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Research Paper

‘For pain, no shame’ and ‘My secret solace’: Accounts of over-the-counter codeine dependence using Q methodology

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ABSTRACT

Background: Dependence on over-the-counter (OTC) codeine is recognised internationally as a rising public health issue. The effectiveness of health intervention strategies may be influenced by the beliefs held by those who are dependent. Applying Q methodology, this study aimed to identify shared accounts of OTC codeine dependence.

Methods: Twenty-six participants from Tasmania, Australia, met eligibility criteria for the study as long-term OTC codeine users with a Severity of Dependence Score of five or higher. Forty-six opinion statements about OTC codeine dependence were sourced from the literature and online discussion forums. These were rank-ordered by participants from least to most agree and explanatory comments for the most strongly positioned statements were provided. By-person factor analysis was used to group participants who had sorted the statements similarly.

Results: Two distinct accounts of OTC codeine dependence were identified. Participants representing Factor One, ‘For pain, no shame’, were not ashamed of their OTC codeine use, believed access should not be restricted and regarded it as necessary for the relief of physical pain. In contrast, Factor Two, ‘My secret solace’, was characterized by feelings of guilt and shame. Participants in this group intentionally used codeine for its effects on mood; to help them relax and to relieve stress, rather than solely for pain relief. They did not consider regular use of codeine to be socially acceptable and hid their use from others.

Conclusion: The way in which OTC codeine use is viewed by those who are dependent is not uniform. Two distinct accounts were identified in this sample. Participants from each group varied in their beliefs about access, causality, reasons for use and feelings of legitimacy and shame. An understanding of these differences can be used to better target interventions and guide policy for the prevention and management of OTC codeine dependence.

Introduction

Codeine is a medication used for the treatment of mild to moderate pain and cough. Like all opioids, it has the potential to cause dependence (Nielsen, MacDonald & Johnson, 2018). In many countries, codeine is only accessible via doctor's prescription. However, it can be purchased at pharmacies over-the-counter (OTC) in countries such as Ireland, New Zealand, South Africa, the United Kingdom, Canada, and until recently, Australia (Nielsen et al., 2018).

There is international concern about the use of OTC codeine outside of medical guidelines (misuse) and its dependency (Cooper, 2011; Nielsen, Cameron & Pahoki, 2010; Tobin, Dobbin & McAvoy, 2013; Van Hout et al., 2014), with evidence of significant patient harm and burden to healthcare systems (Mill, Johnson, Cock, Monaghan & Hotham, 2018). There have been reports of people presenting to alcohol and drug facilities for treatment of OTC codeine dependence (Dada, Burnhams, Van Hout & Parry, 2015; Nielsen, Murnion et al., 2015, Nielsen, Roxburgh et al. 2015). Serious morbidity has also resulted from the excessive ingestion of co-formulated ingredients, notably ibuprofen-related gastric bleeding, gastric ulceration and renal tubular acidosis (Cock, Edmonds & Cock, 2018; McAvoy, Dobbin & Tobin, 2011; Robinson, Robinson, McCarthy & Cameron, 2010). Over-the-counter codeine-related fatalities have also been reported (Cock et al., 2018; Pilgrim, Dobbin & Drummer, 2013; Roxburgh et al., 2015).

Emerging awareness of OTC codeine misuse, dependence and associated harms has prompted countries to review their regulatory practices on OTC codeine availability (Norman, Bergin, Parry & Van Hout, 2016; Tay & Roberts, 2018; Tobin et al., 2013). This includes advertising, labelling, maximum unit and daily dosage, pack size,

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pharmacist interventions, scheduling and surveillance. For example, South Africa introduced a central database and real-time surveillance program to monitor national sales of OTC codeine in 2013 (Self Medication Manufacturers Association of South Africa, 2013). In that same year, a European Union funded collaborative was formed between Ireland, the United Kingdom and South Africa to research codeine misuse, design interventions and develop policy recommendations (Waterford Institute of Technology, 2013).

In Australia, the decision was made to restrict codeine availability to prescription-only (up-schedule) from February 2018. Prior to this time, codeine had been available OTC in formulations containing low unit doses of codeine (12 mg or less) in combination with other active ingredients and in packs containing no more than a five day supply (Australian Government Department of Health Therapeutic Goods Administration, 2016). Although OTC codeine dependence will no longer be possible in Australia, the outcome of this 'one size fits all' legislative response of across the board restriction is yet to be determined.

The effectiveness of drug policy and behaviour change interventions such as these is likely to be influenced by the beliefs held by those who are dependent. Indeed, beliefs are acknowledged as a key determinant of health behaviours (Conner & Norman, 2015). There are also many theories of behaviour change and intervention frameworks that emphasise the impact of beliefs on behaviour. Within the field of addiction, some of these, such as Protection Motivation Theory, Social Cognitive Theory, the Theory of Planned Behaviour (Webb, Sniehotta & Michie, 2010), and the Behaviour Change Wheel (Michie, Van Stralen & West, 2011), have been used to inform and design interventions.

The views of people dependent on OTC codeine have been explored in a small number of qualitative studies, including those by Cooper (2011), Nielsen et al. (2010), Van Hout (2015) and Van Hout, Horan, Santlal, Rich and Bergin (2015). The current study extends this approach to explore the shared accounts, including attributions and identity beliefs, of this distinct type of drug user using Q methodology.

Q methodology was chosen as it provides an evidenced approach to investigate shared viewpoints in addiction research. It has been successfully used to explore the beliefs of people who use cigarettes (Farrimond, Joffe & Stenner, 2010; Moss & Bould, 2009), e-cigarettes (Farrimond, 2017) and alcohol (Davoren, Cronin, Perry & O'Connor, 2016; Hill, Pilling & Foxcroft, 2018; Scott, Baker, Shucksmith & Kaner, 2014). Q methodology is an abductive approach used to generate an explanatory hypothesis that is the most plausible explanation of the data (Watts & Stenner, 2012).

Methods

Participants and setting

This study was conducted in the island state of Tasmania, Australia. Tasmania has a population of just over 500,000 people with around half of these living in rural and urban centres located in the North and North West of the state (Tasmanian Government Economic Analysis Unit, 2019). The state's major industries include: tourism, agriculture, mining and forestry (Tasmanian Government Economic Analysis Unit, 2018; Tasmanian Government Tourism Tasmania, 2019).

Participant recruitment was undertaken from October to December 2017 via paid Facebook advertising ($n = 78$), the free online classified advertisement website, Gumtree ($n = 17$), posters displayed at university and hospital sites in Launceston ($n = 0$), and by word of mouth ($n = 4$). Advertisements invited people who self-identified as past or current regular long-term users of OTC codeine living in North or North West Tasmania to share their views about OTC dependence: 'Do you regularly take non-prescription codeine (e.g., long-term daily use of Nurofen Plus, Panadeine, Panafen Plus, Dolased, Mersyndol? Or have you in the past? If you live in North or North West Tasmania, we are interested in your opinions!' Participants were directed to the study website, which contained further information and a link to an anonymous online survey. Participation was unpaid. Of the 99 completed responses, 26 met the inclusion criteria for data analysis. A Severity of Dependence Scale (SDS) (Gossop & Darke, 1995) score of five or above was the criterion used to indicate codeine dependence. Completed surveys were excluded where the participant's calculated score using the SDS was less than five ($n = 66$), listed residential postcode was outside of North or North West Tasmania ($n = 5$), or responses to survey questions were obviously nonsensical ($n = 2$). Ethical approval for the study was provided by the Social Sciences Human Research Ethics Committee of the University of Tasmania, Australia (Reference number H0015843).

Overview of Q methodology

Q methodology provides an approach to identify the shared views of participants using a combination of quantitative and qualitative techniques. It involves identification of existing opinion statements about the research topic via literature review and/or interviews with potential participants. A representative and manageable selection of these statements, the Q sample, is then presented to participants to sort according to their personal views. During this Q sort process, participants rank each statement relative to the others, typically from 'most disagree' to 'most agree' using a fixed normal distribution grid. The completed Q sorts, each one representative of the holistic viewpoint of an individual, then undergo by-person factor analysis to statistically identify factors representing people with shared response patterns. These shared accounts are then interpreted qualitatively, often with the support of participant comments about their ranking decisions (Brown, 1980; Watts & Stenner, 2012).

Q sample construction

A total of 842 statements, representing opinions about OTC codeine dependence held by people who misuse OTC codeine, were identified through a comprehensive review of scholarly and grey literature as well as online discussion forums. The statements were grouped thematically using the Capability, Opportunity, Motivation – Behaviour (COM-B) model (Michie et al., 2011) as a framework. The COM-B model was chosen as it provides 'an overarching model of behaviour' which 'can be usefully applied to understanding addiction' (West, 2013, p. 12). It was used to reduce analytic bias during theme identification, to base themes on existing theory and to minimise the likelihood of overlooking theoretically important statements. Representative statements were then selected, reducing the number to 111, for consideration by a Delphi panel of addiction experts. The expert panel achieved consensus on 46 statements which formed the final Q sample. A more detailed report of the Q sample construction for this study is available (Kirschbaum, Barnett & Cross, 2019).

The Q sort procedure

The Q sort was administered online using the Partnership Online Evaluation Tool with Q methodology (POETQ) application (Jeffares, Dickinson & Hughes, 2012). Participants first completed a number of socio-demographic and screening questions (Table 1), including measures of OTC codeine use and the five questions comprising the SDS (Gossop & Darke, 1995). They were then presented with the 46 Q sample statements which they were asked to sort into three groups – agree, disagree or neutral – reflecting their views of OTC codeine dependence. Responses were then further refined, with each statement ranked from 'least agree' (−5) to 'most agree' (+5) in a pyramid-shaped distribution grid. Finally, participants were asked to provide an explanation or comment about the most strongly positioned statements (those in the +5 and −5 positions), whether they felt the statements presented adequately represented their views, and to add any statements considered to be missing.

Table 1
Socio-demographic and screening survey questions.

What is your current age?
What is your gender?
What is your postcode?
Which best describes your current employment status?
What is the highest level of education that you have completed?
Are you a past or current regular user of over-the-counter codeine?
What type of over-the-counter codeine do you most often use (or did you most often use if you are a past user)?
On average, how many over-the-counter codeine tablets do you regularly take each day (or did you regularly take each day if you are a past user)?
How long have you been regularly taking over-the-counter codeine (or how long did you regularly take it if you are a past user)?
During the past year (or in the year prior to quitting if you are a past user), did you think your use of over-the-counter codeine was out of control?
During the past year (or in the year prior to quitting if you are a past user), did the prospect of missing a dose make you anxious or worried?
During the past year (or in the year prior to quitting if you are a past user), did you worry about your use of over-the-counter codeine?
During the past year (or in the year prior to quitting if you are a past user), did you wish you could stop?
During the past year (or in the year prior to quitting if you are a past user), how difficult did you find it to stop, or go without over-the-counter codeine?
Which statement best describes your current situation?
I have no intention to stop or reduce my regular codeine use
I am considering reducing or stopping using codeine sometime in the future
I am planning to reduce or stop using codeine in the next month
I am currently trying to reduce or stop using codeine
I am currently not using codeine

Statistical analysis and interpretation

Completed Q sorts were statistically analysed using principle components analysis followed by varimax rotation, using the program PQMethod version 2.35 (Schmolck, 2014). Factor interpretation involved careful examination of the statement rankings using the crib sheet method described by Watts and Stenner (2012). The relative positioning of each statement was compared both within and between the factors. Consideration was also given to distinguishing statements, which were rated significantly differently ($p < 0.01$) by the two factor groups, and consensus statements, where there was no statistical difference ($p > 0.01$) in statement ranking. The meaning of the positioning of statements was abductively derived, with post-sort participant comments used to confirm the interpretation.

Results

The majority of respondents were female, had completed an education level beyond secondary school and were employed. Approximately half reported their average daily OTC codeine usage to be less than six tablets and most participants had used OTC codeine for more than three years. The majority of the sample was comprised of past OTC codeine users. A summary of the characteristics of the 26 participants is shown in Table 2.

A two factor solution was accepted from statistical analysis of the 26 Q sorts. This was confirmed by the results of parallel analysis and the scree test, and also satisfied the Kaiser–Guttman and at least two significant loading sorts ($p<0.01$) per factor criteria and Humphrey's Rule (Watts & Stenner, 2012, pp. 105–110). A three factor solution was also considered, however the high correlation between factors one and three indicated that these factors likely represented a single factor (Watts & Stenner, 2012, p. 141). In addition, the three factor solution produced more confounding sorts, that is, sorts that loaded significantly onto more than one factor, than the two factor solution (3 and 1, respectively).

Factor loadings for the accepted two factor solution are shown in Table 3. Loadings of ± 0.38 were significant ($p<0.01$) (Brown, 1980). Q sorts significantly loading onto a single factor were considered to be factor defining sorts. The two factor solution explained 46% of the total study variance and 25 of the 26 sorts. Q sort 6 was confounded, that is, it loaded significantly onto both factors.

The defining sorts were merged to form a single 'factor-exemplifying Q sort' for each factor. This represented an estimate of the Q sort response of a participant who would load 100% onto the factor. This was calculated using the weighted average of the 12 defining sorts for Factor One and 13 defining sorts for Factor Two respectively, with

Table 2
Participant characteristics (n = 26).

		f (%)
Age	< 30	6(23)
	30–39	8(31)
	40–49	11(42)
	50–59	1(4)
Gender	Female	21(81)
	Male	5(19)
Employment status	Employed	18(69)
	Disabled-unable to work	0(0)
	Full-time student	0(0)
	Homemaker	5(19)
	Unemployed	3(12)
Highest education level obtained	Post-graduate qualification	1(4)
	Bachelor degree	4(15)
	Certificate or diploma	11(42)
	Year 12	5(19)
	Year 10 or below	5(19)
OTC codeine use status	Current user	10(38)
	Past user	16(62)
Average daily number of OTC codeine tablets taken	Less than 6	14(54)
	6–8	5(19)
	9–20	4(15)
	>20	3(12)
Duration of use	< 1 year	1(4)
	1–2 years	5(19)
	3–5 years	11(42)
	6–10 years	6(23)
	> 10 years	3(12)
SDS score	5–9	16(62)
	10–15	10(38)

Table 3
Factor loadings for the two factor solution.

Q sort	Factor 1	Factor 2	Q sort	Factor 1	Factor 2
1	0.01	0.62[x]	**14**	−0.21	0.60[x]
2	0.11	0.66[x]	**15**	0.56[x]	−0.12
3	−0.11	0.66[x]	**16**	0.07	0.49[x]
4	−0.26	0.74[x]	**17**	0.77[x]	0.11
5	0.39[x]	0.26	**18**	−0.07	0.76[x]
6	0.81	−0.41	**19**	0.10	0.74[x]
7	0.77[x]	−0.18	**20**	0.19	0.54[x]
8	0.70[x]	−0.08	**21**	−0.09	0.49[x]
9	−0.17	0.70[x]	**22**	0.06	0.64[x]
10	0.82[x]	0.06	**23**	0.76[x]	−0.05
11	0.78[x]	0.12	**24**	0.09	0.58[x]
12	0.65[x]	0.16	**25**	0.54[x]	−0.04
13	0.53[x]	0.15	**26**	0.67[x]	−0.30

[x] Factor defining sort.

Table 4
Q sample statements and their rankings for each factor.

No.	Statement	Factor One	Factor Two
1.	I am fully aware that I am consuming more OTC codeine than is recommended	**−1**	**5**
2.	I ignore the dangers of regularly using OTC codeine	**−1**	**4**
3.	When I first started taking OTC codeine, I didn't even know that you could become dependent on it	1	1
4.	Since OTC codeine is available without a prescription it must be safe	**−2**	**−3**
5.	It's not the codeine that is the problem in the tablets, it's the paracetamol and ibuprofen	**−2**	**−3**
6.	I ignore the directions on the OTC codeine box	**−3**	**3**
7.	I take OTC codeine out of habit, more than for any other reason	**−3**	**0**
8.	Recovery from drug dependence is a continuous process that never ends	3	2
9.	I think OTC codeine dependence is connected with having an addictive personality	0	1
10.	It's not a person's fault if they become dependent on OTC codeine	0	0
11.	A person dependent on OTC codeine needs professional help	3	2
12.	Treatment centres are only provided for addictions that are considered more serious than OTC codeine dependence	2	0
13.	There is nowhere that people dependent on OTC codeine can go for help	**1**	**−1**
14.	Health professionals are very dismissive when it comes to OTC codeine dependence	**1**	**−1**
15.	Health professionals have little knowledge about OTC codeine dependence	0	−1
16.	People dependent on OTC codeine should not have to receive treatment together with people dependent on other types of drugs	**0**	**−4**
17.	Medication is helpful in supporting recovery from OTC codeine dependence	**1**	**−2**
18.	Making codeine prescription-only denies patients the right to timely pain relief	**5**	**0**
19.	Recording OTC codeine buyers' names on a national database is a suitable solution to the problem of OTC codeine dependence	**4**	**−2**
20.	Taking OTC codeine on a regular basis is socially acceptable	**0**	**−3**
21.	I use OTC codeine to overcome personal problems	**−4**	**1**
22.	I use OTC codeine because circumstances force me to do so	**4**	**−4**
23.	OTC codeine can lead people to use even stronger drugs	1	1
24.	Daily use of OTC codeine is not necessarily harmful	**−2**	**−5**
25.	The dangers associated with the use of OTC codeine are exaggerated	**−2**	**−4**
26.	OTC codeine dependence isn't recognised as a serious problem	**2**	**−1**
27.	OTC codeine misuse is a big problem in the community	2	1
28.	Anyone can become dependent on OTC codeine	3	3
29.	You can't tell that a person is dependent on OTC codeine by looking at them	**3**	**1**
30.	People who take OTC codeine become dependent by accident	**2**	**0**
31.	There is little difference between an OTC codeine addict and an injecting drug addict	**−1**	**−3**
32.	My life on OTC codeine is better than life without it	**0**	**−2**
33.	To stop taking OTC codeine would be like losing part of myself	**−4**	**−2**
34.	I am a better person without OTC codeine	**1**	**3**
35.	Stopping OTC codeine would be like losing a best friend	**−5**	**−2**
36.	Being seen as a regular user of OTC codeine doesn't bother me	**2**	**−5**
37.	I use OTC codeine as a way to relax	**−5**	**4**
38.	I hide my use of OTC codeine from others	**−1**	**5**
39.	I feel ashamed of using OTC codeine	**−3**	**3**
40.	I always regret taking OTC codeine	−1	−1
41.	I give a lot of thought to what OTC codeine is doing to my health	**4**	**−1**
42.	I think less of myself because I use OTC codeine	**−4**	**0**
43.	I take OTC codeine to treat physical pain	**5**	**2**
44.	I take OTC codeine to cope with life	**−1**	**2**
45.	I have to take OTC codeine to feel normal	**−2**	**2**
46.	I use OTC codeine to help relieve stress	**−3**	**4**

Distinguishing statements with significance of $p < 0.01$ are indicated in bold.
Consensus statements, non-significant at $p > 0.01$, are shown in normal font.

higher loading sorts contributing more to the average than those that had a lower loading. The factor-exemplifying Q sort statement rankings for Factors One and Two are shown in Table 4, with distinguishing and consensus statements also indicated.

A summary of the characteristics of factor defining participants for each factor is provided in Table 5.

Interpretation

Relevant statement rankings are referred to in parentheses (statement number: ranking) and post-sort participant comments are included in quotation marks and italics to support and verify the interpretation.

Table 5
Characteristics of participants by factor.

	Factor One (n = 12)	Factor Two (n = 13)
Average age (years)	39 (range 24–51)	35 (range 19–48)
Gender (% female)	83%	77%
Employment status (% employed)	83%	62%
Highest education level obtained (% certificate or diploma or higher)	58%	62%
OTC codeine use status (% current users)	50%	23%
Average daily number of OTC codeine tablets taken	4.4 (range <1–8)	13.8 (range 2–35)
Duration of use (average)	5.3 years	5.0 years
Average SDS score	7.1 (range 5–10)	10.6 (range 6–15)

Factor One: For pain, no shame

Twelve participants loaded significantly onto Factor One, which accounted for 24% of the study variance. These respondents believed that codeine was used legitimately for the relief of physical pain (43: +5). They strongly denied using codeine for reasons other than for pain relief; they did not use it to relax (37: −5), to relieve stress (46: −3) or to overcome personal problems (21: −4). *'I don't take it for fun or pleasure… I have a chronic pain condition that I use it for responsibly'* (P7). Many described it as a necessity to enable them to function. *'I take (codeine) to relieve the pain and make me able to physically take part in life… to allow me to do what I have to do, like work'* (P7).

Respondents representing this account considered that they used codeine responsibly. They gave a lot of thought to the risks to their health (41: +4; 2: −1) and believed that they followed the directions on the box (6: −3), taking care not to exceed daily dosage recommendations. Despite their long-term use, they did not consider that they were taking more codeine than recommended (1: −1). *'I was paranoid of taking too much and overdosing or having liver failure so I stuck to the guidelines'* (p17). *'I would never ignore the directions'* (P12).

Factor One respondents did not see codeine as part of their own identity (33: −4) or liken it to a friend (35: −5). They rejected an addict identity: *'I feel like I'm treated like an addict for having to use stronger pain relief. It's not ok'* (P25). They considered people dependent on OTC codeine to be different to people dependent on drugs that are injected (31: −1) and OTC codeine was viewed as a less serious drug of dependence (12: +2).

As Factor One respondents felt they were using codeine responsibly and for a legitimate purpose, they were not ashamed of their use and did not feel the need to hide it from others (36: +2; 38: −1; 39: −3; 42: −4). *'I don't feel ashamed of trying to deal with pain so I can get on with my daily life'* (P23). However, these respondents did not necessarily consider all codeine use to be socially acceptable (20: 0).

Participants representing Factor One attributed their codeine use to external causes. They believed that circumstances outside of their control led them to use codeine (22: +4), including the condition causing the pain and an inadequacy of the health system to treat pain effectively. *'The health system should be ashamed, not me'* (P8). Codeine dependency was perceived as being accidental (30: +2). Recovery was thought to be a lifelong process (8: +3) requiring professional intervention (11: +3). Respondents indicated, however, that health professionals were dismissive (14: +1) and that there was a lack of specific treatment centres for codeine dependence (12: +2; 13: +1).

Changing codeine from OTC to prescription only (up-scheduling) was strongly opposed by Factor One respondents, who believed that patients have a right to obtain codeine OTC for the treatment of pain (18: +5) and that up-scheduling would make access unnecessarily time-consuming. Instead, recording sales on a national database was suggested to be a suitable solution to the problem of OTC codeine dependence (19: +4). *'If I can't get into my GP now, how will it be when there is no access to short course stronger pain relief from a pharmacist. Keep the reporting system. Bolster it and give pharmacists credit for knowing when someone is legitimate'* (P25). This vehement support for maintaining OTC access to codeine reinforces that Factor One respondents considered themselves to be responsible, legitimate users of OTC codeine for pain relief.

Factor Two: My secret solace

Thirteen participants loaded significantly onto Factor Two, which accounted for 22% of the study variance. This factor is characterized by an awareness of misuse and serious risks to health, along with feelings of intense shame. Respondents representing this factor were fully aware that they were using more OTC codeine than is recommended (1: +5). They intentionally utilised codeine for its positive effects on mood; to help them to relax (37: +4) and to relieve stress (46: +4), more than for its marketed indication of pain relief (43: +2). *'I would use OTC codeine to calm myself in stressful situations… because I enjoyed the relaxing feeling that came with it'* (P24). This *'sense of wellbeing'* (P4) provided by codeine was used to help respondents to cope with life (44: +2). *'It (codeine) puts a barrier between yourself and the world, a soft cushion to help you cope with the harsh reality of life'* (P1). OTC codeine was also used by this group to feel normal (45: +2); to counteract the effects of physical withdrawal. *'I couldn't function or even move without codeine in my system, withdrawal was a massive issue'* (P14).

Factor Two respondents acknowledged the seriousness of the risks and harms associated with OTC codeine use (4: −3; 24: −5; 25: −4). Despite this knowledge, the directions on the box, the dangers and impact on health were intentionally ignored to prioritise continued codeine use (2: +4; 6: +3; 41: −1). *'Once addiction took place I ignored the dangers of regular codeine use. The positive qualities outweighed physical dangers in my mind'* (P4).

Shame and secrecy featured in this account. Respondents felt ashamed of and attempted to hide their codeine use (36: −5; 38: +5; 39: +3). Dependence on OTC codeine was not considered to be socially acceptable (20: −3). *'It does bother me, I don't like people knowing'* (P9). These participants believed that they would be better people without codeine (32: −2; 34: +3).

Factor Two respondents attributed their codeine use to personal choice rather than external factors (22: −4). *'I didn't start taking it out of circumstances but because I liked the effect it had on me. There are always other pain medications I could have taken for headaches or toothaches etc. but didn't'* (P2). However, a transition from intentional to unintentional use was described: *'It was my choice, but now it's more of an addiction instead of a choice'* (P9), potentially explaining the group's neutral positioning of the statement, 'It's not a person's fault if they become dependent on OTC codeine' (10: 0).

Participants representing Factor Two felt even more strongly that people dependent on OTC codeine are different to those dependent on injected drugs (31: −3). This view was possibly due to perceived differences in product safety, and legality: *'Most injected drugs are both illegal and made using who knows what chemicals in backyard labs'* (P20). However, in contradiction, they also believed that treatment for OTC codeine dependence should be provided together with people dependent on other types of drugs (16: −4), as the underlying addictive process was considered to be the same: *'Very simple. An addict is an addict. Period'* (P14). Factor Two participants did not believe that up-scheduling would deny patients the right to timely pain relief (18: 0), or that a national database of sales was a suitable solution to the OTC codeine dependence problem (19: −2). In common with Factor One respondents, participants representing Factor Two viewed recovery from OTC codeine dependence as a lifelong process (8: +2) requiring professional intervention (11: +2).

Discussion

Two distinct accounts of OTC codeine dependence were identified in this sample. The two groups varied markedly in their beliefs about access, causality, reasons for use and feelings of legitimacy and shame. There were also commonalities, including a shared view that people dependent on OTC codeine are different to people dependent on injected drugs, and that recovery is a lifelong process requiring professional intervention. These two distinct accounts and their commonalities have implications for drug policy and practice.

The difference in accounts may be attributed to the reasons for OTC codeine use between the groups. Factor One respondents believed that their codeine use was legitimately for pain relief. They did not identify themselves as people who used codeine outside of the recommended guidelines, despite their long-term use. This suggests that an education intervention targeting psychological capability to increase their understanding of OTC codeine misuse and harms, may be beneficial (Michie et al., 2011). Raising awareness of alternative options for pain

relief may also enhance the capability of this group, who consider OTC codeine essential for the effective relief of physical pain.

In contrast, Factor Two respondents acknowledged that they were using more OTC codeine than recommended and for its effects on mood rather than solely for pain relief. This awareness of misuse and the associated harms suggests that these respondents may be more amenable to behaviour change than Factor One respondents. However, feelings of shame and the strong desire to hide their drug use are likely to be barriers to engagement with addiction treatment services (Radcliffe & Stevens, 2008). Strategies to reduce self, social and structural level stigma associated with drug addiction (Livingston, Milne, Fang & Amari, 2012) may therefore be beneficial.

Factor One respondents did not consider existing treatment centres to be suitable places to seek help for codeine dependence, as these facilities were perceived to be for people who used more serious drugs. This view is consistent with the findings of other studies (Cooper, 2013; Nielsen et al., 2010). Factor Two respondents, however, believed that people dependent on OTC codeine should receive treatment together with people dependent on other types of drugs. The availability of both existing treatment centres and alternative options designed specifically for OTC codeine dependence may improve engagement of those with views similar to Factor One. An alternative option may be the provision of accurate information and professional intervention via the internet, as existing literature indicates that many people dependent on OTC codeine utilise the internet for treatment support (Cooper, 2011; Kimergård et al., 2017).

Views about the regulation of codeine accessibility differed between the two groups. Factor One respondents felt strongly that access to codeine OTC was a right for legitimate pain patients, such as themselves, to ensure timely pain relief. These participants also supported a national database of sales as a suitable solution to the dependence problem, reinforcing their preference for maintaining OTC access. In contrast, Factor Two respondents did not feel as strongly about these issues, suggesting possible support for up-scheduling. Cooper's (2013) qualitative study of twenty-five people who had experienced OTC addiction also identified the existence of these two opposing beliefs; the majority of participants in his study were in favour of continued OTC availability, but there were a minority who supported up-scheduling. Similarly, McCoy, Bruno and Nielsen (2018) found that the predominant view amongst their sample of 354 OTC codeine consumers, regardless of their risk of dependence, was opposition to up-scheduling, with a smaller number in support of the change. They also found a significant association between reporting pain-based reasons for OTC codeine use and opposition to codeine up-scheduling, a finding which reflects the views of Factor One participants in the current study.

Commonalities between the factors also existed. To varying degrees, both groups viewed people dependent on OTC codeine as being different to those dependent on injected drugs, with codeine considered to be safer, less serious and legal. This perceived distinction reflects the findings of Nielsen et al. (2010) and Cooper (2011). Cooper proposed the concept of the 'respectable addict' identity (Cooper, 2011) to describe the three types of identity claims simultaneously held by OTC codeine dependent participants in his study; acceptance of an 'addict' identity, rejection of a 'stereotypical addict' identity and maintenance of a 'professional' identity. While aspects of all three 'respectable addict' identity components were present for Factor Two participants, those who loaded to Factor One did not identify as 'addicts', suggesting that the model is not exhaustive. It is possible that the identity construction of Factor One participants is based on denial rather than self-identification (Pickard, 2016), focussing on the use of codeine for 'real pain' as opposed to 'pleasure', the 'deserving pain patient' rather than the 'undeserving addict' (Bell & Salmon, 2009) and the 'drug user' not the 'abuser' (Rodner, 2005).

Both groups of participants believed that recovery requires professional intervention and is a lifelong process. However, the two groups are likely to respond better to different treatment approaches due to their distinct attribution beliefs. Factor One respondents, with their external locus of causality, are likely to resonate with an approach focussing on compliance with expert instruction. Factor Two respondents, who have an internal locus of causality, are likely to respond best when they are involved in decision making about therapy (Wallston & Wallston, 1978).

The SDS was used to screen for dependence in this study as it is short, easy to administer and has been widely used in addiction research. An SDS score of ≥ 5 was used as the indicator of OTC codeine dependence, based on the extensive precedence of others (Kimergård et al., 2017; Kinnaird, Kimergård, Jennings, Drummond & Deluca, 2019; Nielsen, Cameron & Lee, 2011; Van Hout, 2015; Van Hout et al., 2015, 2017). However, the specific SDS cutoff indicative of a clinical diagnosis of OTC codeine dependence according to the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013) has not yet been validated. A limitation of this study is that participants were not screened for additional indicators of dependence to further justify the dependence classification, such as withdrawal on cessation, tolerance or negative consequences.

Administration of the SDS retrospectively beyond the preceding twelve month period has not been validated, although there is precedence for its use (Copeland, 1998; Kedzior, Badcock & Martin-Iverson, 2006; Morasco et al., 2010; Strang et al., 2006). The length of time since last codeine use was not assessed in this study and this, as well as the possibility of recall bias, are potential study limitations. However, due to the salience of the drug use experience, the effect of recall bias is likely to be minimized (Bradburn, Sudman & Wansink, 2004, pp. 64–65). Indeed, past users in our study were no more likely to report being dependent (SDS ≥ 5) than current users ($p > 0.05$).

Factor One represented respondents with lower SDS scores who reported taking lower average daily dosages of codeine than Factor Two respondents. This could potentially suggest that Factor One respondents were not codeine dependent or that an SDS score of greater than or equal to five alone may not have been a suitable dependence indicator in the absence of other corroborative measures of dependency. However, there is literature to support the existence of differing typologies of people dependent on codeine, including those that never exceed the recommended dose (Cooper, 2013; Nielsen, Cameron & Pahoki, 2013; Van Hout et al., 2015).

There are other limitations associated with this study. As with all Q studies, the findings represent the views of the sampled participant group at a specific point in time, which may not necessarily be exhaustive or enduring. Participants were required to complete the Q sort online, therefore the views of codeine-dependent Tasmanians without internet access may not have been represented. In addition, data collection just prior to the up-scheduling of codeine in Australia may have resulted in an over-representation of those that felt strongly about this policy decision. Participants self-reported their codeine usage and were at differing stages in their trajectory of dependence and behavioural change, which could arguably have affected their views, and memory recall bias in the responses of past users. However, both factors were represented by a mix of both past and current codeine users, suggesting that this was not a defining feature.

Measures were taken to ensure the comprehensiveness and representativeness of the Q sample, with Q sample statements validated by addiction experts during Q sample construction (Kirschbaum et al., 2019). Participants were also asked at the end of the Q sort whether they thought any statements were missing and the majority did not. Two participants representing Factor One commented there were not many statements reflecting legitimate use: *'Not much reference to people using responsibly for effective pain relief'* (P12) and *'You had just one choice for legitimate use, not everyone abuses it'* (P9). Despite this possible limitation, the view of legitimate codeine use was able to be expressed, as evidenced by the results of Factor One.

Conclusion

The two distinct accounts of OTC codeine dependence identified in this sample were primarily distinguished by their divergent views about access, causality, reasons for use and feelings of legitimacy and shame. Commonalities also existed, with both accounts sharing the belief that people dependent on OTC codeine are different to those dependent on injected drugs and that recovery is a lifelong process requiring professional intervention. Further research is needed to explore the strength and prevalence of views among other population groups, to ascertain whether other accounts exist, and to examine differences in the effectiveness of interventions between the groups. The findings suggest that the beliefs of those who are dependent are not universal, indicating that a range of strategies may be required to optimally tailor interventions and guide policy for the prevention and management of dependence on OTC codeine.

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Declaration of Competing Interest

None.

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References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th edition). Arlington: American Psychiatric Association.

Australian Government Department of Health Therapeutic Goods Administration. (2016). Scheduling delegate's final decision: Codeine, December 2016, Canberra, Australia. Retrieved 28th April 2019 from https://www.tga.gov.au/scheduling-decision-final/scheduling-delegates-final-decision-codeine-december-2016.

Bell, K., & Salmon, A. (2009). Pain, physical dependence and pseudoaddiction: Redefining addiction for 'nice' people? *International Journal of Drug Policy, 20*(2), 170–178.

Bradburn, N. M., Sudman, S., & Wansink, B. (2004). *Asking questions: The definitive guide to questionnaire design- for market research, political polls, and social and health questionnaires.* San Fransisco: John Wiley & Sons.

Brown, S. R. (1980). *Political subjectivity: Applications of Q methodology in political science.* New Haven, CT: Yale University Press.

Cock, V., Edmonds, C., & Cock, C. (2018). Complications related to chronic suprather-apeutic use of codeine containing compound analgesics in a cohort of patients presenting for codeine withdrawal. *Drug and Alcohol Review, 37*(6), 731–737.

Conner, M., & Norman, P. (2015). Predicting and changing health behaviour: A social cognition approach. In M. Conner, & P. Norman (Eds.). *Predicting and changing health behaviours: Research and practice with social cognition models* (pp. 1–29). (3 ed.). Maidenhead: Open University Press.

Cooper, R. J. (2011). *Respectable addiction: A qualitative study of over-the-counter medicine abuse in the UK.* London, England: Pharmacy Practice Research Trust.

Cooper, R. J. (2013). 'I can't be an addict. I am.' over-the-counter medicine abuse: A qualitative study. *BMJ open, 3*, E002913. https://doi.org/10.1136/bmjopen-2013-002913.

Copeland, J. (1998). A qualitative study of self-managed change in substance dependence among women. *Contemporary Drug Problems, 25*(2), 321–345.

Dada, S., Burnhams, N. H., Van Hout, M., & Parry, C. (2015). Codeine misuse and dependence in South Africa – Learning from substance abuse treatment admissions. *South African Medical Journal, 105*(9), 776–779.

Davoren, M. P., Cronin, M., Perry, I. J., & O'Connor, K. (2016). Alcohol consumption among university students: A typology of consumption to aid the tailoring of effective public health policy. *BMJ open, 6*, E011815. https://doi.org/10.1136/bmjopen-2016-011815.

Farrimond, H. (2017). A typology of vaping: Identifying differing beliefs, motivations for use, identity and political interest amongst e-cigarette users. *International Journal of Drug Policy, 48*, 81–90.

Farrimond, H., Joffe, H., & Stenner, P. (2010). A Q-methodological study of smoking identities. *Psychology & Health, 25*(8), 979–998. https://doi.org/10.1080/08870440903151080.

Gossop, M., & Darke, S. (1995). The severity of dependence scale (SDS): Psychometric properties of the SDS in English and Australian samples of heroin, cocaine and amphetamine users. *Addiction (Abingdon, England), 90*(5), 607–614.

Hill, K. M., Pilling, M., & Foxcroft, D. R. (2018). Alcohol-related affordances and group subjectivities: A Q-methodology study. *Drugs: Education, Prevention and Policy, 25*(5), 376–385.

Jeffares, S., Dickinson, H., & Hughes, G. (2012). iPOETQ (version 1.1), Birmingham, England. Retrieved 24th March 2019 fromhttp://poetqblog.blogspot.co.uk/.

Kedzior, K. K., Badcock, J. C., & Martin-Iverson, M. T. (2006). Validity and consistency of self-reports regarding substance use in general research volunteers, including regular cannabis users and schizophrenia patients. *Substance Use & Misuse, 41*(5), 743–750.

Kimergård, A., Foley, M., Davey, Z., Dunne, J., Drummond, C., & Deluca, P. (2017). Codeine use, dependence and help-seeking behaviour in the UK and Ireland: An online cross-sectional survey. *QJM: An International Journal of Medicine, 110*(9), 559–564.

Kinnaird, E., Kimergård, A., Jennings, S., Drummond, C., & Deluca, P. (2019). From pain treatment to opioid dependence: A qualitative study of the environmental influence on codeine use in UK adults. *BMJ open, 9*(4), e025331.

Kirschbaum, M., Barnett, T., & Cross, M. (2019). Q sample construction: A novel approach incorporating a Delphi technique to explore opinions about codeine dependence. *BMC Medical Research Methodology, 19*, 101. https://doi.org/10.1186/s12874-019-0741-9.

Livingston, J. D., Milne, T., Fang, M. L., & Amari, E. (2012). The effectiveness of interventions for reducing stigma related to substance use disorders: A systematic review. *Addiction (Abingdon, England), 107*(1), 39–50.

McAvoy, B. R., Dobbin, M. D. H., & Tobin, C. L. (2011). Over-the-counter codeine analgesic misuse and harm: Characteristics of cases in Australia and New Zealand. *The New Zealand Medical Journal, 124*(1346), 29.

McCoy, J., Bruno, R., & Nielsen, S. (2018). Attitudes in Australia on the upscheduling of over-the-counter codeine to a prescription-only medication. *Drug and Alcohol Review, 37*(2), 257–261.

Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science, 6*, 42.

Mill, D., Johnson, J. L., Cock, V., Monaghan, E., & Hotham, E. D. (2018). Counting the cost of over-the-counter codeine containing analgesic misuse: A retrospective review of hospital admissions over a 5 year period. *Drug and Alcohol Review, 37*(2), 247–256.

Morasco, B. J., Huckans, M., Loftis, J. M., Woodhouse, J., Seelye, A., Turk, D. C., et al. (2010). Predictors of pain intensity and pain functioning in patients with the hepatitis C virus. *General Hospital Psychiatry, 32*(4), 413–418.

Moss, T. P., & Bould, E. (2009). A Q-methodological investigation into the meanings of cigarette consumption. *Journal of Health Psychology, 14*(1), 36–42 doi:10.1177/2F1359105308097941.

Nielsen, S., Cameron, J., & Lee, N. (2011). Characteristics of a nontreatment-seeking sample of over-the-counter codeine users: Implications for intervention and prevention. *Journal of Opioid Management, 7*(5), 363–370.

Nielsen, S., Cameron, J., & Pahoki, S. (2010). Final report 2010. Over the counter codeine dependence. Melbourne: Turning Point Alcohol and Drug Centre.

Nielsen, S., Cameron, J., & Pahoki, S. (2013). Opportunities and challenges: Over-the-counter codeine supply from the codeine consumer's perspective. *The International Journal Of Pharmacy Practice, 21*(3), 161–168.

Nielsen, S., MacDonald, T., & Johnson, J. L. (2018). Identifying and treating codeine dependence: A systematic review. *The Medical Journal of Australia, 208*(10), 451–461.

Nielsen, S., Murnion, B., Dunlop, A., Degenhardt, L., Demirkol, A., Muhleisen, P., et al. (2015). Comparing treatment-seeking codeine users and strong opioid users: Findings from a novel case series. *Drug & Alcohol Review, 34*(3), 304–311.

Nielsen, S., Roxburgh, A., Bruno, R., Lintzeris, N., Jefferson, A., & Degenhardt, L. (2015). Changes in non-opioid substitution treatment episodes for pharmaceutical opioids and heroin from 2002 to 2011. *Drug and Alcohol Dependence, 149*, 212–219.

Norman, I. J., Bergin, M., Parry, C. D., & Van Hout, M. C. (2016). Best practices and innovations for managing codeine misuse and dependence. *Journal of Pharmacy & Pharmaceutical Sciences, 19*(3), 367–381.

Pickard, H. (2016). Denial in addiction. *Mind & Language, 31*(3), 277–299.

Pilgrim, J. L., Dobbin, M., & Drummer, O. H. (2013). Fatal misuse of codeine-ibuprofen analgesics in Victoria, Australia. *The Medical Journal of Australia, 199*(5), 329–331.

Radcliffe, P., & Stevens, A. (2008). Are drug treatment services only for 'thieving junkie scumbags'? Drug users and the management of stigmatised identities. *Social Science & Medicine, 67*(7), 1065–1073.

Robinson, G. M., Robinson, S., McCarthy, P., & Cameron, C. (2010). Misuse of over-the-counter codeine-containing analgesics: Dependence and other adverse effects. *The New Zealand Medical Journal, 123*(1317), 59–64.

Rodner, S. (2005). "I am not a drug abuser, I am a drug user": A discourse analysis of 44 drug users' construction of identity. *Addiction Research and Theory, 13*(4), 333–346.

Roxburgh, A., Hall, W. D., Burns, L., Nielsen, S., Degenhardt, L., Pilgrim, J., et al. (2015). Trends and characteristics of accidental and intentional codeine overdose deaths in Australia. *Medical Journal of Australia, 203*(7), 299. https://doi.org/10.5694/mja15.00183.

Schmolck, P. (2014). PQ Method (version 2.35). Munich, Germany. Retrieved 24th March 2019 fromhttp://schmolck.userweb.mwn.de/qmethod/.

Scott, S., Baker, R., Shucksmith, J., & Kaner, E. (2014). Autonomy, special offers and routines: A Q methodological study of industry-driven marketing influences on young people's drinking behaviour. *Addiction (Abingdon, England), 109*(11), 1833–1844.

Self Medication Manufacturers Association of South Africa. (2013). Codeine care initiative, Benmore, South Africa. Retrieved 8th May 2019 fromhttp://selfcare247.co.za/247-codeine-care-initiative/.

Strang, J., Gossop, M., Heuston, J., Green, J., Whiteley, C., & Maden, A. (2006). Persistence of drug use during imprisonment: Relationship of drug type, recency of

use and severity of dependence to use of heroin, cocaine and amphetamine in prison. *Addiction (Abingdon, England), 101*(8), 1125–1132.
Tasmanian Government Economic Analysis Unit. (2018). State accounts (ABS Cat No 5220), Hobart, Australia. Retrieved 19th May 2019 fromhttps://www.treasury.tas.gov.au/Documents/State-Accounts.pdf.
Tasmanian Government Economic Analysis Unit. (2019). Regional population growth (ABS Cat No 3218.0), Hobart, Australia. Retrieved 19th May 2019 fromhttps://www.treasury.tas.gov.au/Documents/Regional-Population-Growth.pdf.
Tasmanian Government Tourism Tasmania. (2019). Tourism fast facts, Hobart, Australia. Retrieved 19th May 2019 fromhttps://www.tourismtasmania.com.au/_data/assets/pdf_file/0007/77614/2018-Q4-Tourism-Fast-Facts-compiled-March-20192.PDF.
Tay, E. M., & Roberts, D. M. (2018). A spotlight on the role, use and availability of codeine and the implications faced. *Expert Review of Clinical Pharmacology, 11*(11), 1057–1059. https://doi.org/10.1080/17512433.2018.1537122.
Tobin, C. L., Dobbin, M., & McAvoy, B. (2013). Regulatory responses to over-the-counter codeine analgesic misuse in Australia, New Zealand and the United Kingdom. *Australian and New Zealand Journal of Public Health, 37*(5), 483–488.
Van Hout, M. C. (2015). "Codeine is my helper": Misuse of and dependence on codeine-containing medicines in South Africa. *Qualitative Health Research, 27*(3), 341–350.
Van Hout, M.C., Bergin, M., Foley, M., Rich, E., Rapca, A.I., Harris, R. et al. (2014). A scoping review of codeine use, misuse and dependence, final report. Brussels: CODEMISUSED Project European Commission 7th Framework Programme.
Van Hout, M. C., Horan, A., Santlal, K., Rich, E., & Bergin, M. (2015). 'Codeine is my companion': Misuse and dependence on codeine containing medicines in Ireland. *Irish Journal of Psychological Medicine, 35*(4), 275–288.
Van Hout, M. C., Norman, I., Rich, E., & Bergin, M. (2017). Experiences of codeine use, misuse and dependence: Application of liese and Franz's cognitive developmental model of substance abuse. *Behavioural and Cognitive Psychotherapy, 45*(3), 238–252.
Wallston, B. S., & Wallston, K. A. (1978). Locus of control and health: A review of the literature. *Health Education Monographs, 6*(1), 107–117.
Waterford Institute of Technology. (2013). CODEMISUSED Codeine use misuse dependence, Waterford City, Ireland. Retrieved 8th May 2019 fromhttp://www.codemisused.org.
Watts, S., & Stenner, P. (2012). *Doing Q methodological research: Theory, method and interpretation.* London: Sage publications.
Webb, T. L., Sniehotta, F. F., & Michie, S. (2010). Using theories of behaviour change to inform interventions for addictive behaviours. *Addiction (Abingdon, England), 105*(11), 1879–1892.
West, R. (2013). *Models of addiction. EMCDDA insight series No14.* Luxembourg: European Monitoring Centre for Drugs and Drug Addiction.