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Perceptions of gendered and ungendered pain relief norms and stereotypes using Q-methodology

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Abstract

Pain is ubiquitous, but effective pain relief eludes many. Research has shown that some pain behaviours are perceived as gendered, and this may influence the way men and women express and cope with pain, but such enquiries have not extended to specific methods of pain relief. Our aim was to explore perceptions of the most socially acceptable ways for men and women to relieve pain. Across two studies, sixty participants (50% male) aged 18-78 completed a Q-sort task, sorting different pain relief strategies by the social acceptability for either women (Study 1; N=30) or men (Study 2; N=30). Analyses revealed two stereotypes for each sex. The overarching stereotype for women suggested it is most acceptable for them to use pain relief strategies considered conventional and effective. However, a second stereotype suggested it is most acceptable for women to use strategies which generally conform to feminine gender norms and stereotypes. The overarching male stereotype suggested it is most acceptable for men to use pain relief aligned with stereotypical masculinity, however a second stereotype also emerged, characterised by conventional and effective responses to pain, much like the overarching stereotype for women. These differing viewpoints seem to depend on whether gender norm conformity or perceived analgesic efficacy is thought to determine social acceptability. These studies provide initial evidence of both a gendered and ungendered lens through which pain relief can be viewed, which may influence how men and women use pain relief.

Keywords: sex; gender; pain relief; q-methodology; masculinity; femininity; pain management; gender stereotypes

Introduction

Women report more pain than men: more frequently, in more bodily locations, and of longer duration [3; 33]. Evidence also suggests that men and women cope with pain in different ways. Women are more likely to use positive self-talk [54], and seek greater social [46; 54] and professional support [58]. Women are also more likely to use pain medication [56] and less likely to self-medicate with alcohol [42]. These differences may be explained by gender norms guiding men and women's behaviours [24]. Behaviours become gendered based on gender ideologies, reflecting the traits, attributes, and behaviours, which characterise the 'ideal man' or 'ideal woman' at a given time in society [44]. These ideals produce gender norms; expectations of how men and women should behave within a given context, including pain.

In Western societies, masculinity is typically characterised by strength, stoicism, self-reliance, and independence, and femininity by being emotionally expressive, nurturing, and domestic [50]. Therefore, masculinity may pose more obvious barriers to help-seeking. Indeed, research suggests that men are more likely to explicitly identify barriers to seeking help posed by stereotypical masculinity, but both sexes recognise that men are expected to express strength and stoicism, and that if men do seek help it could be judged as a sign of weakness [30]. Both sexes seem to believe that expressing pain is more acceptable and appropriate for women than men across a range of cultures [21; 36] and occupations [29]. Similarly, both men and women believe women are more sensitive to pain, less able to endure pain, and more willing to report pain than men [45]. These expectations can differentially guide men and women's behaviours [24]. Taken together, these studies suggest that the expression of pain and how one responds to pain are part of a wider gendered discourse of stereotypically masculine and feminine norms.

Gendered discourse extends to ways of coping with pain. For example, one study reports that people view the typical man as being more likely to ignore pain and use coping self-statements, whilst the typical woman is thought to pray and use distraction [27]. In their review of gender biases in clinical setting, Samulowitz and colleagues [47] noted that gender norms affect the way in which men and women in pain are perceived, and treatment decisions. For example, a study of healthcare decisions found some professionals were more likely to suggest analgesics for men, and psychological treatment for women [48].

Despite the aforementioned research, little is known about how ways of *relieving* pain may be perceived as gendered, and whether this influences how men and women seek pain relief. Use of pain relief is crucial in determining the impact that pain can have on one's life, so it is necessary to understand which factors, including gender norms, determine the social acceptability of men and women's use of pain relief. We explored this in two studies; study one explored men and women's perceptions of socially (un)acceptable pain relief strategies for women, and study two explored these perceptions for men.

Method

Q methodology

Q-methodology was chosen because it values and captures participants' subjective and diverse understandings or viewpoints surrounding a particular topic or issue [6], using an inversion of traditional R factor analysis [57]. Traditionally, participants order statements relating to the subject matter in terms of personal (dis)agreement [2; 16; 32; 43]. However, our aim was for participants to reflect on the broader social acceptability of a range of pain relief strategies. As such, we utilised Q-methodology in a novel and innovative way; to explore perceptions of broader social phenomena as opposed to personal attitudes and beliefs.

Previous research has typically used questionnaires to assess perceptions of the typical man and typical woman's pain sensitivity, endurance, and willingness to report pain [45]. Whilst we wanted to extend these enquires to pain relief, we also sought to capture a more nuanced understanding of the factors influencing the social acceptability of men and women using different methods of pain relief. This included exploring how different ways of relieving pain might be ranked in relation to one another. As such, these studies extend previous quantitative investigations, but take a slightly different, mixed-methods Q-methodological approach.

In Q-methodology, participants complete a task known as the 'Q-sort task'. During the Q-sort task, participants rank a 'Q-set' onto a 'Q-sort grid' in response to an instruction. The Q-set is a list of items which can be ranked from the participant's first-person perspective, and can therefore include statements, objects, traits, amongst many other varied possibilities [57]. The Q-sort grid onto which the items are ranked is often referred to as the 'sorting distribution' in the shape of a normal distribution curve, with the most options available in the centre column and the least at the extreme ends of the grid [8]. The end result is each participants' own 'Q-sort' which reflects the viewpoint they have constructed and conveyed.

Q-methodology is a method of subjectivity, and as such reliability and validity are assessed in different ways to traditional quantitative methods. A Q-sort is considered a valid expression of the participant's point of view, and as such cannot be appraised using external criteria [7]. Evidence shows that Q-methodology has good test-retest reliability [14], as well as reliability and stability when different samples are used [52]. Despite this evidence, generalisability is not intended to occur beyond the original participants; the value of Q-methodology is in its ability to capture valid and authentic opinions on a topic. Once

captured, subsequent investigations can use standard variance analyses to test their prevalence within larger populations [55].

Phase 1: Generating the Q-set

The first phase was to develop the 'Q-set' items; a range of pain relief strategies to be ordered based on participants' perceived social acceptability for a man or a woman. The same Q-set was used in Studies 1 and 2, but ranked according to different instructions. A thorough online and offline search was conducted to produce a list of pain relief strategies, including both evidence-based and folk remedies, by searching through journal articles, blog posts, online forms, news articles, and discussing with colleagues. This search included reviewing the pain coping literature. Although the pain coping literature often focuses on ways of tolerating or enduring chronic pain, rather than removing it, measures include items that could have analgesic properties [41; 44] and were also included. From this, we compiled over 100 ways of relieving pain, reduced to 77 by removing repetition, merging similar strategies, and modifying wording for maximum intelligibility and appropriateness. The Q-sort task was piloted with ten volunteers (5 male, 5 female). Following their feedback, the final Q-set was condensed to 62 ways of relieving pain. The 62 strategies were randomly numbered from 1 to 62 and printed to fit a 13-point Q-sort grid. The anchors of the Q-sort grid ranged from 'completely unacceptable' to 'completely acceptable'.

The instruction for Study 1 was:

"In this society, if a woman is in pain, how acceptable is it for her to use this behaviour to relieve her pain?"

The instruction for Study 2 was:

"In this society, if a man is in pain, how acceptable is it for him to use this behaviour to relieve his pain?"

Phase 2: Conducting the Q-sort task

Sampling for Q studies involves recruiting participants who are likely to hold different viewpoints and perspectives on the subject matter [57]. Although almost all individuals have a viewpoint they can reflect on in relation to this topic, it was difficult to know how to identify those with different viewpoints, so we sampled for maximum variation, recruiting 60 participants; 30 for each study. Thirty participants was deemed an acceptable sample size based on the guidance of Watts and Stenner [57], who recommend sample size should be no greater than half the size of the Q-set ($N = 62$). Both men and women were recruited for each study to gain both same-sex and opposite-sex perceptions. The study was advertised on social media and posters were displayed on University and community noticeboards.

Institutional approval was granted by the relevant University ethics committees. All participants completed the study at the University of Bath in the United Kingdom. After informed consent procedures and a demographics questionnaire, the Q-sort task was conducted following the steps recommended by Watts and Stenner [57]. First, participants were asked to sort the Q-set cards into three piles; acceptable, unacceptable, and undecided/neutral in response to their instruction. Participants were then asked to focus on the 'unacceptable' pile, and pick the two strategies considered the least socially acceptable for either a man or a woman–depending on which instruction they were following– and place them on the sorting grid. They then selected the next three least acceptable, and so on, until all of the 'unacceptable' items had been ranked onto the grid. The process was then repeated for the 'acceptable' items, and finally the 'undecided/neutral' items. The position of each pain relief strategy was coded based on its placement, with the two items at the 'completely unacceptable' end coded as -6, through to the two at the 'completely acceptable' end coded as +6.

Semi-structured interviews were also conducted with one third of participants to gain a richer and more detailed understanding of the Q-sort. Participants were asked why they had ranked the pain relief strategies in the way they had, particularly the most acceptable and least acceptable strategies. Questions included "You chose X as the most acceptable strategy for a (wo)man. Why is that? Why did you rank it so strongly?" and "Would it be any different for a (wo)man?" The interview data were collected in order to be thematically analysed and reported separately, but relevant verbatim quotations from the interviews are used to support the results presented here. Participants who completed the Q-sort were reimbursed £5 for their time, and participants who also completed the interview were reimbursed an additional £5.

Phase 3: Analysing and interpreting the Q-sorts

The aim of the analysis was to extract different viewpoints and identify the groups sharing these viewpoints. To do so, a mixed-methods approach is required, beginning with a quantitative analysis to extract the viewpoints, followed by qualitative analysis to interpret the viewpoints. To quantitatively extract the different viewpoints centroid factor analyses with Varimax rotation were conducted using PQMethod [49]. Initially, seven factors were extracted in accordance with Brown's criteria for analysing Q-sorts [6]. The number of factors to then rotate was determined by the Kaiser-Guttman criterion of eigenvalues above 1 [20; 25], as well as Brown's criterion of retaining factors with at least two significant factor loadings, but not including confounding sorts which significantly load onto more than one factor [6].

Factor arrays (see Figures 1-4) were then created using the Z-scores for each defining participant to produce a single Q-sort to represent the viewpoint of each factor. As these

viewpoints represent beliefs about the characteristics of a specific social group [51], the terms 'stereotype' and 'factor' are used interchangeably to refer to the meaning conveyed in the factor arrays. The term 'norm' is used to refer to the specific placement of a strategy on a factor array, i.e. the strategies ranked as the most acceptable in each factor array can be interpreted as a norm within that viewpoint/stereotype. These represent injunctive norms (what one is expected to do in a given situation) rather than descriptive norms (what most people do in a given situation) [51].

Qualitative interpretation of the factor arrays involved considering the relevance and meaning of the most and least acceptable strategies as ranked on the Q-sort grid, and the distinguishing and consensus items revealing which strategies did and did not significantly differ across factors respectively. The interview data of participants whose Q-sorts defined the factor were also used to aid interpretation. The specific quotations selected are those which best represent the reasons given for the rankings by participants who defined each factor. As will be seen, at times participants referred to their own pain experiences and the experiences of the men and women in their lives as guiding their completion of the Q-sort task. Other times, participants' explanations referred specifically to existing knowledge of broader masculine and feminine stereotypes and sex differences in pain behaviours. As such, this knowledge was used to aid interpretation when appropriate.

Results

Study 1: Norms and stereotypes for women

Ten students (5 female, 5 male), 5 members of University staff (3 female, 2 male), and 15 members of the general community (8 female, 7 male) completed the Q-sort task following the instruction: "In this society, if a woman is in pain, how acceptable is it for her to use this behaviour to relieve her pain?". The median age of all participants was 29 years (*M*= 33.77 years; *SD*= 12.88; range 18-66). Student ages ranged from 20 to 32, with a mean

age of 25.80 (*SD = 3.99)*, staff ages ranged from 24 to 45 (*M* = 35.00, *SD* = 9.57), and community members were aged 18 to 61 (*M* = 38.67, *SD* = 15.34). Six participants reported that they were currently in pain (all female; 1 student, 2 staff, 3 general community), and five participants reported chronic pain (all female; 3 students, 2 general community). All participants were heterosexual, the majority were single (37%), lived in shared housing (23%), were White (93%), native English speakers (87%), born in the UK (87%), and held a Master's degree as their highest qualification (50%).

Following the quantitative analytic process outlined above, three factors had eigenvalues above 1 (14.37, 2.09, 2.01), suggesting three common viewpoints across the 30 participants. However, the defining sorts of the third factor all significantly loaded onto another factor, thus violating Brown's criteria [6]. The analysis was repeated, this time requesting and rotating two factors, which confirmed that the maximum solution supported by the data consisted of two factors, each of which were defined by at least two non-confounding Q-sorts. Despite rejecting confounding factors and factor loadings, the correlation between the two factors was 0.45, suggesting they may be alternative manifestations of a similar viewpoint (stereotype). The two-factor solution explains 55% of the variance and accounts for 12 of the 30 Q-sorts. Participant comments and existing theories and research are used to interpret each of the factor arrays to understand and contextualise their meaning.

Stereotype 1: Normative and effective pain relief for women (Figure 1)

Figure 1

This factor explained 48% of the variance in the Q-sorts in this study, and is defined by 7 Q-sorts (5 male, 2 female). This factor suggests that it is socially acceptable for a woman to use strategies perceived to be conventional, effective attempts to relieve pain based on common-sense judgements. Of importance is that this viewpoint is not based on evidence of the efficacy of the strategies, but the *perception* that they are effective, which should not be conflated. However, this factor is labelled 'normative and effective pain relief for women' as these are the factors which participants refer to in making their judgements, and so this label best reflects their viewpoints. The most acceptable strategies seem to be traditional, biomedical strategies which tackle the source of the pain, for example utilising healthcare services such as 'visit GP' (+6), 'ask a healthcare professional for advice' (+6), 'ring 111' (+5), 'physiotherapy' (+5) and 'take prescribed painkiller' (+5). The extent to which these are considered normative responses to pain is highlighted:

> *"It's, kind of what everybody seems to do, when they do it, when they have a problem with pain."* [Male 1]

The way the items in this factor were positioned suggests it is less acceptable to use pain relief strategies that are uncommon or considered ineffective. Many of the neutral items were everyday behaviours, not designed to directly target the pain, for example 'play with a pet' (0) and 'go for a walk' (0). Participant comments suggest there is some recognition that they could have a positive psychological effect, one might risk social disapproval for not taking pain seriously:

> *"Playing with a pet, or doing a hobby, erm I think that's sort of, just a bit more… it's not seen as it's really like taking the pain seriously and not doing enough compared to taking medication and stuff, and I feel like even though it might actually may help… um, if you told someone you were in pain and you were just, you know, doing something sociable, or doing a hobby to sort of try and help that, that wouldn't be seen as dealing with pain correctly."* [Female 1]

The composition of this factor also suggests it is unacceptable for women to use strategies considered not only ineffective, but also likely to cause further harm, such as 'hit/break something' (-6) or 'smoke a cigarette' (-5). Whilst these harmful behaviours could be interpreted by some as having masculine connotations, they were ranked based on their perceived inability to relieve pain:

> *"It's not really very useful, and might sort of, relieve a bit of frustration for a while, but that's about all."* [Male 1]

The exception to this interpretation is 'smoking cannabis', which was ranked at -6. Although the use of cannabis for pain relief is contentious [37], this evidence is overridden by the illegality of the behaviour, ultimately rendering it unacceptable for women:

> *"The only thing that's on there that is currently illegal, I think, is smoking cannabis, so, the social acceptability amongst many people is, um, is constrained by the illegality."* [Male 1]

This factor suggests that there are relatively ungendered pain relief norms; clear, unwritten rules and a commonly shared perception of what will and will not relieve pain. Participant comments suggest there are social perceptions of 'correct' and 'incorrect' ways of managing pain and that women should behave accordingly. Everyday behaviours not typically perceived as effective pain relievers were considered neither acceptable nor unacceptable, whereas potentially harmful and illegal behaviours were considered the least acceptable options for a woman in pain.

Stereotype 2: Conformity to traditional feminine norms (Figure 2)

Figure 2

This factor explained 7% of the variance in the Q-sorts in this study, and is defined by 5 Q-sorts (4 female, 1 male). This second stereotype for women advocates everyday

behaviours (e.g. ‘drinking water’ +6; ‘breathing slowly and deeply’ +5, ‘taking a warm bath or shower’ +5), as well as typically feminine behaviours (e.g. ‘asking a female friend or relative for advice’ +6; ‘hug someone’ +5). These behaviours can be categorised as ‘feminine’ based on existing theories and research suggesting women are traditionally viewed as sociable and nurturing [28; 50]. This factor is more ambiguous than the previous factor, however, as the everyday behaviours ranked as acceptable, such as drinking water and breathing slowly and deeply, would not necessarily be considered traditionally ‘feminine’. However, the reasons proposed by participants in their explanations suggest that the use of everyday behaviours is acceptable for women as they do not burden healthcare services or are less likely to be judged negatively. These could be considered feminine concerns, as they reflect traits previously associated with femininity, such as empathy, compassion, and benevolence [23; 53], as well as reflect issues implicated in women’s pain experiences, such as struggling for legitimacy [47].

Associations with femininity and the lack of burden to the UK’s National Health Service (NHS) were explicitly recognised as reasons for ranking the aforementioned strategies as the most acceptable:

> *“It’s things that you can do, that don’t actually bother the health service in any way, that don’t involve taking medication, and stuff, um and are coded more feminine, from a social point of view.”* [Female 2]

The neutral items were not considered unacceptable responses to pain by interviewees, but simply less acceptable than the ‘acceptable’ options. The strategies involving seeking professional help fell in the neutral area of the grid (e.g. ‘visit GP’ 0), and when asked *why* these were less acceptable than everyday behaviours, one participant said:

> *“You do it anyways, so it’s just like, it’s like secretly helping, so people don’t really realise it, so it’s acceptable, whereas like, if you go and see someone, some people can be like ‘oh, well you don’t need to see someone’.”* [Female 3]

This quotation in particular highlights the view that women can face adverse judgement when consulting a professional about their pain when others think they "don't need" to. This issue has been reported in previous studies by women when reflecting on their help seeking for pain [47]. If so, it is possible that asking other women for advice and drinking water is was seen as more acceptable ways of relieving pain, as was less of a burden on healthcare services. The desirability of avoiding this burden was highlighted by another participant:

"I think you'd get respect for that from British people, 'cause they like that stoicism, and they think, it's not costing anybody anything." [Male 2]

The items ranked as unacceptable strategies are similar to those in Stereotype 1, which may explain why the two are somewhat correlated (0.45). The interview data, however, reveal that participants holding this viewpoint are more concerned with gender norm conformity, whereas participants holding the previous viewpoint were more concerned with analgesic efficacy. From this second viewpoint, the least acceptable strategies for women seem to be those with typically 'masculine' connotations, such as 'hit/break something' (-5) or 'smoke a cigarette' (-5). These behaviours can be considered 'masculine' based on broader gender stereotypes that men are aggressive and more prone to risky health behaviours [10]. The gendered nature of this viewpoint is highlighted by the ranking of 'take Viagra' at -6. There are claims for the analgesic properties of Sildenafil [15], but this is not common knowledge, and far outweighed by Viagra's reputation as a male product used to treat erectile dysfunction:

"I think if you were a woman and you said you were taking Viagra, I think people would think you were either off your rocker… they would be completely taken aback by it, and they'd think that you were making a statement by saying it, and you probably weren't actually doing it, you were just having a bit of a laugh." [Male 2]

The composition of this factor, interpreted in relation to participant comments and existing theory and research, suggests that what is socially acceptable

for a woman depends on whether the strategy conforms to broader feminine norms and stereotypes, including not burdening others. This could include healthcare services, which may sometimes be viewed as less acceptable, partially to avoid any negative judgements. This supports the idea that some believe women should keep a 'stiff upper lip' when in pain [11]. The interview data reveal that the pressure to behave in this way may be motivated by the desire to avoid social disapproval, with women expected to behave in typically feminine ways when in pain, and to avoid the negative labels which are sometimes ascribed to women in pain [47]. Interestingly, when looking at the individuals who formed the current factor, it was mainly women who held this view. It is possible that men may be less aware of the ways in which women can be constrained by gender norms.

Female pain relief stereotypes: consensus and distinguishing statements

So far, our interpretation suggests that participants holding the viewpoint outlined in Stereotype 1- *normative and effective pain relief for women*- based their judgements about the social acceptability of each strategy on how effective it is generally perceived to be in relieving pain. Meanwhile, it seems as though participants who held the viewpoints reflected in Stereotype 2- *conformity to traditional feminine norms*- based their judgements on whether the strategy conformed to or violated feminine gender norms. The consensus and distinguishing statements reinforce this interpretation. Focusing on the 'extremes' (the strategies ranked -6, -5, +5, +6) reveals that across both viewpoints, 'breathe slowly and deeply' and 'take a warm bath/shower' are acceptable forms of pain relief for women, whilst 'swearing', 'rant', 'Botox', 'smoke a cigarette', 'hit/break something', and 'smoke cannabis' are not. However, the degree to which these judgements are made seems to vary depending on whether the individual making the judgement believes acceptability depends on gender norm conformity or perceived analgesic efficacy. Because of the overlap between what is

considered ‘masculine’ and what is considered ‘ineffective’ when it comes to pain relief, participants in this study appeared to rank these strategies in a similar way but for different reasons. This suggests that the factors represent two distinct viewpoints, rather than alternative manifestations of the same viewpoint.

Distinctions between the two viewpoints become more apparent when considering the distinguishing strategies, i.e. the strategies which were ranked significantly differently across the two stereotypes. For example, ‘taking Viagra’ was ranked as significantly more unacceptable in Stereotype 2 (*conformity to traditional feminine norms*) than in Stereotype 1 (*normative and effective pain relief for women*). ‘Taking Viagra’ is arguably the most ‘male’ behaviour in the Q-set, so the fact it is significantly more unacceptable in Stereotype 2 supports our interpretation of this viewpoint as being concerned with gender norm conformity. Despite not being a common way of relieving pain, it is ranked higher in Stereotype 1, presumably due to the perception that there are other strategies even *less* likely to relieve pain, and even *more* likely to cause harm. ‘Drink water’ is ranked significantly higher in Stereotype 2 than Stereotype 1, supporting the interpretation that Stereotype 2 is concerned with implementing everyday strategies which will not burden others, socially or economically. The fact that ‘ask female friend/relative for advice’ joins ‘drink water’ on the top spot, followed closely by ‘hug someone’, supports the idea that strategies which meet these criteria as well as being typically ‘feminine’ are also considered acceptable. This distinction is further evinced by the fact that ‘take prescribed painkiller’, ‘ring 111’, ‘physiotherapy’, ‘visit GP’, and ‘ask healthcare professional for advice’ are significantly more acceptable in Stereotype 1 than Stereotype 2.

Study 2: Norms and stereotypes for men

The aim of this study was akin to Study 1, this time focusing on socially acceptable and unacceptable pain relief strategies for men. Ten different students (5 male, 5 female), 5 members of academic staff (3 male, 2 female), and 15 members of the general community (8 male, 7 female) completed the Q-sort following the instruction: "In this society, if a man is in pain, how acceptable is it for him to use this behaviour to relieve his pain?". The median age in this study was 30 years (*M*= 35.43 years; *SD*= 15.43; range 18-78). Student ages ranged from 18 to 31, with a mean age of 25.00 (*SD* = 4.08), whilst staff ages ranged from 28 to 48, with a mean age of 34.40 (*SD* = 8.02). The mean age of the members of the general community was 42.73 (*SD* = 18.14), with a range of 18 to 78. Three participants reported being in pain (2 male, 1 female, all general community), whilst two participants reported chronic pain (1 male general community, 1 female student). The majority were heterosexual (90%), in a relationship (39%), lived with their partner (23%), were White (87%), native English speakers (77%), born in the UK (71%), and held a Master's degree as their highest qualification (32%).

Similar to Study 1, the analysis revealed three factors with eigenvalues above 1 (10.89, 4.93, 2.10), but again, the third sort violated the required criteria for retention. The analytic process was repeated, once again requesting and rotating two factors, which confirmed that the maximum solution supported by the data consisted of two factors, each of which were defined by at least two non-confounding Q-sorts. This time, the correlation between the two factors was 0.23, suggesting two separate viewpoints. The two-factor solution explains 53% of the variance, and accounts for 22 of the 30 Q-sorts.

Stereotype 1: Conformity to traditional masculine norms (Figure 3)

Figure 3

This factor explained 36% of the variance in the Q-sorts in this study, and is defined by 12 Q-sorts (6 female, 6 male). The most acceptable strategies are typically 'masculine' behaviours such as 'hoping the pain will go away' (+6) and 'ignoring the pain' (+6), followed by 'drinking a beer' (+5) and 'swearing' (+5). These behaviours can be interpreted as 'masculine' in light of existing research and theory that suggests men are thought to typically ignore pain [27] and to avoid seeking help [1], due to stoicism being a core component of hegemonic masculinity [9]. There is also evidence that drinking beer [13] and being aggressive [50] are considered characteristics of masculinity. 'Taking an over-the-counter painkiller' was also ranked highly (+5), followed closely by 'taking a prescribed painkiller' at +4. Interview data suggests that this is because, following a more stoic response, it is acceptable for men to use quick-fix strategies that will directly tackle the pain:

> *"I think for a lot of people, it's that manly scale of "well I don't need medicine first of all, I'll get through it", and secondly if they can't do it then they want the easiest solution which is quickly just pop down to the corner shop and buy some 50p paracetamol and ibuprofen and see if that gets the job done."* [Male 3]

Moving from acceptable towards neutral items, there are some everyday behaviours (e.g. 'do a hobby' 2), which interviewees reported were acceptable because they do not necessarily express any pain, or let anyone else know anything is wrong. The exceptions to this were strategies which are linked to sports injuries, such as 'apply ice' (4) or 'physiotherapy' (3). Although these may signal injury to others, this is compensated for by their sports connotations:

> *"It kind of carries the associations of being a professional athlete, which is something that's desirable for men to be, so, although you shouldn't be injured, if you are injured, at least you're behaving like a professional athlete."* [Male 4]

Amongst the neutral strategies were 'ask a healthcare professional for advice' (0) and 'visit GP' (-1), posing a contrast to physiotherapy, which was ranked as more acceptable. The difference in acceptability between physiotherapy (3) and visiting a GP (-1) is explained:

> *"I think people, or men, are more happy to be seeing a physiotherapist, um, and it comes up in context more that, "oh yeah, I'm seeing my physio next week…", whereas GP's I think are associated with all sorts of ailments, um, so you wouldn't want to admit going to your GP so readily, because, you could be going to your GP for anything other than maybe a sort of, physical injury."* [Male 4]

These words allude to the stigma surrounding mental illness, particularly for men, who may not wish to be seen as seeking help for anything other than a physical injury. The stigma men face in relation to mental illness is further emphasised by the fact that 'seek counselling' (-6) is one of the least acceptable strategies from this viewpoint:

> *"In terms of societal expectations around what men should and shouldn't do, counselling is probably something that is considered to be, um, too effeminate, and too based on the emotions."* [Female 4]

The association between femininity and psychological struggles is well-documented, making psychological conditions and associated behaviours less acceptable for men [34]. This association with femininity may also explain the other strategies ranked towards the unacceptable end, including 'aromatherapy' (-6), 'hug someone' (-5), and 'Botox' (-5). One participant considered aromatherapy the least acceptable because:

> *"I can imagine lots of comments about things like, "that's so gay[1]"… and then also just, kind of, disregard for anything, that is perceived to have no scientific basis, so it's not rational enough, or it's too, say, soft."* [Male 4]

When interpreting this factor, it seems as if it is socially acceptable for men to use typically 'masculine' strategies to relieve their pain. These strategies do not seem to allow

[1] 'In 2018 UK parlance 'gay' in this context is used as an adjective to describe a behaviour that is embarrassing' https://www.theguardian.com/education/2015/dec/21/the-gay-word-what-does-it-mean-when-young-people-use-it-negatively

pain to be revealed to others, with the exception of strategies with sporting connotations. Interviews suggest it may be acceptable for men to take painkillers as a 'quick fix' to their pain, but less acceptable to seek professional help. This factor was also characterised by the avoidance of femininity, with interviewees suggesting that typically 'feminine' strategies were considered too effeminate and "soft" for a man to use.

Stereotype 2: Normative and effective pain relief for men (Figure 4)

Figure 4

This factor explained 16% of the variance in the Q-sorts in this study, and is defined by 10 Q-sorts (5 female, 5 male). It shares many commonalities with '*normative and effective pain relief for women'* in the previous study, as it suggests it is also acceptable for men to use conventional pain relief strategies which are generally perceived to be effective. However, as the two viewpoints emerged in response to different instructions (women in Study 1, and men in Study 2), the factors have been labelled to recognise this distinction.

This factor suggests it is most acceptable for men to use strategies generally considered likely to relieve pain (e.g. 'visit GP' +6; 'ask a healthcare professional for advice' +5). Again, these seem to directly tackle the source of the pain (e.g. 'take prescribed painkiller' +6; 'take over-the-counter painkiller' +5; 'apply ice' +5). One participant highlighted that this acceptability was due to the perceived effectiveness of the strategy

> *"I think it's probably the most, kind of, sensible thing to do, erm, I think it's one of the most effective, and yeah I… I'd never double, I'd never think about something twice if someone said "oh yeah, I was in pain so I went to the GP", that just seems like the natural thing to do."* [Male 5]

Interestingly, there were some stipulations in the interviews that these acceptable strategies represented what people *should* be doing to relieve their pain, but recognised that not all men do these things:

> *"They're not seen as things, by society, that are unacceptable, they're seen as things that you should do, it's just men often don't, I think."* [Male 6]

As before, the neutral strategies in this factor seem to be everyday behaviours that may not directly tackle the pain, but are also unlikely to do any damage either, such as 'play with a pet' (0) or 'do something sociable' (0). It is possible that this is because these are not seen as common or effective responses to pain as, moving towards the unacceptable end of the factor array, the importance of perceived analgesic efficacy is again highlighted. For example, one participant recognised that 'drinking a beer' (-3) was a typically 'male' behaviour, but that the perceived lack of efficacy outweighs this in relation to pain relief:

> *"Drinking a beer is probably normal for a lot of men to do it, but I don't think it's, a medically acceptable way to relieve pain."* [Male 6]

The interpretation that it is unacceptable to use behaviours which may be seen as likely to cause further harm despite generally having masculine connotations is supported by the least acceptable items (e.g. 'hit/break something', -6; 'smoke a cigarette' -5). It seems that any gendered connotations of the strategies are overridden by the extent to which they are deemed ineffective in relieving pain, with one participant explaining why he ranked 'hit/break something' as unacceptable:

> *"It doesn't work, that's why I kind of put them there… I don't think it's exactly a pain relief, so I guess in some ways it's more of a… "well it's not going to work, so why would you do it"… kind of thought process."* [Male 5]

Similar to '*normative and effective pain relief for women',* this factor again suggests there is a shared understanding of which strategies are considered most effective in relieving pain, and these are the most socially acceptable options for a

man in pain. Interviewees acknowledged that men don't always *do* these things, but that it would be socially acceptable for them to do them. Typically masculine strategies were ranked as neutral or unacceptable if they were not seen as effective methods of relieving pain; this suggests that perceived analgesic efficacy outweighs gender norm conformity in this factor.

Whilst the proportions of men and women's views differed somewhat in Study 1, it is interesting that the same number of men and women exemplified each of the stereotypes in this study. This suggests that there may be more agreement amongst men and women about the social rules for men's pain behaviours compared to women's. This is further evinced by the fact that overall there were more defining participants for each of the factors in this study than in Study 1, suggesting more distinct and well-defined views of how men are expected to respond to pain.

Male pain relief stereotypes: consensus and distinguishing statements

Our interpretation of the two male stereotypes suggests that those holding the *conformity to traditional masculine norms* viewpoint based their judgements about the social acceptability of each strategy on whether it conformed to or violated masculine gender norms, whilst those holding the *normative and effective pain relief for men* viewpoint based their judgements on the perceived analgesic efficacy of the strategy. Once again, we compared the consensus and distinguishing statements to corroborate this interpretation.

Focusing on the consensus strategies which lie at the extremes (-6, -5, +5, +6), there seems to be agreement across both viewpoints that 'apply ice' and 'take over-the-counter painkiller' are acceptable forms of pain relief for men, but that 'Botox' and 'hug someone' are unacceptable. This appears to support our interpretation, as 'apply ice' could be ranked as acceptable in both viewpoints because it is seen as effective in directly tackling the pain,

but also has masculine connotations as it is typically associated with sports injuries. Similarly, taking over-the-counter painkillers is also seen as effective in directly tackling the pain, and meets the requirement of a quick-fix response favoured by men. Botox may be seen as unacceptable in both as it can be considered both effeminate and ineffective, as can hugging someone.

When examining the distinguishing strategies, ‘aromatherapy’, ‘seek counselling’, and ‘hypnosis’ are significantly less acceptable in *conformity to traditional masculine norms* (Stereotype 1) than *normative and effective pain relief for men* (Stereotype 2). This supports our interpretation, especially since the rejection of feminine behaviours is considered a key facet of hegemonic masculinity [9]. Aromatherapy could be considered feminine because of its sensual nature, whereas seeking counselling involves a degree of emotional expression that might be expected of women only. Hypnosis and other ‘alternative’ therapies may be considered feminine as they may be perceived as ‘soft’ strategies, and are often used more by women [17]. Considering the distinguishing, acceptable statements, ‘drink a beer’, ‘swearing’, ‘hope the pain will go away’, and ‘ignore the pain’ are all significantly more acceptable in Stereotype 1 than Stereotype 2. This supports the interpretation that Stereotype 1 favours typically ‘masculine’ behaviours regardless of their perceived analgesic efficacy. Moreover, other typically ‘masculine’ behaviours such as ‘hit/break something’, ‘smoke a cigarette’, and ‘rant’ are significantly less acceptable in Stereotype 2, further suggesting that Stereotype 2 is less concerned with men behaving in a typically masculine way, and more concerned with the degree to which each strategy will relieve pain. As further evidence, ‘ask a healthcare professional for advice’, ‘take a prescribed painkiller’, and ‘visit GP’ were significantly more acceptable in Stereotype 2 than Stereotype 1.

Discussion

In two studies exploring perceptions of the social acceptability of men and women using different methods of relieving pain, four narratives emerged; '*normative and effective pain relief for women', 'conformity to traditional feminine norms*', '*conformity to traditional masculine norms',* and '*normative and effective pain relief for men'*. The predominant stereotype for women is based on perceived analgesic efficacy, but for men is based on gender norm conformity. This supports the idea that masculinity poses more obvious barriers to pain expression and relief than femininity [1; 26]. However, the emergence of the secondary viewpoints show that being a woman is not without its constraints when choosing and using pain relief, nor are men entirely limited to gender norm conformity.

Two female pain relief stereotypes emerged: *normative and effective pain relief for women* (Stereotype 1) and *conformity to traditional feminine norms* (Stereotype 2). Stereotype 1 seems to be focused on the perceived analgesic efficacy of each strategy, grounded in unwritten, and relatively ungendered understandings of 'correct' and 'incorrect' ways of responding to and relieving pain. Stereotype 2 was interpreted as being more gendered, with pain relief strategies with 'masculine' connotations deemed unacceptable, and typically 'feminine' strategies considered more acceptable. From the interviews, there is a view that women in pain should not burden others; they should do something ordinary which may also have hidden analgesic properties to avoid any negative judgements. This includes typically 'feminine' behaviours, such as asking a female friend/relative for advice or hugging someone. Overall, this second stereotype appears to reflect common notions of femininity held in Western societies, such as being calm, respectful, and modest about sex, as well as expressing affection, and being sociable and relational [4; 40]. Despite generally being deemed a 'masculine' trait, this viewpoint also applauds female displays of stoicism towards pain, rather than utilising professional healthcare services. Others have found that use of such

services can be result in women feeling negatively judged [47]. If so, then avoiding such services might prevent such judgements, and reflect traditional characteristics of femininity such as being empathetic, compassionate, and benevolent [23; 53].

It is possible that this second stereotype developed in response to women frequently experiencing pain [18], causing them to need to develop quick, cheap, and easy to implement strategies to reduce the interference of pain in their lives and to avoid any negative judgements. The interviews revealed that expressing pain and publically declaring one's choice of pain relief may spark judgement from others, particularly in terms of the severity of the woman's pain and whether others deem her to be choosing the 'correct' response. At first glance, one could argue that femininity does not pose barriers to pain relief as feminine stereotypes encourage emotional expression and taking care of one's health [22; 31]. However, this viewpoint suggests that British women can be judged for expressing pain and their choice of pain relief, which could prevent them from effectively relieving their pain.

Two stereotypes also emerged for men: *conformity to traditional masculine norms* (Stereotype 1) and *normative and effective pain relief for men* (Stereotype 2*).* Stereotype 1 is characterised by notions of traditional masculinity in Western cultures; stoicism, strength, independence, and the rejection of femininity [4; 9; 39]. Many of the 'acceptable' pain relief strategies for men seem to covertly tackle the psychological experience of pain rather than potentially overt strategies to tackle the source of the pain. Observable pain relief strategies may signal pain to others, which could cause them to question his masculinity. These findings support the broader literature on gender norms related to coping with pain, which show that men tend to hide weakness in public [47]. Stereotype 2, on the other hand, suggests that it is acceptable for men to directly tackle the pain at its source and to use the forms of pain relief perceived as most effective, even if it reveals the pain to others.

Both stereotypes suggested that it is acceptable for men to take painkillers. Whilst this is surprising given the evidence that women are more likely to take medication, including analgesics, than men [56; 58], it supports the finding that men may prefer quick fix solutions to their problems [5]. There is also existing evidence that men do not utilise healthcare as much as women [1; 58], and Stereotype 1 supports the explanation that this is because it is not considered 'manly' [1]. However, the emergence of Stereotype 2 may indicate that perceptions are shifting, with one participant reflecting that:

> *"The people I know, would just kind of go with, oh the most effective option, rather than going for like the riskier… yeah I'm sure it's all changed quite a lot, I guess a lot, a lot of the time men would probably be more, kind of… kind of, yeah, just "I'll just deal with it myself, just ignore it, just carry on" and stuff, but… I think now it's more, kind of, "well if I'm in pain, I might as well get it sorted"… like I've said, like, as fast as possible, and as efficient as possible."* [Male 5]

It is possible that Stereotype 2 will become the predominant expectation for men over time. This seems plausible given that what it means to be a man is changing [35]. Indeed, the emergence of the *normative and effective pain relief* factors could suggest that to some, it is socially acceptable for both sexes to pursue what they consider to be effective pain relief without the constraints of gender norms and expectations. Although these viewpoints emerged in response to sex-specific instructions, it would be interesting for future research to explore how the general population ranks the effectiveness of these pain relief strategies generally, without reference to the sex of an individual or social acceptability. This is particularly pertinent given the potential discrepancy between which strategies are *perceived* as effective compared to evidence of actual efficacy. However, the more predominant emergence of the *conformity to traditional masculine norms* stereotype at this time suggests that for many this is still the overarching expectation in this society for men in pain.

Our results shed light on the social context of health for both men and women. As expected, there are rules and norms surrounding male use of pain relief, but there are also conditions for female pain relief. In terms of practice, different perceptions of acceptability may produce gender-related barriers, which may influence not only an individual's self-management of pain, but also their willingness to comply with and adhere to pain management advice. For example, a woman may resist visiting her GP for fear of burdening the NHS, whilst a man may refuse to attend counselling to treat the psychological elements of his pain lest it threaten his masculinity. The extent to which these actions may be maladaptive depends on the individual context and the type of pain being experienced [19]. Further research is required to clarify the extent to which gender-related barriers complicate compliance and treatment adherence, but these often latent and unquestioned biases certainly warrant consideration in healthcare contexts.

We recognise that this is just one interpretation of the data, based on a homogenous sample. Interpretation of Q-sorts requires us to interpret and make sense of the data, which we did based on the supporting interviews and background literature. Others may view these data in different ways. These participants might hold different views to those living in other regions, with different education levels, and ages. Although we found no evidence of an age effect in these studies, a possible generation effect might exist in the general population, with older and younger members of society holding different perspectives of gender norms and their enforcement [38]. Limited by the available respondents, it is unlikely that this is a complete set of the cultural stereotypes surrounding appropriate use of pain relief in British society, and future research should explore how pervasive these views are across different social groups, as well as comparing perceptions across cultures. However, it is in this society the Q-set was developed, and other, unknown pain relief strategies might need to be incorporated into the Q-set to fully capture the social acceptability of a range of pain relief

strategies for men and women in different cultures [12]. For now, there is initial evidence of the existence of these stereotypes in British society, and future research ought to test whether these stereotypes influence pain relief choices, and if so, whether perceptions can be manipulated to change the way men and women use pain relief

Our findings provide initial evidence for gendered and relatively ungendered beliefs about the social acceptability of a range of pain relief strategies. Whilst the 'normative and effective pain relief' stereotypes were similar for both men and women, the gendered viewpoints varied for men and women in line with broader notions of masculinity and femininity. This warrants consideration by practitioners implementing pain management programmes, as well as in guiding individual pain self-management, to maximise the chances of effectively relieving pain.

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Figures

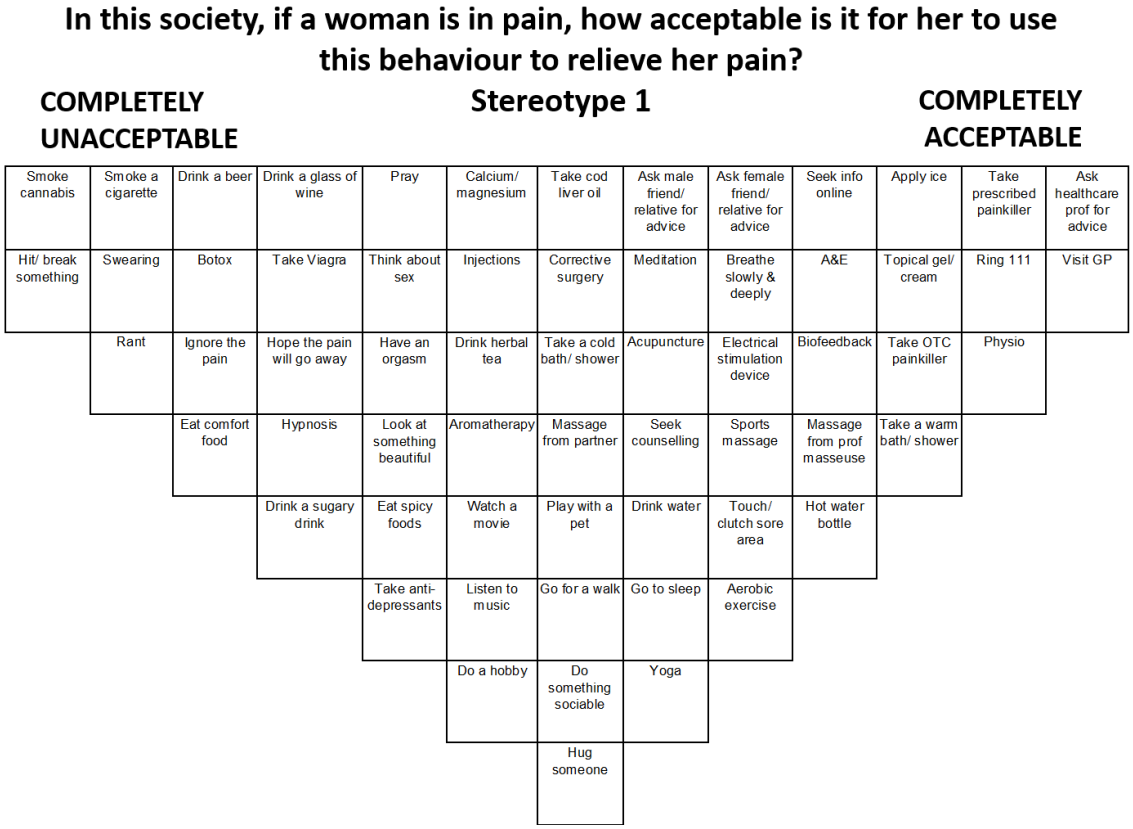

Figure 1. Factor array for female stereotype 1 (Normative and effective pain relief for women)

In this society, if a woman is in pain, how acceptable is it for her to use this behaviour to relieve her pain?

COMPLETELY UNACCEPTABLE **Stereotype 2** **COMPLETELY ACCEPTABLE**

Take Viagra	Hit/ break something	Swearing	Rant	Drink a beer	Drink a glass of wine	Aromatherapy	Take a cold bath/ shower	Look at something beautiful	Play with a pet	Do something sociable	Breathe slowly & deeply	Drink water
Smoke cannabis	Smoke a cigarette	Think about sex	Have an orgasm	Take cod liver oil	Drink a sugary drink	Calcium/ magnesium	Drink herbal tea	Eat comfort food	Watch a movie	Listen to music	Take a warm bath/ shower	Ask female friend/ relative for advice
	Botox	Injections	Hypnosis	Take anti-depressants	Hope the pain will go away	Eat spicy foods	Ignore the pain	Massage from partner	Go to sleep	Go for a walk	Hug someone	
		Corrective surgery	Electrical stimulation	Biofeedback	Pray	Meditation	Topical gel/ cream	Ask healthcare prof for advice	Seek info online	Do a hobby		
			Acupuncture	Ring 111	Massage from prof masseuse	Physio	Touch/ clutch sore area	Apply ice	Hot water bottle			
				Go to A&E	Sports massage	Seek counselling	Take OTC painkiller	Aerobic exercise				
					Take prescribed painkiller	Ask male friend/ relative for advice	Yoga					
						Visit GP						

Figure 2. Factor array for female stereotype 2 (Conformity to traditional feminine norms)

In this society, if a man is in pain, how acceptable is it for him to use this behaviour to relieve his pain?

COMPLETELY UNACCEPTABLE **Stereotype 1** **COMPLETELY ACCEPTABLE**

Aroma-therapy	Botox	Look at something beautiful	Pray	Smoke Cannabis	Play with a pet	Eat comfort food	Drink a sugary drink	Take a cold bath/ shower	Rant	Apply ice	Drink a beer	Hope the pain will go away
Seek counselling	Hug someone	Take anti-depressants	Corrective surgery	Massage from prof masseuse	Calcium/ magnesium	Eat spicy foods	Drink a glass of wine	Hit/ break something	Smoke a cigarette	Touch/ clutch sore area	Swearing	Ignore the pain
	Hypnosis	Yoga	Drink herbal tea	Hot water bottle	Take cod liver oil	Breathe slowly & deeply	Drink water	Injections	Physio	Take a prescribed painkiller	Take OTC painkiller	
		Meditation	Ask male friend/ relative for advice	Ask female friend/ relative for advice	Take Viagra	Have an orgasm	Think about sex	Do a hobby	Take a warm bath/ shower	Topical gel/ cream		
			Acupuncture	Ring 111	Visit GP	Ask healthcare prof for advice	Seek info online	Massage from partner	Sports massage			
				Biofeedback	Electrical stimulation device	Go to A&E	Listen to music	Go to sleep				
					Watch a movie	Aerobic exercise	Do something sociable					
						Go for a walk						

Figure 3. Factor array for male stereotype 1 (Conformity to traditional masculine norms)

In this society, if a man is in pain, how acceptable is it for him to use this behaviour to relieve his pain?

COMPLETELY UNACCEPTABLE **Stereotype 2** **COMPLETELY ACCEPTABLE**

Pray	Rant	Swearing	Drink a beer	Eat comfort food	Eat spicy foods	Hot water bottle	Massage from prof masseuse	Ask female friend/ relative for advice	Massage from partner	Physio	Apply ice	Take a prescribed painkiller
Hit/ break something	Botox	Take Viagra	Take anti-depressants	Drink water	Seek counselling	Calcium/ magnesium	Take cold bath/ shower	Ask male friend/ relative for advice	A&E	Ring 111	Ask healthcare prof for advice	Visit GP
	Smoke a cigarette	Think about sex	Smoke cannabis	Have an orgasm	Hope the pain will go away	Ignore the pain	Electrical stimulation	Biofeedback	Corrective surgery	Seek info online	Take OTC painkiller	
		Look at something beautiful	Drink a sugary drink	Aroma-therapy	Meditation	Play with a pet	Do a hobby	Go for a walk	Take a warm bath/ shower	Topical gel/ cream		
			Drink herbal tea	Hypnosis	Yoga	Acupuncture	Breathe slowly & deeply	Aerobic exercise	Sports massage			
				Hug someone	Take cod liver oil	Watch a movie	Injections	Go to sleep				
					Drink a glass of wine	Touch/ clutch sore area	Listen to music					
						Do something sociable						

Figure 4. Factor array for male stereotype 2 (Normative and effective pain relief for men)