)	(n= 355)
<b>Level of education</b>			
High school (grades 9-12)	25.8	13.7	20.8
Technical school / University	60.8	62.3	61.4
Postgraduate Degree (Masters / Ph D.)	13.4	24.0	17.7
	(n = 209)	(n = 146)	(n = 355)

The BDSM roles distribution within the current sample is reflective of previous literature, although many studies describe roles in terms of masochist and sadist, not taking into consideration that pain may not be an element for some dominant/submissive partnerships. Overall, the submissive role (and by extension masochism) is more prevalent than domination or switching. Baumeister (1989) confirms this assumption by citing ethnographic studies of BDSM clubs, letters to special interest magazines, and research on sexual fantasies and BDSM behavior all of which express a much wider prevalence of preference for the submissive role. Recent survey studies also reinforce this finding, with submissives taking up more than half of the research samples (Hébert & Weaver, 2014; Wismeijer & Assen, 2013).

The gender differences in BDSM role found in the current study are also prevalent in the literature, with a vast majority of women preferring a submissive role while men's preference is roughly evenly split between dominant, submissive and switch (Connolly, 2006; Wismeijer & Assen, 2013; Yost & Hunter, 2012). Comparing levels of masochism and sadism in the present sample with previous data is problematic due to the scarcity of studies using these terms in relation to receiving/inflicting pain alone, rather than describing BDSM roles (dominant and submissive). Therefore, in the cases where the terms masochist and sadist were used, although masochism was more frequently reported than sadism or switching (Cross & Matheson, 2006; Santtila et al., 2002), the terminology could be measuring a submissive role preference rather than preference for receiving pain. Although Connolly (2006) explored level of play intensity, finding 13.4% of participants to enjoy light play, 39.0% for medium, 30.5% for heavy and 15.3% for extreme play, she did not distinguish between receiving or inflicting pain, thus her results are not comparable to the current study.

Levels of education in this sample are also reflected in the literature, with other studies also reporting BDSM participants having higher levels of education than the general population (Santtila et al., 2002; Wismeijer & Assen, 2013; Yost & Hunter, 2012). Baumeister (1989) suggests that individuals in higher social classes with more power and responsibility are particularly attracted to masochism/submission as a way to escape from the burdens of self-identity. In line with this theory, individuals with higher education levels may be more likely to hold occupations that expect high responsibility and productivity, and thus enjoy SM pain particularly because it promotes surrender of control and stress relief.

### **Independent Variables**

**Gender.** Was coded as 0 = female and 1 = male.

**Sexual orientation.** Participants were asked "How do you regard your sexual orientation today?", and were given four choices: Heterosexual, homosexual, bisexual or other (with the option to describe their orientation). Unfortunately, because of the large number of sub-groupings and the small percentage of participants in some of the groups, this variable could not be analyzed for all groups, but was instead split into a dichotomy with 1 = heterosexual/straight and 2 = non-heterosexual /queer (including all remaining categories).

**Level of Education.** Being a scaled variable, this measure was simply coded from 1 to 5, with 1 = high school completion to 5 = doctorate degree.

**BDSM Experience.** Participants were asked to rate their BDSM experience level according to six categories: 1 = I have no BDSM experience and not looking to try it; 2 = curious: I know some info about BDSM but haven't tried anything yet; 3 = newbie: I just started trying out BDSM play; 4 = weekend kinkster: I've tried some BDSM play and try to engage in it occasionally, 5 = seasoned kinkster: Been there, done that, but I don't use BDSM every day; 6 = 24/7: BDSM makes up a large part of my daily life. Option 1, no interest, redirected respondents to the final section of the survey addressing painful day-to-day activities.

**BDSM Role.** Participants were asked "When you think of BDSM, which role do you take?" and were to choose within the 7-level scale from 1 = exclusively dominant, 2 = mostly dominant, with occasional submission, and 3 = mostly dominant, with frequent submission, through 4 = equally submissive and dominant (switch), to 5 = mostly submissive, with frequent dominance, 6 = mostly submissive, with occasional dominance, and finally 7 = exclusively submissive. This scale was then recoded to three categories: 1 = *mostly dominant* (including levels 1-2), 2 = *mostly switch* (levels 3-5), and 3 = *mostly submissive* (levels 6-7).

**Masochism Scale.** Participants were asked the question "How much do you enjoy receiving pain in a sexual/BDSM context?" and were given 5 multiple choice answers: 0 = not at all! I do not enjoy receiving pain during sexual/BDSM interaction. 1 = I can enjoy receiving a little pain during sexual/BDSM interaction; 2 = I can enjoy receiving some pain during sexual/ BDSM interaction; 3 = I can enjoy receiving a lot of pain during sexual/BDSM interaction; 4 = heavy masochist: I love receiving pain during sexual/BDSM interaction. For some of the analyses, his variable was recoded into 3 categories with 0 = no masochism, 1 = *mild masochism* (categories 1 and 2) and 2 = *strong masochism* (categories 3 and 4).

**Sadism Scale.** In this question, participants were asked to what degree they enjoy inflicting pain within a sexual/BDSM context, with the following response options: 0 = not at all! I do not enjoy inflicting pain during sexual/BDSM interaction; 1 = I can enjoy inflicting a little pain; 2 = I can enjoy inflicting some pain; 3 = I can enjoy inflicting a lot of pain; 4 = heavy sadist: I love inflicting pain. For some of the analyses, categories 1 and 2 were combined to form a new category 1 = *mild sadism* and 3 and 4 formed new category 2 = *strong sadism*.

**Masochism Scale vs. BDSM Roles (conditional variable).** In order to perform some of the analysis, the measures for the masochism scale and BDSM roles were combined into a new conditional variable with the following labels: 1 = mild masochism + mostly dominant; 2

= mild masochism + mostly switch; 3 = mild masochism + mostly submissive; 4 = strong masochism + mostly dominant; 5 = strong masochism + mostly switch; and 6 = strong masochism + mostly submissive.

### **Dependent Variables**

**Reasons for receiving SM pain.** Participants were asked “What are some of the reasons you enjoy pain in a BDSM/sexual context?”, and were given nine possible answers plus one labeled “other”, where they could write their own response. They were also instructed to tick all answers that applied to their personal experience. For the full list of reasons, see Table 3.

**Reasons for inflicting SM pain.** In order to compare whether inflicting pain produced a similar pattern of reasons for participation, a somewhat corresponding multiple choice question was asked in the Sadism section of the questionnaire. Participants were asked “What are some of the reasons you enjoy inflicting pain in a BDSM / sexual context?”, and were given nine (9) possible answers plus one labeled “other”, where they could write their own answer. They were also instructed to tick all answers that applied to their personal experience. For the full list of reasons, see Table 4.

**Therapeutic Benefits (masochism & sadism).** In the question: “Have you ever experienced any therapeutic or mood altering effects from BDSM play that involved pain? Which symptoms or feelings did the kink play alleviate?” Participants were asked to choose between “I never felt my BDSM play to be therapeutic” or to tick as many applied from the following list of symptoms: depression, stress, confusion, overwhelm, disconnection, express a hidden part of my personality, anxiety, panic attacks, sadness, PMT, anger and “other”, where participants were able to write which symptom(s) were alleviated by their use of SM pain. This question was asked once in the masochism section and again in the sadism section.

### **Statistical Procedures**

For the statistical analysis of the data, IBM SPSS Statistics 22 (2013) was used. Several statistical procedures were used to better understand the variance between the groups and to address the hypotheses in this study, as described below.

**Cross Tabulation.** Cross-Tabulation (or contingency table analysis) is a technique that explores the relationships between two or more categorical (nominal, ordinal or scale) variables and is a particularly efficient method for analyzing survey results (Field, 2009). In a cross-tabulation table, the number of respondents (or frequency in percentages) can be

organized according to multiple categories. The Pearson's chi-square test ( $X^2$ ) is used with this method to assess whether variables are independent of each other, in other words, if the observed frequencies are significantly different from what would be expected if values were evenly distributed among the categories being described.

**Discriminant Analysis.** A discriminant analysis is a regression based statistical method used to determine which variables differentiate between two or more groups or items within a dataset. It is often referred to as a MANOVA reversed, as it uses the independent variables as predictors and the dependent variables as the groups. It is used to predict which variables contribute to differences between naturally occurring groups (Field, 2009). When there are more than two groups, more than one discriminant function may be calculated. The eigenvalues calculated for each function describe how well the function differentiates the groups, where the larger the eigenvalue, the stronger the power of the function. When there are two significant functions, the results can be visually displayed by positioning the groups within a Y- and X- axis according to their group centroid values, which are the mean discriminant values for each group variable. This method was used in this study to differentiate patterns of reporting between BDSM roles (*mostly dominant, mostly switch and mostly submissive*) and the two categories within the masochist and sadist scales.

**Factor Analysis.** Factor analysis is a statistical procedure for recognizing whether the observed variables are correlated to unobserved variables; known as factors (Field, 2009). It is also a way of compounding variables into a new descriptor that is not explicitly reported in the data. In this study, factor analysis was used to reduce the number of symptoms reported to be relieved by consensual pain to a smaller set of latent factors. The resulting factors were then used as new variables for the linear regression analysis.

**Linear Regression.** Linear regression is a method of applying observed data to predict a future outcome, by calculating the relationship between one or more independent and a dependent variable, thus creating a theoretical model of that relationship. This study used multiple linear regression to better understand the relationship between the independent variables and the reasons for engaging in painful activities as well as the potential therapeutic benefits of consensual SM pain.



## Results

### Sexual and BDSM Experiences

Table 2 summarizes how the participants responded regarding their sexual and BDSM experiences, by gender. Even though women represented a large majority of the younger part of the sample (66.7% under 35 years old, vs. 37.6% for men), women considered themselves more sexually experienced than the men (with 49.0% above average experience vs. 39.0 for men and 27.4% vs. 22.6% for most experience,  $p = 0.021$ ). However, sexual experience was not congruent with BDSM experience, where men reported more experience than women. Women were more strongly represented in the 24/7 kinkster category (19.8% vs. 13.6% for men,  $p = .02$ ) and took up almost three times as many men within the newbie category.

**Table 2.** *Sexual and BDSM experience and DS roles & SM orientation within the sample (percent by gender).*

	All	Female	Male	X <sup>2</sup>
<b>Sexual experience level</b>				
Least Experience	9.0	6.3	13.0	
Average Experience	20.6	17.3	25.3	9.714
Above Average Experience	44.9	49.0	39.0	3 df
Most Experience	25.4	27.4	22.6	$p = 0.021$
	(n = 354)	(n = 208)	(n = 146)	
<b>BDSM experience level</b>				
24/7 Kinkster	17.2	19.8	13.6	
Seasoned Kinkster	38.7	38.2	39.5	13.147
Weekend Kinkster	24.6	21.3	29.3	5 df
Newbie	9.6	13.0	4.8	$p = 0.022$
Curious	7.9	5.8	10.9	
Not interested	2.0	1.9	2.0	
	(n = 354)	(n = 207)	(n = 147)	
<b>BDSM Role</b>				
Mostly Dominant	19.6	12.6	29.5	15.958
Mostly Switch	25.0	25.7	24.0	2 df
Mostly Submissive	55.4	61.7	46.6	$p < 0.000$
	(n = 352)	(n = 206)	(n = 146)	
<b>Masochism Scale</b>				
Strong Masochism	46.1	53.9	34.8	21.762
Mild Masochism	46.4	43.1	51.1	2 df
No Masochism	7.5	2.9	14.2	$p < 0.000$
	(n = 345)	(n = 204)	(n = 141)	
<b>Sadism Scale</b>				
Strong Sadism	28.4	23.2	36.2	6.475
Mild Sadism	39.7	42.1	36.2	2 df
No Sadism	31.9	34.7	27.7	$p = 0.039$
	(n = 320)	(n = 190)	(n = 130)	

*Note: Gender-fluid & Transsexuals only accounted for 3.4% of the sample (16 participants), so these categories were excluded from the statistical analysis.*

For BDSM roles, the majority of participants reported to be either *exclusively submissive* (27.3%) or *mostly submissive with occasional dominance* (28.1%), while only 10.2% identified as *exclusively dominant* with an additional 9.4% as *mostly dominant with occasional submission* ( $p < 0.001$ ). In all categories with a heavy submission element, women were more strongly represented. Men were more frequent in the categories with a stronger dominant element and also within the *switch* category (*Equally dominant and submissive*, with 14.4% vs 9.7% for women). Though sadism and masochism are often seen as complementary concepts, results for this sample show they are not polar opposites or mutually exclusive. The majority of participants reported engaging in both masochism and sadism (see Appendix E for details), with a larger proportion reporting preference to receive pain rather than to inflict it. Women displayed a greater preference for masochism, with few reporting not liking pain at all (2.9%, vs. 14.2% for men). The majority reported they love pain or can receive a lot of pain (*strong masochism*; 53.9% vs. 34.8% for men;  $p < 0.001$ ). The sadism scale showed a reversed gender representation, with women being less tolerant to inflicting pain than men (*no sadism*; 34.7% vs. 27.7% respectively). Women were also underrepresented within the *strong sadism* category (23.2% vs. 36.2% for men;  $p < 0.05$ ).

### **Masochism: Reasons for Receiving SM Pain**

Table 3 summarizes the most reported reasons for receiving consensual pain within a BDSM context by BDSM roles (split into 3 categories, *mostly dominant*, *mostly switch*, and *mostly submissive*) and by Masochism scale (2 categories, *mild masochism* and *strong masochism*). The overall top three reported reasons for receiving SM pain were (1) *Pain enhances my feeling of helplessness and submission*, (2) *Pain creates contrast so it intensifies my pleasure*, and (3) *Pain is challenging; I feel a sense of achievement and pride afterwards*. For four of the five categories (within the two separate selection groups), this rank order did not change dramatically, with all categories except the *mostly dominant* citing these reasons as the top three, though not all categories reported them in the exact same order. However, only for the *mostly submissive* category was Reason #1 on first place. For the *mostly dominant*, *mostly switch* and *mild masochism* groups, reason #2 (*pain intensifies my pleasure/orgasm*) was ranked first. Additionally, the *mostly dominant* group ranked Reason #7 (*the pain makes my skin more sensitive, so I also feel more pleasure*) in third place, showing that for this group, receiving SM pain is more related to body pleasure than the emotional context of Reason #1 (*enhances submission*, ranked 6th for this category). Another notable result was found among the *strong masochism* group, where Reason #4 (*pain relieves*

**Table 3.** Reasons for enjoying consensual pain within a BDSM/sexual context among masochist participants by BDSM role, masochism scale, and gender. Multiple response analysis, percent of cases (n = 314).

Reasons	All	BDSM Roles			Masochism Scale		Gender	
		Mostly Dominant	Mostly Switch	Mostly Submissive	Mild	Strong	F	M
1. Pain enhances my feeling of helplessness and submission.	58.9	12.2	55.1	70.3	53.7	64.4	61.9	52.7
2. Pain creates contrast so it intensifies my pleasure/orgasm.	58.3	51.2	65.4	56.9	56.4	60.0	59.9	54.5
3. The pain is challenging; I feel a sense of achievement and pride afterwards	53.2	31.7	56.4	56.4	34.9	70.6	61.4	39.3
4. The pain helps me forget the stresses of daily life	45.9	22.0	44.9	51.3	26.8	64.4	54.8	28.6
5. I enjoy the pain because it pleases my partner	42.4	22.0	33.3	50.3	33.6	49.4	43.7	38.4
6. The physical pain helps relieve emotional pain	40.8	19.5	43.6	44.1	33.6	55.0	48.2	26.8
7. The pain makes my skin more sensitive, so I also feel more pleasure	39.2	36.6	41.0	39.0	32.9	46.3	41.1	33.9
8. I must withstand pain in order to deserve pleasure	15.0	0.0	15.4	17.9	10.7	18.8	12.7	18.8
9. The pain slows down my excitement so I don't orgasm too quickly	6.4	7.3	7.7	5.6	6.7	5.0	3.6	11.6
Total Count of Responses (counts per participant)	1104 (3.5)	82 (2.0)	283 (3.6)	739 (3.8)	417 (2.8)	681 (4.2)	763 (3.9)	341 (3.0)
Total participants (n)	314	41	78	195	149	160	197	112

*daily stresses*) was reported as frequently as Reason #1 (both sharing the 2nd place at 64.4%). The *strong masochism* group also exhibited the largest response percentage for Reason #3 (pain gives a sense of achievement) in ranked first with 70.6% response rate.

Because the questions allowed participants to select as many of the options as relevant in their experience, the frequency of responses varied among groups. Gender differences were found in which reasons were reported most often and also in the overall frequency of reporting. While women reported Reason #1 (*pain enhances submission*) most frequently, men's most reported was Reason #2 (*pain increases pleasure*), showing a differing framing for their pain experience. Reason #3 was ranked 3rd for both genders, but women chose it more frequently than men (61.4% vs. 39.3%). Also, Reason #4 (*pain relieves daily stresses*, 28.6%) was reported less often than two other reasons: #5 (*to please my partner*, 38.4%) and

# 7 (*pain makes me more sensitive to pleasure*, 33.9%), suggesting that *pain to help forget daily stresses* was more relevant for women. Aside from the content of the reasons, on average women reported more often for every reason except Reason #8 (*I must withstand pain to deserve pleasure*) and Reason #9 (*pain slows down my excitement/orgasm*). The frequency of reason reporting was also divergent between the BDSM roles, with the *mostly dominant* category reporting the least number of reasons per participant (2.0, vs. 3.6 for *switch* and 3.8 for *submissive* categories). Most strikingly, the *strong masochists* reported reasons 50% more frequently than *mild masochists* (4.2 vs. 2.8 respectively).

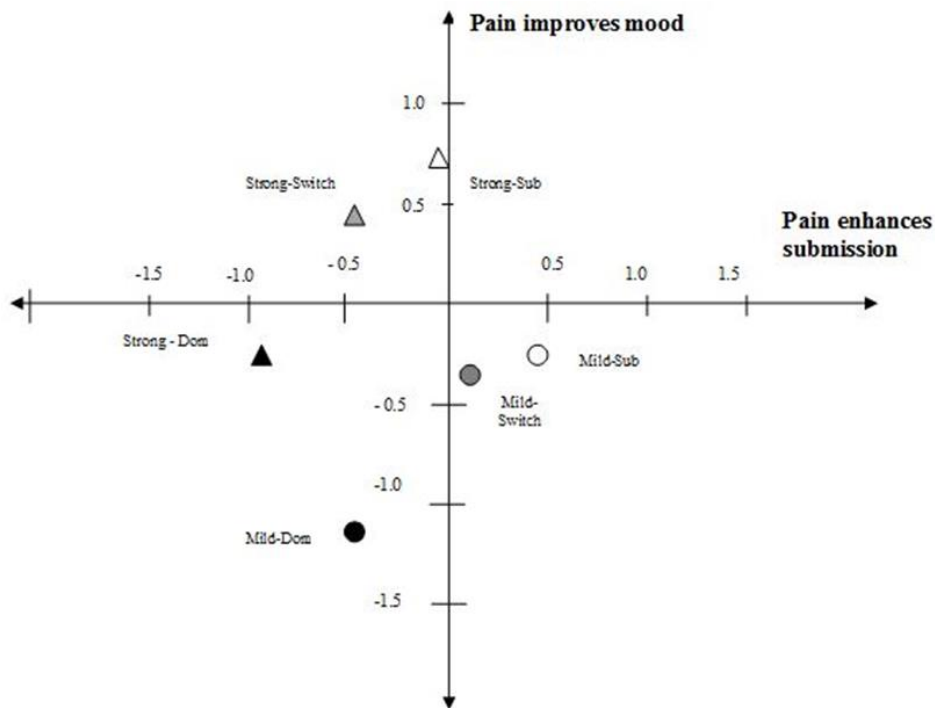
In order to clarify which of the reported reasons for receiving pain mostly segregated the group categories among BDSM roles and level of masochism, a discriminant analysis was carried out using the new variable combining Masochism Scale and BDSM Roles (6 categories, see Table 4). The results from the analysis comparing the variable's groups in terms of Wilk's lambda of the functions, the group centroids, and the standardized canonical discriminant function coefficients of the variables included in the model are presented in Table 4 and Figure 2. Five different functions emerged from the analysis, but only two were statistically significant. The first discriminant function was mostly determined by the following reasons: *Pain helps me forget the stresses of daily life* (Reason #4), *I feel a sense of pride and achievement* (Reason #3), *the physical pain helps relieve emotional pain* (Reason #6). Thus the label given to the first function was *Pain improves mood*. As the second function only contained Reason #1 (*pain enhances my feeling of helplessness and submission*), it was labeled *Pain enhances submission*. The remaining five reasons to receive pain within a BDSM/sexual context were associated with the three non-significant factors.

Group centroids are the mean discriminant scores for each group on the respective functions. The centroids summarize group locations within the space defined by the discriminant functions. Figure 2 displays which reasons mostly separates the six groups by plotting the group centroids on a graph defined by the two discriminant functions. The locations of the six groups formed a clear pattern where the *strong masochism* groups were located higher in the *pain improves mood* axis in comparison to the *mild masochism* groups, showing that participants who reported being able to receive more pain chose reasons related to mood improvement more frequently. Similarly, BDSM roles also formed a pattern where the *mostly dominant* groups occupied the negative axes of both functions, showing a lower

**Table 4.** Reasons for receiving consensual pain (masochism) according to six distinct groups of respondents within the combined variable masochism scale vs. BDSM roles (discriminant analysis,  $n = 319$ ).

	Pain improves mood	Pain enhances Submission	Factor 3	Factor 4	Factor 5
<b>Reasons</b>	<i>Pooled within group correlations between discriminating variables and standardized canonical discriminant</i>				
4. The pain helps me forget the stresses of daily life.	0.71*	-0.30	-0.02	-0.25	-0.26
3. The pain is challenging; I feel a sense of achievement and pride afterwards.	0.66*	-0.30	-0.20	0.23	0.35
6. The physical pain helps relieve emotional pain.	0.55*	-0.21	0.12	0.31	-0.10
1. The pain enhances my feeling of helplessness & submission.	0.54	0.73*	0.18	-0.15	0.08
2. Pain creates contrast so it intensifies my pleasure/orgasm.	0.127	-0.05	0.61*	0.41	-0.24
5. I enjoy the pain because it pleases my partner.	0.39	0.28	-0.52*	0.08	-0.5
7. The pain makes my skin more sensitive, so I also feel more pleasure.	0.23	-0.27	0.31	-0.48*	-0.15
9. The pain slows down my excitement so I don't orgasm too quickly.	-0.06	0.05	-0.16	0.30*	0.16
8. I must withstand pain in order to deserve pleasure.	0.30	0.16	-0.08	-0.07	0.64*
	<i>Canonical correlation coefficients</i>				
	0.53	0.35	0.21	0.17	0.07
	<i>Wiki's Lambda</i>				
	0.58***	0.81***	0.92NS	0.97NS	0.99NS
	<i>Group centroids</i>				
Mild Masochism, Mostly Dominant (Mild-Dom)	-1.20	-0.47	-0.15	-0.26	-0.01
Mild Masochism, Mostly Switch (Mild-Switch)	-0.42	0.13	-0.07	0.20	0.13
Mild Masochism, Mostly Submissive (Mild-Sub)	-0.30	0.49	0.14	0.01	-0.05
Strong Masochism, Mostly Dominant (Strong-Dom)	-0.34	-0.96	-0.08	0.70	-0.18
Strong Masochism, Mostly Switch (Strong-Switch)	0.46	-0.47	0.49	-0.06	0.04
Strong Masochism, Mostly Submissive (Strong-Sub)	0.64	-0.01	-0.18	-0.05	-0.01

Notes. NS Non-significant, \* Largest absolute correlation between each variable and any discriminant function, \*\*\*  $p < 0.001$



**Figure 2.**  
The placement of the discriminant groups in terms of group centroids along the two significant discriminant functions. Group centroids from factors 3-5 were not plotted.

concern for the submission and mood enhancement benefits of pain than the other BDSM roles groups. The *mostly submissive* groups were placed highest in the pain enhances submission axis, with the *switch* groups placing roughly halfway between the *mostly dominant* and the *mostly submissive* groups.

In order to further investigate the dimensions of reported reasons to receive SM pain, a factor analysis was performed (see Appendix B for factor scores), yielding three significant factors (Eigenvalues = 2.627, 1.138, and 1.024). The first factor explained 29.19% of the variance and was composed of three reasons a) *physical pain relieves emotional pain* (Reason #6), b) *pain helps me forget stresses of daily life* (Reason #4) and c) *pain is challenging, I feel a sense of achievement and pride afterwards* (Reason #3). Thus, this factor was called *pain as mood enhancer*. The second factor explained 12.64% of the variance and was composed of four reasons mostly concerning submission and deference to the dominant partner; hence it was named *pain as submission enhancer*. The third and last factor explained 11.38% of the variance, and it was composed from Reason #2 and Reason #7, both pertaining to *pain as pleasure enhancer*. These factors were saved as latent variables and used as the dependent variables for the analysis below.

**Table 5.** The relationship between three dependent variables derived from reasons to receive consensual pain in a BDSM/sexual context and a selected set of independent variables; Multiple linear regression analysis, standardized regression coefficients ( $\beta$ ) ( $n = 342$ ).

Predictors	Pain as mood enhancer		Pain as submission enhancer		Pain as pleasure enhancer	
	Pearson's r	$\beta$	Pearson's r	$\beta$	Pearson's r	B
Gender	-.36***	-.20***	.06 <sup>NS</sup>	.12*	-.12*	-.07 <sup>NS</sup>
Sexual Orientation	.22***	.08 <sup>NS</sup>	-.06 <sup>NS</sup>	.01 <sup>NS</sup>	.09 <sup>NS</sup>	.03 <sup>NS</sup>
Level of Education	-.11*	-.07 <sup>NS</sup>	.16***	.12*	-.06 <sup>NS</sup>	-.04 <sup>NS</sup>
Level of BDSM experience	.18***	.07 <sup>NS</sup>	.04 <sup>NS</sup>	.03 <sup>NS</sup>	.06 <sup>NS</sup>	.01 <sup>NS</sup>
BDSM Role	.35***	.16**	.33***	.32***	.07 <sup>NS</sup>	-.01 <sup>NS</sup>
Level of Masochism	.50***	.35***	.17***	.05 <sup>NS</sup>	.18***	.16*
R <sup>2</sup>	34.2%		14.0%		4.1%	

Notes. NS Non-significant, \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

To study the relationship between each of the dimensions of reasons and a set of independent variables (gender, sexual orientation, level of education, BDSM experience, BDSM roles and level of masochism), a multiple linear regression analysis was performed (see Table 5). There were several significant bivariate relationships between the six independent variables and the three dimensions, but when controlled for the effect of each of the other predictors, only a few significant predictors remained. In regards to *pain as mood enhancer*, the relative importance of the statistically significant predictors in descending order was: Level of masochism ( $\beta = 0.355$ ;  $p < .001$ ), gender ( $\beta = -0.195$ ;  $p < .001$ ) and BDSM role ( $\beta = 0.166$ ;  $p = .002$ ). Respondents with a stronger level of masochism, women and submissives scored higher in this factor than their respective counterparts. The included predictors explained 34.2% of the variance in the dependent variable *pain as mood enhancer*. For the second factor, *pain as submission enhancer*, the predictors accounted for 14.4% of the variance. The three statistically significant predictors which most affected the variance, in descending order, were: BDSM roles ( $\beta = 0.322$ ,  $t(8) = 5.404$ ,  $p < .000$ ), level of education ( $\beta = 0.119$ ;  $p = .026$ ) and gender ( $\beta = 0.117$ ;  $p = .040$ ). Respondents who were submissive, with higher levels of education and men scored higher on this factor. For the third dimension, *pain as pleasure enhancer*, the six included predictors accounted for 4.1% of the variance with level of masochism as the single significant predictor ( $\beta = 0.163$ ;  $p = .011$ ).

## Sadism: Reasons for Inflicting SM Pain

By comparing the most chosen reasons to receive pain with the most chosen reasons to inflict pain in a BDSM context, it is evident that the top motivations to engage in painful BDSM activities are different whether one is receiving or inflicting pain. Overall, the top three reasons to inflict pain in a BDSM/sexual context were pain 1) *intensifies my sexual turn on*, 2) *promotes emotional release for my partner*, and 3) *intensifies the power exchange* (see

**Table 6.** Reasons for inflicting consensual pain within a BDSM/sexual context among sadist participants by BDSM role and Sadism Scale. Multiple response analysis, percent of cases (n = 200).

Reasons	All	BDSM roles			Sadism Scale		Gender	
		Mostly Dominant	Mostly Switch	Mostly Submissive	Mild	Strong	F	M
1. Inflicting pain intensifies my sexual turn on.	51.0	55.2	56.1	43.4	39.0	65.9	52.7	51.2
2. Pain promotes emotional release for my partner.	46.0	50.0	50.0	39.5	42.9	50.0	50.0	42.7
3. Pain intensifies the power exchange. I feel more powerful when I inflict pain.	40.0	44.8	43.9	32.9	36.2	45.5	48.2	29.3
4. After inflicting pain, I feel strong feelings to nurture my partner.	39.0	50.0	40.9	28.9	31.4	48.9	43.8	34.1
5. I feel proud of my partner's courage when she/he withstands a challenging level of pain.	35.5	43.1	43.9	22.4	28.6	45.5	36.6	35.4
6. The play is cathartic. I almost feel my partner's pain, creating stronger connection between us.	33.0	33.2	37.9	26.3	24.8	44.3	37.5	28.0
7. The pain is a symbol for my partner's devotion to me.	27.0	48.3	21.2	15.8	19.0	38.6	23.2	31.7
8. Inflicting pain helps me release negative emotions.	22.0	27.6	21.2	18.4	17.1	28.4	23.2	20.7
Total Count of Responses (count per participant)	577 (2.9)	206 (3.6)	208 (3.2)	163 (2.1)	247 (2.4)	319 (3.6)	353 (3.2)	224 (2.7)
Total Participants (n)	200	58	66	76	105	88	112	82

Table 6). The order of the ranking varied according to BDSM role (split into 3 categories, *mostly dominant*, *mostly switch*, and *mostly submissive*) or levels of sadism (2 categories, *mild sadism* and *strong sadism*). Interestingly, for the *mostly dominant* and *strong sadism* groups, Reason #4 (*nurturing the partner after pain*) ranked higher than feeling more powerful (Reason #3). Additionally, for participants in the *mostly dominant* category, symbolic connection to the partner (Reason #7) was also more important than the power exchange. For



the *mostly switch* participants, the third place in the ranking (feeling powerful) was chosen as often as Reason #5 (*pride in partner's courage*), again showing that the emotional connection between participants was as important as the personal empowerment achieved through inflicting consensual pain. However, when comparing between the masochism and the sadism sections, one robust similarity was found in that for most of the group categories, *pain as intensifying sexual pleasure* was ranked among the top reasons whether receiving or inflicting pain (Reason #2 in Table 3, masochism section and Reason #1 in Table 6, sadism section).

The gender differences in reasons for inflicting SM pain were not as pronounced as for the masochism section, yet there were still a few noteworthy variations. While men and women responded fairly similarly for the top two reasons, men reported Reason #3 (power exchange) much less often. In fact, men reported three other reasons more frequently (#5, #4 and #7, all themed in relation to partner connection), suggesting that inflicting pain to feel more powerful may not be as important for men compared to women. Similarly to the results for the reasons to receive pain, women reported reasons more frequently than men did (on average 3.2 reasons per female participant, vs. 2.7 for men), through the difference was not as pronounced in this section. The pattern of frequency of reported reasons was identical for the sadism scale, with strong sadists (3.6 reasons per participant) reporting reasons to inflict pain 50% more often than mild sadists (2.4 reasons), and inverse for BDSM roles, with participants within the mostly dominant category reporting the most reasons for inflicting pain (3.6), followed by mostly switch (3.2), and with mostly submissive reporting the least number of reasons on average (2.1).

In order to understand how BDSM role and sadism level category inclusion affected the reported reasons for inflicting pain and to investigate any underlying dimensions among the reported reasons for inflicting SM pain, discriminant analyses and factor analyses were performed for the sadism section in the same way as it was done for the masochism section. Unfortunately, none of these analyses of the reasons for inflicting pain yielded significant or coherent results.

### **Therapeutic Benefits of SM Pain for Masochists**

In the Masochism section, participants were asked: "Have you ever experienced healing or mood altering effects from BDSM play that involved pain? Which symptoms or feelings did the play alleviate?" Only 12.0% of the sample reported never experiencing any such effects. The top three symptoms reported were 1) Inhibition of personality (51.6%), 2)

Stress (45.2%) and 3) Anxiety (33.2%). In order to investigate the underlying patterns in the reporting of symptom relief from receiving BDSM pain, a factor analysis was performed (see Appendix C for factor loadings). The three significant factors found were: 1) *Relief from emotional strain*, composed mostly of depression, stress and anxiety; 2) *Relief of Overload*, mainly confusion, overwhelm and anger; and 3) *Relief of social exclusion*, made up mostly of disconnection and hiding parts of one's personality (Eigenvalues = 3.14, 1.15 and 1.02 respectively). These factors were saved as latent variables using factor scores.

**Table 7.** The relationship between three dependent variables derived from reported therapeutic benefits of receiving consensual pain in a BDSM/sexual context and a selected set of independent variables; Multiple linear regression analysis, standardized regression coefficients ( $\beta$ ) ( $n = 342$ ).

Predictors	Relief of Emotional Strain		Relief of Overload		Relief of Social Exclusion	
	Pearson's r	B	Pearson's	$\beta$	Pearson's	$\beta$
Gender	-.27***	-.13*	-.19***	-.15*	-.06 <sup>NS</sup>	-.04 <sup>NS</sup>
Sexual Orientation	.22***	.10 <sup>NS</sup>	.11*	.04 <sup>NS</sup>	.03 <sup>NS</sup>	.01 <sup>NS</sup>
Level of Education	-.12*	-.09 <sup>NS</sup>	-.03 <sup>NS</sup>	-.02 <sup>NS</sup>	.08 <sup>NS</sup>	.09 <sup>NS</sup>
Level of BDSM	.22***	.14**	.12*	.12*	.09 <sup>NS</sup>	.05 <sup>NS</sup>
BDSM Role	.19***	.06 <sup>NS</sup>	.11*	.10 <sup>NS</sup>	.08 <sup>NS</sup>	.03 <sup>NS</sup>
Level of Masochism	.38***	.27***	.09*	-.03 <sup>NS</sup>	.13**	.09 <sup>NS</sup>
<b>R<sup>2</sup></b>	20.9%		5.6%		2.9%	

Notes. NS Non-significant, \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

To explore the relationship between the dimensions of perceived therapeutic effects from SM pain and a set of independent variables (gender, sexual orientation, level of education, BDSM experience, BDSM roles and level of masochism), a multiple linear regression analysis was performed (see Table 7). Again, a number of significant bivariate relationships between the six independent variables and the three dimensions found, but when controlled for the effect of each of the other predictors, only a few predictors maintained statistical significance. For the dimension *Relief of Emotional Strain*, the relative importance of the three statistically significant predictors in descending order were: Level of masochism ( $\beta = 0.265$ ;  $p < .001$ ), BDSM experience ( $\beta = 0.136$ ;  $p = .009$ ), and gender ( $\beta = -0.132$ ;  $p = .015$ ). Participants with a stronger level of masochism, with more BDSM experience and women scored higher on this factor than their respective counterparts, partially confirming the our previous results within the discriminant analysis of “reasons to engage in SM pain” (see Table 5 and Fig.1), where the strong masochism groups were positioned higher on the axis pain improves mood. Combined, the predictors explained 20.9% of the variance in the dependent variable. For the dimension *Relief of Overload*, while all but one predictor showed statistical significance within the bivariate analysis, only two predictors maintained their

influence when controlled against the others, namely gender ( $\beta = -0.15$ ;  $p = .014$ ), and level of BDSM experience ( $\beta = 0.12$ ;  $p = .03$ ), explaining 5.4% of the variance in the dimension. Participants with more BDSM experience and women scored higher on this factor than their respective counterparts. For *Relief of Social Exclusion*, predictors explained 2.9% of the variance and only level of masochism exhibited a statistically significant bivariate relationship with the dimension (Pearson's  $r = 0.13$ ;  $p = .009$ ), but unfortunately this predictor lost its influence when controlled for the others.

### Therapeutic Benefits of SM Pain for Sadists

To address how participants perceived any therapeutic benefits from inflicting pain in a BDSM context and to compare them against results from the masochism section, the same question was asked in the sadism question. A factor analysis was performed, resulting in two significant functions. The first function, composed mostly of symptoms relating to emotional strain, accounted for 35.87% of the variance (see Appendix D for loadings). The second function accounting for 11.62% of the variance was composed of symptoms mostly pertaining

**Table 8.** The relationship between two dependent variables derived from reported therapeutic benefits of inflicting consensual pain in a BDSM/sexual context and a selected set of independent variables; Multiple linear regression analysis, standardized regression coefficients ( $\beta$ ) ( $n = 318$ ).

Predictors	Relief of Emotional Strain		Relief of Overwhelm	
	Pearson's r	$\beta$	Pearson's r	$\beta$
Gender	-.13**	-.11 <sup>NS</sup>	-.13*	-.11 <sup>NS</sup>
Sexual Orientation	.15**	.06 <sup>NS</sup>	.12*	.02 <sup>NS</sup>
Level of Education	-.13*	-.07 <sup>NS</sup>	-.13**	-.08 <sup>NS</sup>
Level of BDSM experience	.13**	.09 <sup>NS</sup>	.10*	.05 <sup>NS</sup>
BDSM Role	-.09 <sup>NS</sup>	.06 <sup>NS</sup>	-.05 <sup>NS</sup>	.13 <sup>NS</sup>
Level of Sadism	.21***	.23**	.20***	.28***
<b>R<sup>2</sup></b>	8.6%		8.0%	

Notes. NS Non-significant, \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

to overwhelm. These two factors were saved as latent variables using factor scores and a subsequent multiple regression analysis was performed (see Table 8). In both dimensions, all but one predictor (BDSM role) exhibited significant bivariate relationships to the dimensions. The only predictor which maintained statistical significance when controlled for the effects of the others was level of sadism ( $\beta = 0.227$ ;  $p = .004$  for *Relief of Emotional Strain* and  $\beta = 0.278$ ;  $p < .001$  for *Relief of Overwhelm*). For both dimensions, participants with a stronger level of sadism scored higher than the ones with mild levels of sadism. The six predictors explained 8.6% of the variance for the first dimension and 8.0% for the latter.

## Discussion

### Main Findings

This study has found that reasons to receive/inflict pain and therapeutic benefits from receiving/inflicting pain are phenomena that can be expressed by several different dimensions and that a number of independent variables were associated with higher levels of reporting.

As a combined group, participants displayed a similar reporting pattern whether receiving or inflicting pain, with primary reasons for engaging in SM pain being *pain enhances sexual pleasure* and *pain enhances power exchange*. However, males and participants in the strong sadism and mostly dominant categories reported reasons to inflict pain involving empathic connection with partner more frequently than the power exchange reason. Within direct assessment of reasons for receiving pain, women more frequently reported that *pain enhances submission* (power differential), while men reported that *pain increases pleasure* more frequently. The discriminant analysis for receiving SM pain revealed a pattern of reporting whereby participants in the *mostly submissive* end of the scale scored higher in the *pain enhances submission* (power exchange) dimension and participants in the strong masochism groups scored higher within the *pain enhances mood* dimension. The multiple regression analysis showed that gender (women), BDSM roles (submissives) and strong level of masochism were the best predictors for *pain as a mood enhancer* dimension, whereas gender (men), BDSM role (submissives) and higher levels of education were the best predictors for *pain as submission enhancer*.

Therapeutic and mood altering effects of SM pain were reported for both receiving and inflicting pain, with only a small portion of the sample reporting no effects at all. For receiving pain, the most robust therapeutic effect reported was within *Relief of emotional strain* dimension, where SM pain was linked to relief of symptoms of depression, stress and anxiety. Women, strong masochists and participants with more BDSM experience were independently and significantly more likely to report this type of effect. The second dimension, *Relief of Overload* only yielded two significant predictors, gender (women) and higher levels of BDSM experience. For therapeutic benefits of inflicting pain, *Relief of emotional strain* and *Relief of overwhelm*, strong sadism was the only significant predictor with an independent relationship to the dimensions. This confirms the hypothesis that pain would yield stronger effects for masochists than for sadists.

## Reasons for Receiving Pain SM Pain

As hypothesized by this study's conceptual model, all independent variables except sexual orientation statistically significantly predicted the reasons to receive pain. Due to the pioneering nature of the present study, no previous research has comparatively similar results; hence explanations can only be suggested through indirect inferential elaborations. Reporting a strong level of masochism was the most robust significant predictor of the outcome *pain as mood enhancer*. As aforementioned within the conceptual model, previous studies failed to use masochism as an independent variable describing level of pain enjoyment. Yet, it can be inferred that the stronger the attraction to painful SM stimuli, the more likely it is that participants will 1) engage in painful SM play more frequently, 2) develop better coping strategies for dealing with pain (as evidenced by lower levels of pain catastrophizing; Defrin et al, 2015), and 3) actively transform pain into intensity or pleasure (Newmarh, 2010a). Without fear of pain, aversive neural reactions to pain may be reduced, leading to a greater likelihood of the benefits outweighing the costs, thus making the mood enhancing effects more recognizable for participants.

*Pain as a mood enhancer* was also strongly associated with gender, with more women than men scoring high in this dimension. Firstly, this could be explained by the biological gender difference in threshold for pressure pain (Racine et al., 2012). Having a lower pain threshold may affect women's experience of SM pain and the way they engage in BDSM relationships. Women have been shown to prefer "sacrificial" framing of pain (Newmahr, 2010a) and to engage in a masochism style that utilizes milder forms of pain and emphasizes the relational/intimacy aspects of the activities (Baumeister, 1989). Hébert & Weaver (2014) also found that women scored significantly higher on emotionality and empathy. Therefore, SM pain stimulation among women might trigger emotional management aspects of brain networks (Cavanagh & Shackman, 2015) more strongly than among men, leading to more recognizable mood enhancing effects.

Finally, reporting a preference for submission was also a significant predictor of pain as a mood enhancer. Recent assessment of personality & psychometric characteristics of BDSM participants have found significant differences between the BDSM roles (Connolly, 2006; Hébert & Weaver, 2014, 2015; Wismeijer & Assen, 2013). It has been shown that while scores for BDSM participants were generally within the normal range when compared to the general population, submissives scored significantly higher than dominants in psychometric

scales of anxiety, dependency, paranoia, likelihood of post-traumatic stress disorder (Connolly, 2006), neuroticism, rejection sensitivity (Wismeijer & Assen, 2013), emotionality and vulnerability (Hébert & Weaver, 2014, 2015). These patterns suggest two potential explanations for the outcome: 1) Because submissives may be more disposed to extreme mood fluctuations, they may experience mood improvements from SM pain more often; and 2) because submissives are more aware of their emotional states, they may more easily recognize mood improvements from their SM pain interactions.

For the second outcome variable, *pain as submission enhancer (power exchange)*, BDSM role (submission) was the strongest predictor. This result matches intuitive expectations, as submissives would value feeling authentic within that role more than dominants or switches. Previous research also has found that submissives were indeed more willing to give up control than dominants (Hébert & Weaver, 2014) and scored higher on psychometric measures of depersonalization, agreeableness and dependency (Wismeijer & Assen, 2013), suggesting a tendency towards taking a more subordinate role. BDSM literature often denotes that SM pain is particularly used as a tool for improving the authenticity of power exchange within the interactions (Newmahr, 2010a; see also Cross & Matheson, 2006; Weinberg, Williams, & Moser, 1984). Pain's ability to symbolically demote one's status (Harper, 2006), makes it an obvious tool for enhancing submission.

*Pain as submission enhancer* was also significantly associated with gender and being male. Power exchange is based on taking certain roles which may not match with one's day-to-day personality. As men usually take a more active (dominant) role in heteronormative sexual scripts (Gagnon & Simon, 2005), the use of pain to enhance submission can be regarded as logical. While women may find it more acceptable to engage in a submissive role, men might need extra tools (pain) to feel authentically submissive. Personality assessment of BDSM participants found men to be less open to new experiences, less emotional and less empathic than women (Hébert & Weaver, 2014). Psychometric tests also found men scored higher on measures of need for approval, anxious attachment, and lower in confidence within relationships (Wismeijer & Assen, 2013). This type of psychological profile suggests that for men, intense stimulation may be required to promote deeper intimate interaction to the dominant partner. This result matches by men's masochism style where humiliation and extreme sensations are used to symbolically enhance degradation of status (Baumeister, 1989). By reducing abstract thinking to lower levels of bodily sensations, pain allows for

adaption to new roles according to the power symbology within BDSM interaction, rather than what is expected in the everyday world.

Lastly, higher levels of education also predicted the outcome variable *pain as submission enhancer*. Though no previous research explored the connection between this variable and reasons to engage in SM pain, one can suspect that the robust over-representation of individuals with higher education within BDSM research (Connolly, 2006; Richters et al., 2008; Santtila et al., 2002; Yost & Hunter, 2012; Wismeijer & Assen, 2013), may be connected to motivations to participate in BDSM behaviors in general. According to Baumeister, (1989), engagement in masochism can be regarded as an escape from the self. He further proposes that occupations requiring higher levels of education usually involve a great deal of intellectual expectations and thus might be more psychologically taxing. Taking a more subordinate status within BDSM play would reduce feelings of responsibility and decision making requirements, suggesting that the submissive role would be more attractive for individuals with occupations requiring high levels of intellectual performance. In this process, pain extracts attention away from mental abstractions and may catalyze a reduction in self-identity (Baumeister, 1989), which then can be remolded to a new, less stressful role for the duration of the interaction. Overall, without higher level abstractions about self-identity, it may be easier and more authentic to assume the submissive role expressed through the BDSM symbology of power, control and hierarchy.

It is important to note that while no independent variables were significantly associated with *pain as a pleasure enhancer* within the multivariate analysis, this reason was still rated among the most important by both masochists and sadists. Defrin & colleagues (2015) found that the higher the intensity of pain within BDSM scenes, the higher the amount of pleasure experienced, yet they did not analyze gender or BDSM role differences. Previous research also confirms that physical pleasure and arousal were among the benefits of BDSM interaction for both roles (Hébert & Weaver, 2014), supporting the present results.

### **Reasons for Inflicting Pain SM Pain**

Although no latent dimensions were found for reasons to inflict pain, the results from the direct frequency of reports have shown that men, participants in the mostly dominant and strong sadism categories reported reasons involving empathic interaction with the partner more frequently than reasons relating to power exchange. Since men have been found to be less empathic and emotional than women (Hébert & Weaver, 2014), the pain activation of that

emotion might be more valuable for them. In observations of virtual BDSM, sadists were found to use more caring language than masochists (Cross & Matheson, 2006). Literature confirms empathy as being a main benefit for taking the dominant role (Easton & Hardy, 2003) as well as being a personality trait associated with “good dominants” (Hébert & Weaver, 2015). Hence the results found in the current study match the previous research showing that empathy and care for the partner are important motivations for participants taking a dominant/sadist role.

As hypothesized, the results for inflicting pain were not as clear and robust as for receiving pain. Overall, as most pain modulation occurs via neural mechanisms, one could expect that participants receiving pain (submissives/masochists) would be more strongly affected by painful stimulation, as this study demonstrated. Although some dominants admit to enjoying pain in certain cases, in general, submissives are receiving the bulk of pain stimulation within a BDSM scene. It is understandable that masochists are more closely aware and connected to reasons to receive pain. As the experience of inflicting pain is less corporeal, individual differences in personality may play a stronger part for the sadists’ experiences, making that group more heterogeneous and thus less likely to evidence robust results.

### **Therapeutic Benefits of Receiving SM Pain**

Though no previous research has specifically explored the present study’s variables-to-outcomes interaction, BDSM literature and research is rich with examples of participants’ acknowledgment of psychological and emotional relief from these activities. Hébert & Weaver (2015) found psychological release (similar to *Relief of emotional strain* dimension), freedom from everyday routine stresses (~ *Relief of overload*), and the ability to express oneself (~ *Relief of social exclusion*) among the many benefits reported for both BDSM roles. Through in depth case studies of BDSM couples, Kleinplatz (2006) found that BDSM interactions not only improved sexual and intimacy elements, but also reduced emotional reactions towards past experiences, including trauma. Turley and colleagues (2011) found that BDSM activities and the abandon of normative (and at times, repressive) sexual rules provided participants with a temporary escape from life’s daily stresses and promoted a heightened sense of well-being and freedom. Ethnographic fieldwork also shows that some professional dominatrices view themselves as psycho-sexual therapists (Lindemann, 2011). Although long term stress relief effects were not evaluated, Sagarin and colleagues (2009) did find a reduction in levels of cortisol post BDSM scenes, as compared to during BDSM scenes



for submissive participants. In BDSM manuals, such as *The Bottoming Book*, emotional relief through expression and catharsis is often listed as one of the perks of participating in BDSM (Easton & Hardy, 2001). Hence, even in the absence of the same predictor-outcome relationships as the present study, the frequency of such reports amongst the previous literature suggests that psychological and emotional relief are amongst the many benefits experienced by BDSM participants.

As hypothesized, there was a significant relationship between a number of independent variables and the outcomes of therapeutic benefits from receiving SM pain. Women and more experienced participants, scored higher on the *Relief of emotional strain* and *Relief of overload* dimensions. Participants in the strong masochism category also scored higher in the first dimension. In the absence of previous studies directly relating the variables above to therapeutic outcomes, these results could be explained by combining previous reports of psychological benefits with novel associations. As previously explained under reasons to receive pain, women tend to view their SM pain within a “sacrificial” framing (Newmahr, 2010a) and their masochism style is more relationship focused (Baumeister, 1989), making it more likely that pain will activate emotional management brain mechanisms. As women scored higher on emotionality and empathy (Hébert & Weaver, 2014) they may be more affected by emotional symptoms, and/or may be better equipped to recognize these therapeutic outcomes.

Level of BDSM experience also affected *Relief of emotional strain* and *Relief of overload*. As BDSM experience develops, an increased frequency of behaviors may be expected, which in turn may affect the recognition of outcomes. As shown by Defrin and colleagues (2015), higher frequency of masochistic behaviors was negatively correlated with fear of pain and pain catastrophizing. Without an aversion towards pain, participants may be better able to acknowledge the benefits inherent within SM pain activities. Further, a number of participants in the current study reported that their motivation for BDSM interaction changed as they got more experienced. Hence, a beginner might be attracted to the more superficial aspects of the interaction such as the novelty or taboo nature of activities, while a seasoned kinkster may more likely to already have explored the superficial aspects and thus be able to notice other, perhaps more subtle, benefits such as the *relief of emotional strain*. A similar rationale can be applied to strong levels of masochism, as explained in detail within the reason dimension *pain as mood enhancer*.

### **Therapeutic Benefits of Inflicting SM Pain**

As hypothesized within the conceptual model, results for inflicting SM pain did not exhibit as clear a pattern as for receiving SM pain, with only one of the independent variables, level of sadism, having a significant relationship with the two therapeutic benefits of inflicting pain outcomes: *Relief of emotional strain* and *Relief of overwhelm*. Among the extensive literature reviewed in this study, very few effects are found for witnessing pain in another. In one study, dominants were described as empathic (Hébert & Weaver, 2015) and empathy is regularly promoted in BDSM manuals as one of the perks of taking the dominant (sadist) role (Easton & Hardy, 2003; Wiseman, 1996). No previous studies actually used *sadism*, meaning level of enjoyment for inflicting pain, as a descriptive measure within the sample. Yet, previous BDSM research has found that participants of both BDSM roles (which implicitly includes sadists) have reported psychological and emotional relief from these behaviors (Hébert & Weaver, 2015; Kleinplatz, 2006; Turley et al., 2011). Logically, one can infer that the more one enjoys inflicting pain, the more frequently these activities will be pursued. With more exploration, one is more likely become more aware of secondary benefits from executing pain within SM scenes, such as the outcomes found within this sample.

### **BDSM as Therapy? Considerations & Risks**

According to Baumeister (1989), therapy is supposed to change the individual in a profound way and have long lasting effects. As masochists often return to BDSM activities and even escalate into more extreme forms, he concludes that, rather than therapy, masochism is a temporary escape from psychological/emotional hardships. He also compares masochism to sex therapy, thus limiting personal growth to sexual health. However, if one defines therapy as treatment for a particular psychological or emotional state rather than a definitive transformational process, then the distinction between *therapy* and *escape* disappears. Further, if the symptoms being treated are recurring (as is the case of stress and other burdens of the self), then one may have to continuously return for more *therapy*. Comparatively, if someone visits a physiotherapist with back pain, the pain may be treated temporarily, but further strain will require continuous repeat treatments. Just because the problem is not resolved, does not make physiotherapy “not-therapy”.

The acknowledgment of BDSM as therapeutic or promoting relief of emotional strain/overload may also prove problematic as it places BDSMers into the pathological sphere, as “needing treatment”. Therefore, the acceptance of BDSM as a tool for promoting

emotional health can become a double edged sword, an issue recognized by previous researchers (Khan, 2015; Lindemann, 2011). However, if one appreciates that modern life is inherently stressful causing most of the general population to experience mental and emotional strain at some point, then the seeking of relief in some therapeutic form does not necessarily place the sufferer under a pathological diagnosis. Individuals will seek a variety of ways to cope with the challenges of everyday life; BDSM can simply be one of the ways to achieve relaxation and relief of psychological strain, alongside other serious leisure activities (Newmahr, 2010b).

### **Limitations**

The results found within the current study cannot be generalized beyond this sample due to a number of research limitations. Firstly, because the survey was targeted towards a BDSM audience, distributions and effects should not be applied to the general population. Because there is no known population register for BDSM, participants were self-selected, so effects should not be assumed to be representative of all BDSM communities. However, relationships between variables have been shown to not be strongly affected by self-selected samples (Gustavson, von Soest, Karevold, Røysamb, 2012; Nilsen et al., 2009).

Due to the taboo nature of this topic, social desirability bias might have affected the validity of self-reports, with participants over-reporting positive activities/attitudes and under-reporting negative ones (Krupal, 2011). This could be of particular concern for reasons to inflict SM pain, where displays of empathy and care for the partner could be over reported as the lack of empathy is usually associated with psychopathology.

The wording of the title and questions in surveys has also been shown to affect self-reports (Schwarz, 1999), hence creating a potential sampling bias. As the survey was named “The Benefits of Pain”, it may have especially attracted individuals who enjoy pain, thus skewing the distribution of masochism levels, and those who do find benefits from their SM pain, increasing the levels of reported benefits beyond what the average BDSM population experiences. Some of the survey questions could be improved to better grasp the intended measures. A large number of participants included more explanation within the “other” option in the multiple choice questions, suggesting the options provided did not encompass the entire spectrum of reasons and effects of SM pain. Connotations of the terms “pain”, “masochism” and “sadism” might also have affected participant’s reports.

Because the survey was in English that may also have sampled participants from particular cultures, which may be more prone to the effects found. One error within the survey design also prevented the evaluation of ethnic backgrounds of respondents. The research and effects discussed in this study mainly focus on the benefits of SM pain, without presenting a thorough elaboration of the potential negative effects of SM pain, such as the risk of trauma. Finally, this study did not explain the small but real presence of SM participants who enjoy pain in its full aversive nature, not pain transformed into intensity/pleasure, or pain which promotes power exchange or other forms of benefits.

### **Conclusions & Future Research**

This study has reviewed pain research and BDSM literature to shed light on consensual pain within a BDSM context and empirically tested self-reports from BDSM practitioners regarding reasons for both receiving and inflicting pain, as well as the potential therapeutic and mood enhancing effects of participating in this type of behaviors. The sample distribution was consistent with previous research in relation to BDSM roles and gender distribution within these roles, suggesting that results within this study could be representative of the greater BDSM community. For both masochists and sadists, *pain enhances power exchange* (dominant/submissive dynamics) and *pain enhances sexual pleasure* were among the top reasons for participating in SM pain, a finding which reflects previous ethnographic research where SM pain is transformed into pleasure and acts as a reinforcer of BDSM roles (Newmahr, 2010a). Additionally, within the sadist group, reasons involving caring for one's partner were also frequently reported, again confirming previous studies that emphasize empathy among participants within the dominant role (Hébert & Weaver, 2015).

Within latent reasons for receiving pain, the participants' BDSM roles and levels of masochism formed a clear pattern of reporting, with *mostly submissive* groups scoring higher within *pain enhances submission* dimension and *strong masochism* groups scoring higher on *pain improves mood* dimension. Strong masochism was also the best predictor of reporting for *pain as a pleasure enhancer*. Finally, therapeutic benefits were found for both receiving and inflicting pain, though effects were stronger among masochists. *Relief of emotional strain* from receiving consensual SM pain was associated with being female, a strong masochist and having more experience within BDSM. Strong sadism was the best predictor for frequency of reporting in both dimensions for inflicting pain, *relief of emotional strain* and *relief of overwhelm*, though these results were not as robust as not as for receiving pain.

From the results of this study, some fundamental recommendations for future studies should be taken into consideration. Level of masochism was the strongest predictor for reporting of mood improvement and pleasure enhancement experienced from SM pain, and for reporting therapeutic benefits from SM pain. Therefore, one can suppose that the level to which one enjoys pain may be a noteworthy segregating measure among BDSM participants. Therefore, in future studies, as well as collecting data regarding one's BDSM role (dominant, submissive or switch), researchers should include measures for how much the participant enjoys pain. Similarly, stronger levels of sadism were also the best predictors of therapeutic benefits of inflicting pain, so measures on how much a BDSM participant enjoys inflicting pain should also be included in future research. It is important that researchers use separate scales for masochism and sadism, as these concepts are not mutually exclusive. To better understand the mechanisms underlying the findings in this study, future research could include in-depth interviews. Experimental designs using emotional priming are one option to test whether SM pain provides a relief of emotional strain. Research using neuro-imaging techniques, such as fMRI or event related potentials within the BDSM community would also provide a deeper understanding of how pain can be transformed into pleasure and how pain can promote relief of negative emotional states. As explorers of diverse and extreme sensations, BDSM practitioners are ideal research candidates for understanding the interplay between pleasure, pain and context. For those who play with consensual pain, torture is not always a crime; it can be "fun-ishment".

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## Appendices

### Appendix A: Benefits of Pain Survey Questions

Information Sheet:

If most people normally avoid pain, why would someone choose to participate in activities that can potentially be painful, as for example, hair removal (waxing), strenuous sports or kinky play? In the BDSM lifestyle (kinky/fetish community), many participants willingly choose to receive painful stimulation. This study will focus on this community group, however, people who are not a part of this community are also encouraged to participate. This survey was created to investigate the following questions:

- 1) Why do people consent to participate in activities that may involve pain?
- 2) Which psychological or physical mechanisms do people use to cope with consensual pain?
- 3) Do BDSM practitioners perceive any therapeutic benefits from their kinky interactions and if so, which ones?

Many of the questions will address BDSM (kinky) activities, but you don't HAVE to be kinky to participate!

We are also interested in your opinion about everyday activities that may involve some amount of pain and extreme sensations.

This survey is composed of 24 multiple-choice and 2 open-ended questions and it takes approximately 20-30 minutes to complete. In order to maintain your anonymity, it is of utmost importance that you refrain from referring to \*ANY\* personal/identifiable information whatsoever (e.g. where you live, your name, where you grew up and so forth). Depending on how you reply, you may not be required to answer all questions. You are allowed to skip questions that are not relevant to your situation or if they make you feel uncomfortable and you may quit at any time.

This survey is a part of Andrea Silva's master's thesis project. For more information about the research, please contact:

Andrea Silva, University of Oslo, Department of Psychology

email: andredsi@student.sv.uio.no

The study has been notified to the Data Protection Official for Research, Norwegian Social Science Data Services.

Consent Agreement:

Your participation in this study is entirely voluntary and anonymous. You may refuse to answer any questions with which you feel uncomfortable. Your name will never be connected to your responses to the questionnaire; instead, a number will be used for identification purposes. This survey will NOT collect your IP address, thus maintaining your electronic participation completely anonymous. Information that could make it possible to identify you will never be included in any report. The data will be accessible only to those working on the project (student and supervisor) and will be saved in password protected accounts and computers to ensure maximum confidentiality.

Section 1. Demographic questions (Age, gender, sexual orientation, marital status, level of education)

Section 2. Sexual and BDSM experience and Roles (Sexual experience, BDSM experience, BDSM roles)

Section 3. Masochism Section:

*Just because you identify as a submissive doesn't automatically mean that you are also a masochist and vice-versa. You may be dominant and enjoy pain and of course you can be submissive and not like pain at all. You can also like to both give and receive pain. Sadism and masochism are not mutually exclusive. People have different definitions of "pain". Here we use the term "pain" to refer to physical and/or emotional discomfort that hurts but does not necessarily create lasting damage.*

Q. 11 - How much do you enjoy receiving pain in a sexual/BDSM context?

- Heavy masochist: I love receiving pain during sexual / BDSM interaction
- I can enjoy receiving a lot of pain during sexual / BDSM interaction
- I can enjoy receiving some pain during sexual / BDSM interaction
- I can enjoy receiving a little pain during sexual / BDSM interaction
- Not at all! I do not enjoy receiving pain during sexual / BDSM interaction (this option takes you to the next section)

Q. 12 - How and when did you first feel drawn towards receiving pain in a sexual/BDSM context?

What was your original motivation? Has that changed? If so, how?

Q. 13 - Does the pain you receive within a BDSM / sexual scene feel different to pains experienced casually? For example, receiving a spank in a sexual scene vs. receiving a spank when watching TV with your partner.

- A spank in a casual situation hurts more than a spank in the bedroom
- No difference, A spank is a spank
- A spank in the bedroom hurts more than a spank in a casual situation
- It depends on the situation

Q 14 - What are some of the reasons you enjoy pain in a BDSM / sexual context? Tick all that apply. [The multiple choice options were displayed in randomized order for each new participant]

- The pain makes my skin more sensitive, so I also feel more pleasure
- The physical pain helps relieve emotional pain
- The pain is challenging; I feel a sense of achievement and pride afterwards
- I must withstand pain in order to deserve pleasure
- Pain creates contrast so it intensifies my pleasure/orgasm

- I enjoy the pain because it pleases my partner
- The pain helps me forget the stresses of daily life
- The pain enhances my feeling of helplessness & submission
- The pain slows down my excitement so I don't orgasm too quickly
- Other (please describe)

15. What physical or psychological strategies do you use to cope with the pain? Tick all that apply. [The multiple choice options were displayed in randomized order for each new participant]

- I think of painful situations in my daily life and cry to cleanse myself of emotional pain (depression, guilt, stress, etc)
- Tightening and relaxing the major muscle groups helps dissipate the pain
- I use visualization techniques to send the pain away from the affected area
- A stern/strict role play with my partner helps me withstand the pain
- When I moan / groan / cry / scream, the pain feels weaker
- When I can see that my partner is enjoying giving me pain, it ceases to be painful. It is just intense sensation
- I take a pain killer before the scene so I can withstand more
- A humorous/cheeky role play dialogue with my partner helps me withstand the pain
- Watching as my powerfully sexy partner delivers the pain makes it easier to manage
- I just like to surrender and not think at all
- I focus on the pleasure I'll feel after the pain is done
- I try to think of something else
- Breathing techniques help dissolve the pain and keep me in the moment
- I enjoy the pain and aim to focus my attention on it, to really feel it
- I have an alcoholic drink before the scene to calm my nerves and reduce the pain
- Other (please describe)

Q. 16 - From the following list, which three (3) words best describe your BDSM experiences?

[The multiple choice options were displayed in randomized order for each new participant]

Intimacy Building	Relaxing	Fun & Enjoyable
Detrimental	Restorative	Spiritual
Stressful	Challenging	Liberating
Exhilarating	Therapeutic	Other (please specify)

Q. 17 - Have you ever experienced any therapeutic or mood altering effects from BDSM play that involved pain? Which symptoms or feelings did the kink play alleviate? Tick all that apply.

[The multiple choice options were displayed in randomized order for each new participant]

I never felt my BDSM play to be therapeutic	Depression	Anxiety
Disconnection	Overwhelm	Pre-Menstrual Tension
Anger	Confusion	Sadness
It allowed me to express hidden parts of my personality	Panic Attacks	Stress

Other (please specify)

#### Section 4: Sadism

*If you identify as a dominant, it doesn't automatically mean that you are also a sadist and vice-versa. You may be dominant and enjoy receiving pain and of course you can be submissive and not like pain at all. You can also like to both give and receive pain. Sadism and masochism are not mutually exclusive. People have different definitions of "pain". Here we use the term "pain" to refer to physical and/or emotional discomfort that hurts but does not necessarily create lasting damage.*

Q. 18 - How much do you enjoy inflicting pain during sexual / BDSM interaction?

Heavy sadist: I love inflicting pain during sexual / BDSM interaction

I can enjoy inflicting a lot of pain during sexual / BDSM interaction

I can enjoy inflicting some pain during sexual / BDSM interaction

I can enjoy inflicting a little pain during sexual / BDSM interaction

Not at all! I do not enjoy inflicting pain during sexual / BDSM interaction (this option takes you to the next section)

Q. 19 – How / when did you first feel drawn towards giving pain in a sexual /BDSM context?

What was your original motivation? Has that changed? If so, how?



Q. 20 – What are some of the reasons you enjoy inflicting pain in a BDSM / sexual context? Tick all that apply.

[The multiple choice options were displayed in randomized order for each new participant]

- Pain promotes emotional release for my partner and I like being able to give him/her that experience.
- The play is cathartic. At times I almost feel my partner's pain, creating a stronger connection between us.
- After inflicting pain, I feel strong feelings to nurture my partner
- Inflicting pain intensifies my sexual turn on
- The pain is a symbol for my partner's devotion to me
- Pain intensifies the power exchange. I feel more powerful when I inflict pain.
- I feel proud of my partner's courage when she/he withstands a challenging level of pain
- Inflicting pain helps me release negative emotions.
- Other (please describe)

Q. 21 – From the following list, which three (3) words best describe your BDSM experiences?

[The multiple choice options were displayed in randomized order for each new participant]

Intimacy Building	Relaxing	Fun & Enjoyable
Detrimental	Restorative	Spiritual
Stressful	Challenging	Liberating
Exhilarating	Therapeutic	Other (please specify)

Q. 22 – Have you ever experienced healing or mood altering effects from BDSM play that involved pain? Which symptoms or feelings did the kink play alleviate? Tick all that apply.

[The multiple choice options were displayed in randomized order for each new participant]

I never felt my BDSM play to be therapeutic	Depression	Anxiety
Disconnection	Overwhelm	Pre-Menstrual Tension
Anger	Confusion	Sadness
It allowed me to express hidden parts of my personality	Panic Attacks	Stress

## Section 5. BDSM Activities

There is a lot of variation within BDSM activities, from how it's done, to who performs it (who dominates), to the severity of the activity (light to extreme). BDSM enthusiasts are a very diverse population, so activities that may feel painful for some can be pleasurable for others. Even the word "pain" has different meanings for people and can be perceived differently depending on the situation. Here we use the term "pain" to refer to physical and/or emotional discomfort that hurts but does not necessarily create lasting damage.

Q. 23 – Which activities within BDSM would you consent to participate in?

Please tick all that apply and indicate whether you like to experience this activity as a dominant (giving), as a submissive (receiving), or both (switch). How much enjoyment do you receive from this activity? If you enjoy receiving, what is the highest level of pain that you usually consent to receive in this activity?

\*Note: If you chose the "switch" option for the activity, complete the enjoyment and pain levels for how you feel from a submissive (receiving) perspective.

[Enjoyment Level - 0 = Activity is not enjoyable, 1 = a little enjoyable, 2 = moderately enjoyable, 3 = nicely enjoyable, 4 = very enjoyable, 5 = most enjoyable (I can't get enough of this!)]

[Pain Level - 0 = Activity is not painful, 1 = a little painful, 2 = moderate pain, 3 = strong pain, 4 = intensely painful, 5 = most painful (bordering on safe-word)]

Activity	Consent to participate? Y/N	Give or Receive?	Enjoyment level (0-5)	Pain Level (0-5)
Enema play				
Anal play				
Clamps (pegs)				
Fisting				
Body Worship				
Flogger (Whips)				
Humiliation				
Knife play				
Nipple Play / "Torture"				
"Mind Fuck"				
Pet Play				
Riding Crop				
Tickling				
Role Play				
Paddle				
Behavior Modification				

Spanking				
Cane				
Corsetry (wearing)				
Candle wax play				
Sensory Deprivation				
Ice play				
Urethral play				
Hair Pulling				
Electro play (TENS)				
Electro Play (Violet Wand)				
Feminization				
Breath Play				
Pinwheel				
Fire play				
Scarification				
Trampling				
Genital Play "Torture"				
Body Modification				
Needle play (Piercing)				
Bondage (ropes /restraints)				
Water sports (golden showers)				
Scratching				
Other (please specify)				

Section 6: Physical pain sensation in everyday activities

Q. 24 – Some everyday activities involve some levels of physical pain. In which of the activities below have you participated? For how long have you participated in this activity? How often do you take part in it? What level of pain (if any) have you experienced from the activity?

[Pain Level - 0 = Activity is not painful, 1 = a little painful, 2 = moderate pain, 3 = strong pain, 4 = intensely painful, 5 = most painful (bordering on safe-word)]

Activities	How long?	How often?	Pain Level (0-5)
Body Piercing			
Martial Arts (specify below)			
Hair removal (waxing, etc.)			
Body Building			
Strong massage			
Cross country skiing			
Spicy foods			
Wearing High Heels			
Blood donation			
Tattoos			
Running (jogging)			
Competitive Sports (specify below)			
Winter swimming (ice water)			

Other (please specify the activity, how long, how often and level of pain)

Q. 25 – Why do you engage in these potentially painful activities? Tick all that apply.

[The multiple choice options were displayed in randomized order for each new participant]

- The pain is a challenge. When I conquer, it I feel stronger
- The results are more important. The pain is just a side effect
- I hate the pain, but there is no other way
- If I know it's beneficial for me, I can handle the pain better
- I like the pain; it makes me feel alive
- Sometimes pain is needed to improve health
- Pain builds confidence and discipline

- If possible, I try to avoid pain in these activities
- The pain cleanses me of negative emotions like guilt, frustration and stress

Q. 26 – What physical or psychological strategies do you use to cope with the pain? Tick all that apply. [The multiple choice options were displayed in randomized order for each new participant]

- I think of painful situations in my daily life and cry to cleanse myself of emotional pain (depression, guilt, stress, etc)
- I focus on the end game/ the results I'll get from the activity
- I use visualization techniques to send the pain away from the affected area
- Tightening and relaxing the major muscle groups helps dissipate the pain
- I focus on the relief I'll feel after the pain is done
- When I groan / cry / scream, the pain feels weaker
- Breathing techniques help dissolve the pain and keep me in the moment
- A humorous dialogue with other participants helps me withstand the pain
- I just like to focus on the activity and not think at all
- A motivational dialogue with other participants helps me withstand the pain
- I enjoy the pain and aim to focus my attention on it, to really feel it
- I take a pain killer before the activity so I can withstand more
- I have an alcoholic drink before the activity to reduce the pain
- I try to think of something else
- I take breaks when the pain gets too intense
- Other (please describe)

## Appendix B: Factorial Analysis. Reasons for Receiving Consensual Pain

Factor loadings and communalities based on a principal components analysis with varimax rotation and Kaiser normalization for 9 items from the reasons to receive consensual SM pain (Masochism section; N = 314).

Reasons	Rotated Component Matrix		
	Pain as mood enhancer	Pain as Submission enhancer	Pain as pleasure enhancer
The physical pain helps relieve emotional pain	0.776	-0.003	0.130
The pain helps me forget the stresses of daily life	0.773	0.076	0.201
The pain is challenging; I feel a sense of achievement and pride afterwards	0.669	0.283	-0.011
The pain slows down my excitement so I don't orgasm too quickly	-0.319	0.637	0.217
I must withstand pain in order to deserve pleasure	0.177	0.617	-0.058
Pain enhances my feeling of helplessness and submission.	0.414	0.570	-0.011
I enjoy the pain because it pleases my partner	0.368	0.402	0.232
Pain creates contrast so it intensifies my pleasure/orgasm.	-0.014	0.124	0.776
The pain makes my skin more sensitive so I also feel more pleasure	0.298	-0.041	0.687

## Appendix C: Factorial Analysis. Therapeutic Benefits, Masochism Section.

Factor loadings and communalities based on a principal components analysis with varimax rotation and Kaiser normalization for 10 items from the symptoms relieved by consensual SM (Masochism section; N = 273).

Symptoms	Rotated Component Matrix		
	1. Emotional Strain	2. Overload	3. Social exclusion
Stress	0.813	0.061	0.209
Depression	0.752	0.147	-0.046
Anxiety	0.751	0.129	-0.040
Confusion	-0.079	0.678	-0.022
Overwhelm	0.021	0.591	0.312
Anger	0.357	0.585	-0.088
Panic Attacks	0.284	0.532	-0.115
Sadness	0.426	0.515	0.142
Disconnection	0.372	0.398	0.200
Inhibition of Personality	0.063	0.022	0.923

## Appendix D: Factorial Analysis. Therapeutic Benefits, Sadism Section.

Factor loadings and communalities based on a principal components analysis with varimax rotation and Kaiser normalization for 10 items from the symptoms relieved by consensual SM (Sadism section; N = 179).

Symptoms	Rotated Component Matrix	
	1. Emotional Strain	2. Overload
Anxiety	0.789	0.187
Stress	0.684	0.295
Panick Attacks	0.655	-0.088
Depression	0.645	0.235
Sadness	0.543	0.453
Anger	0.516	0.406
Overwhelm	0.082	0.751
Confusion	0.083	0.738
Disconnection	0.186	0.639
Inhibition of personality	0.173	0.31

## Appendix E: Frequency of Reports, Masochism vs. Sadism in Percent of Total (N = 319).

		Sadism Scale in 3 categories			Totals
		No sadism	Mild sadism	Strong sadism	
Masochism Scale in 3 Categories	No masochism	1.6%	0.6%	4.4%	6.6%
	Mild masochism	15.4%	18.8%	12.9%	47.0%
	Strong masochism	15.0%	20.4%	11.0%	46.4%
Totals		32.0%	39.8%	28.2%	100.0%

Note: Participants varied in their preference for receiving pain and inflicting pain. Just because one likes to receive pain does not automatically mean one does not like inflict pain and vice-versa.