

ARTICLE

Understanding the experience of rumination and worry: A descriptive qualitative survey study

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Abstract

Objectives: Rumination and worry have been implicated in the onset, severity, maintenance and relapse risk of depression and anxiety disorders. Despite this, little research has examined individuals' personal experiences of these processes. This study investigates how individuals experience these processes, which will provide insight into these common features of mental disorders and inform the development of an online intervention specifically targeting rumination and worry.

Design: An online qualitative survey was conducted to gain insight into people's personal definitions, experiences with and understandings of rumination and worry.

Methods: Participants answered open- and close-ended questions about their personal understanding of rumination and worry, typical thought content, triggers, frequency, duration and coping strategies. Participant responses were coded into themes. Participants also completed self-report questionnaires of depression, anxiety and stress and repetitive negative thinking.

Results: Two hundred and seven adults completed the online survey (76% female; mean age = 28.2 years, range = 17–71), 51% of whom reported previously experiencing depression and anxiety. All participants were familiar with the concept of worry, whereas 28% of participants indicated they

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had never heard of rumination. Participants reported most commonly ruminating and/or worrying about personal relationships, past mistakes, negative experiences and conversations/social interactions. The most commonly reported triggers for rumination and/or worry were social situations/interpersonal interactions (25%) and negative events/experiences (24%). Distraction was the most common coping strategy (48%); however, 21% reported being unable to stop themselves from ruminating and/or worrying.

Conclusions: The results provide a unique insight into the personal experiences and understandings of rumination and worry of potential end users of treatment programs targeting these processes.

KEYWORDS

qualitative survey, rumination, worry

INTRODUCTION

Repetitive negative thinking (RNT) refers to the tendency to repeatedly dwell on negative situations, feelings and events (Ehring & Watkins, 2008). It has been identified as a core underlying cognitive mechanism in major depressive disorder and a number of anxiety disorders (Ehring et al., 2011; Ehring & Watkins, 2008). Rumination and worry are arguably the two most studied variants of RNT. Rumination refers to a passive, repetitive and evaluative focus on the causes, meanings and implications of depressive symptoms (Nolen-Hoeksema, 1998) whilst worry has been conceptualized as a 'chain' of repetitive and uncontrollable thoughts and images focused on possible future negative outcomes and the consequences of these (Borkovec, 1994). Rumination and worry have each been shown to be key contributing factors in the onset, severity, maintenance and relapse risk of depression and anxiety disorders (Segerstrom et al., 2000; Watkins & Roberts, 2020), making them important treatment targets. Independent of clinical disorders, both processes have also been associated with increased negative affect and negative cognition, difficulties concentrating and paying attention, and impaired problem-solving (e.g. Lyubomirsky & Tkach, 2004; Nolen-Hoeksema, 2004).

Whilst cognitive behaviour therapy (CBT) has long been considered the gold-standard psychological treatment for depression and anxiety disorders (Cuijpers et al., 2008), preliminary findings suggest CBT may not completely resolve RNT (e.g. Jones et al., 2008; Schmaling et al., 2002). This may partially explain why a significant proportion of people do not respond to, or relapse, following standard CBT treatments, and why many continue to experience high levels of residual symptoms, particularly rumination (Dimidjian et al., 2006; Hofmann et al., 2012). Accordingly, clinical researchers have increasingly focused on developing and evaluating treatments specifically targeting these RNT processes in order to better prevent and reduce psychopathology, with promising findings to date (e.g. Teismann et al., 2014; Watkins et al., 2007; Watkins et al., 2011). Also promising are initial outcomes of trials evaluating the efficacy of internet-delivered interventions that simultaneously target both rumination and worry. The results indicate the effectiveness of these interventions in reducing participants' levels of rumination and worry, and symptoms of depression and anxiety and suggest that the internet can be an effective mode of delivery for these targeted interventions

Practitioner points

- Participants provided a variety of definitions of rumination and worry, suggesting it is important for clinicians to enquire about an individuals' personal understanding of these terms during assessment and treatment.
- Our findings suggest that individuals are more familiar with the concept of worry than rumination, highlighting the importance of incorporating psychoeducation into treatment.
- Participants often referenced positive and negative metacognitive beliefs about rumination and worry, suggesting there may be value in helping participants to identify, evaluate, and modify these during treatment.
- Treatment should incorporate strategies to address RNT late at night/in bed, as this was a high-risk time reported by the majority of participants.

(Cook et al., 2019; Topper et al., 2017). Delivering treatment via the internet is recognized to overcome a number of the barriers to accessing face-to-face treatment, with equivalent effectiveness (Andrews et al., 2010; Andrews et al., 2018).

However, these existing internet-delivered interventions have so far only been evaluated in adolescents and young adults (under 25) without clinically significant depressive and/or generalized anxiety symptoms and have been focused on preventing rather than treating these disorders. Therefore, the potential treatment benefits of an internet-delivered intervention targeting both rumination and worry in adults, including those currently experiencing depression and/or anxiety, remain unknown. We thus sought to develop an internet-delivered program specifically targeting rumination and worry and evaluate its acceptability and effectiveness in reducing rumination and worry in Australian adults. The intervention program will be open to individuals regardless of whether or not they meet diagnostic criteria for depression and/or anxiety. As a key first step, we conducted the current study to gather qualitative data about these processes in this population—the findings of which were used to inform the development of this online treatment program.

The typical approach adopted to study RNT is to ask participants to answer predefined questions on standardized self-report questionnaires developed by researchers and clinicians. This approach has provided important information about the frequency, severity and consequences of RNT and the factors that are associated with it, particularly in clinical samples (see McEvoy et al., 2014; Lyubomirsky & Tkach, 2004; Watkins & Roberts, 2020 for reviews). Existing literature has also highlighted the role of rumination and worry in a number of clinical disorders and the importance of targeting these processes to reduce and prevent psychopathology (for reviews, see Ehring & Watkins, 2008; Harvey et al., 2004).

Far fewer studies have taken a qualitative approach to explore rumination and worry; however, doing so facilitates a more in-depth understanding of these processes (Willig, 2001). In existing qualitative studies, rumination has consistently been characterized as a common yet intrusive, repetitive and uncontrollable experience (Oliver et al., 2015; Pearson et al., 2008; Sloan et al., 2021). Rumination has also been shown to be focused on a number of different themes and is often triggered by interpersonal situations and interactions (Oliver et al., 2015; Pearson et al., 2008; Sloan et al., 2021). Also consistent across the existing qualitative literature is the use of distraction as the most commonly reported attempt at stopping or interrupting rumination (Oliver et al., 2015; Pearson et al., 2008; Sloan et al., 2021).

A number of theories (e.g. Dugas et al., 1998; Nolen-Hoeksema, 1991; Papageorgiou & Wells, 2001; Wells, 1995) suggest that RNT is initiated and reinforced by positive (e.g. 'rumination helps me problem solve') and negative (e.g. 'my worrying is uncontrollable') metacognitive beliefs. In support of these theories, metacognitive beliefs predict symptom maintenance and are associated with increased RNT frequency (Cartwright-Hatton & Wells, 1997; Papageorgiou & Wells, 2001). Metacognitive beliefs have

also been consistently reported by participants in existing qualitative studies exploring RNT (Oliver et al., 2015; Pearson et al., 2008; Sloan et al., 2021).

The handful of qualitative studies that have investigated individuals' understandings and experiences of RNT have provided valuable insights into the content, frequency, duration and consequences of RNT, and start and stop triggers and the emotions associated with these processes. However, these existing studies have focused on treatment-seeking clinical samples (Oliver et al., 2015; Pearson et al., 2008; Sloan et al., 2021). Rumination and worry are commonly experienced by individuals with and without clinical disorders (e.g. Mahoney et al., 2012; McEvoy et al., 2014; McEvoy et al., 2018; Wong et al., 2016), and thus, the intervention we are developing is designed for a broad-range individuals regardless of whether or not they are experiencing clinical symptoms of a disorder. We thus sought to explore the experiences and understanding of a mixed sample. Further, people's understanding and experience of RNT may influence their willingness to engage in treatment strategies and the acceptability of the intervention, a factor that has been implicated in adherence to online interventions (Christensen et al., 2009). Improving the relevance and reliability of the program has the potential to increase user engagement (e.g. Beatty & Binnion, 2016). It is thus critical that the information conveyed, language used, examples given and the strategies taught are relatable and relevant to end users of the program.

The aim of this current study was therefore to better understand the personal experiences of rumination and worrying of potential end users of online interventions for RNT. We recruited a sample of individuals from the community and examined the language, labels and terms they use when talking about these processes, their perceptions of and understanding of rumination and worry. We also investigated the personal triggers of rumination and worry, the coping strategies individuals use to manage rumination and worry, and any strategies they employ to stop or reduce rumination and worry. We used an online survey with a series of open-ended and forced-choice options to achieve these aims. Open-ended survey questions allowed for an in-depth and individualized understanding of participant's beliefs and experiences of rumination and worry, in comparison to quantitative methods such as standardized self-report questionnaires (Silverman, 2000). To characterize the nature of the sample, participants also completed standardized self-report questionnaires and were asked about their mental health history. The data obtained from this survey will be used to inform the development of an online treatment program that aims to specifically target RNT.

METHODS

Recruitment

The sample was comprised of both community and undergraduate student participants. First-year psychology students ($n = 101$) from (*name of institution*) were recruited via the university's online research participation system in return for course credit. Community participants ($n = 106$) were recruited via social media advertisements and went into the draw to win one of three gift cards valued at \$50 each in return for their participation.

Measures

Demographic information

Participants were asked to provide basic demographic information including their age, gender, highest education level, relationship status, country of birth, primary language spoken at home and current employment status.

Mental health history

Participants were asked brief questions about their current and past mental health, including whether or not they had previously experienced depression and/or anxiety ('Have you ever experienced depression and/or anxiety?'). Participants were also asked about any current and past pharmacological and/or psychological mental health treatments.

Understanding and experience of rumination and worry

A series of open- and closed-ended questions informed by key theoretical models of RNT and existing clinical interventions (e.g. the functional analysis component of rumination-focused cognitive behaviour therapy, Watkins, 2016; Metacognitive therapy, Wells, 2009) was developed to investigate participants' understanding and experience of rumination and worry, including typical duration, frequency, triggers, content, coping strategies and moderating factors. The full list of questions is given in [Appendix A](#). To identify their personal understanding of the terms rumination and worry, participants were asked to provide their own definition of each term (e.g. 'In your own words, please write your personal definition of worry'). A definition of rumination and worry was not provided to participants at any point throughout the survey. When asked to provide their definition of rumination, participants were additionally asked to indicate whether or not they had previously heard of this term, and if so, were asked to define it. Participants who indicated that they had not heard of rumination were able to complete the rest of the survey.

To investigate what topics participants typically worried and/or ruminated about, participants were asked to choose all that applied from a list of available options based on theoretical models of RNT ([Table 2](#)). Participants were also asked to briefly outline what purpose they thought ruminating/worrying served for them and to indicate what time of the day they were most likely to ruminate/worry ('morning'; 'afternoon'; 'evening'; 'late at night/in bed').

Standardized self-report measures

The *Repetitive Thinking Questionnaire-10* (RTQ-10; McEvoy et al., 2010) is a 10-item measure of the extent to which someone engages in perseverative negative thinking, independent of a specific mental health disorder (i.e. not tied to disorder-specific content, such as sad mood). The RTQ-10 has excellent internal consistency ($\alpha = .91$; Wong et al., 2016). Internal consistency in the current sample was $\alpha = .90$.

The *Depression, Anxiety and Stress Scales* (DASS-21; Lovibond & Lovibond, 1995) measure the frequency with which individuals experience symptoms of depression, anxiety and stress over the past week. The DASS-21 has been shown to be reliable and valid in both clinical and nonclinical samples (Antony et al., 1998; Henry & Crawford, 2005) and each of the subscales have excellent internal consistency (depression: $\alpha = .94$; anxiety: $\alpha = .87$; stress: $\alpha = .91$; Antony et al., 1998). Moderate levels of symptoms on the depression, anxiety and stress subscales are given by the cut-off scores of 14, 10 and 19, respectively (Lovibond & Lovibond, 1995). Internal consistency in the current sample was excellent ($\alpha = .92$).

Method

All parts of this study were completed online. No inclusion or exclusion criteria were applied to capture a range of experiences and symptom levels. Participants read the Participant Information Sheet and Consent Form online before providing electronic informed consent. Participants then responded to the survey questions and completed self-report questionnaires of depression, anxiety and stress (DASS-21)

and negative repetitive thinking (RTQ-10). This study was approved by (*name of institution*) Human Research Ethics Advisory Panel (Approval Number X).

Qualitative data analysis

Survey data were exported into Microsoft Excel for qualitative analysis. As noted above, survey questions were informed by key theoretical models of RNT and existing clinical interventions. One of the main aims of this study was to inform the development of an intervention program targeting RNT for adults. To help us make decisions about what to include in the intervention (i.e. information which would be relevant for the majority of end-users) versus what to exclude (i.e. information which would only be relevant for a very small minority of end-users), data analysis primarily consisted of determining the frequency of participant responses by calculating proportions.

One author (AJ) coded responses to the open-ended questions using a deductive approach. Inductive analysis is recommended when previous research or theories about a phenomenon of interest are limited or lacking whereas deductive analysis is used when previous literature, theories or conceptual frameworks already exist (Armat et al., 2018; Elo & Kyngäs, 2008; Hsieh & Shannon, 2005; Mayring, 2014). Given that RNT has been well-studied and several theories and conceptual frameworks already exist, a deductive approach was chosen in favour of an inductive approach. This involved AJ reading through the responses to immerse herself in the data and develop a codebook to categorize the data. This process was repeated for each open-ended question. Initial response categories were then reviewed and refined by the principal investigator (JN) (e.g. Newby et al., 2021).

For each open-ended question, AJ, MS and BP separately coded whether or not a participant's responses fell into any of the response categories for that question using binary coding (0 = *does not fit into category*, 1 = *fits into category*). For example, response categories for participants' definitions of worry included 'physical symptoms', 'negative emotions e.g. stress, anxiety/fear, concern', 'lack of control and/or unwanted', 'overthinking and/or repetitive', 'future oriented and/or concern over something that could happen or hasn't happened yet'. Participants' responses to a particular question could fit into more than one response category. Coding was then compared between the three independent coders and any discrepancies resolved by the lead/senior researcher (JN). When there was a discrepancy between coders, JN coded the item independently so as to avoid being biased by the coders' responses. The proportion of responses that fell into each category was then calculated. We also calculated the proportion of consistent coding between the three independent coders. 98% of responses were coded the same, with the remaining 2% of responses coded by JN.

Reflexivity is an important part of qualitative analysis (Braun & Clarke, 2019) and thus researchers involved in the project were cognisant of their perspectives and experiences when developing the response categories and when interpreting and coding the data. The research team comprised six females with diverse research and clinical experience and backgrounds in clinical psychology and mental health research. One of the coders (AJ) was a provisional psychologist with research interests in RNT whilst the other two coders (MS, BP) held undergraduate degrees in psychology and were familiar with cognitive processes in mental health.

RESULTS

Response rates

A total of 218 people provided electronic informed consent to participate in the survey. Eleven did not progress any further after providing consent, giving a total of 207 survey respondents, 177 of whom

completed the entire survey. As not all participants responded to all of the survey questions, response frequencies were calculated as a proportion of the total number of participants who responded to a particular question rather than the total number of survey respondents.

Demographic characteristics

As shown in [Table 1](#), the majority of participants were female (76%), aged between 17 and 71 years ($M = 28.2$, $SD = 13.9$), employed in either full-time (13%) or part-time (22%) paid work and almost half were currently students (46%). The majority of participants had never married (70%), were born in Australia (75%) and spoke English as their primary language (78%).

On the DASS-21 ($M = 38.8$, $SD = 22.3$), 44% were in the normal range, 38% in the mild–moderate range and 18% in the severe–extremely severe range on the Depression subscale. For Anxiety, 40% were in the normal range, 35% in the mild–moderate range and 25% in the severe–extremely severe range. Almost half of the participants scored in the normal range for Stress, whilst 39% fell into the mild–moderate range and 14% were in the severe–extremely severe range. The mean score on the RTQ-10 was 34.2 ($SD = 8.7$). This mean is consistent with reports for clinical samples (e.g. Mahoney et al., 2012) and slightly higher than those reported in studies with undergraduate (e.g. McEvoy et al., 2010) and never-depressed community samples (e.g. McEvoy et al., 2018).

Just over half of the participants reported having previously experienced both depression and anxiety (51%; $n = 105/207$). A third (31%; $n = 64/207$) reported currently taking mental health medications whilst a quarter (26%; $n = 54/207$) reported currently receiving psychotherapy, which is comparable to figures from the 2007 Australian National Survey of Mental Health and Wellbeing (Slade et al., 2009).

Understanding and experiences of rumination and worry

Frequency and duration

As shown in [Table 2](#), participants most commonly reported worrying/ruminating ‘daily’ (38%), followed by ‘more than half the days a week’ (26%). The duration varied widely across participants, with over half (53.5%) ruminating/worrying for 20 minutes or longer on each occasion.

Definitions

Examples of participant responses are shown in [Table 3](#). Participants' definitions of worry commonly referenced six main themes: negative emotions such as stress, anxiety and concern (55%; $n = 108/197$); the future (something that has not happened yet or could happen) (44%; $n = 86/197$); being repetitive in nature and involving overthinking (40%; $n = 79/197$); an unwanted, perseverative and uncontrollable experience (20%; $n = 40/197$); associated with physical symptoms or sensations (9%; $n = 17/197$); and ‘other’ (11%; $n = 21/197$).

When asked if they had heard of the term ‘rumination’, almost a third of participants reported having never heard of it or being unsure if they had (28%; $n = 54/196$). The definitions of rumination that participants provided commonly referenced it involving thinking deeply or ‘dwelling’ (26%; $n = 51/196$), having a negative focus (13%; $n = 26/196$) and being focused on the past (8%; $n = 16/196$). Over a third of participants defined rumination in terms of it being repetitive, perseverative and difficult to stop (37%; $n = 72/196$) and referenced a long time being spent engaging in rumination (7%; $n = 14/196$). Participants' definitions of rumination also referenced or likened it to worry (9%; $n = 18/196$) and animal digestion (4%; $n = 8/196$).

TABLE 1 Participant characteristics

<i>N</i> = 207		<i>N</i> = 207	
Mean age (SD)	28.2 (13.9)	Previously experienced depression and/or anxiety <i>n</i> (%)	
Gender, <i>n</i> (%)		Never	64 (30.9)
Female	158 (76.3)	Yes – both	105 (50.7)
Male	46 (22.2)	Yes – anxiety	21 (10.1)
Other	3 (1.4)	Yes – depression	16 (7.7)
Country of birth, <i>n</i> (%)		Current psychotherapy <i>n</i> (%)	
Australia	156 (75.3)	No	154 (74.3)
China	11 (5.3)	Psychologist	28 (13.5)
United Kingdom	9 (4.3)	Psychiatrist	7 (3.3)
New Zealand	3 (1.4)	Counsellor	14 (6.7)
USA	2 (0.9)	Other	5 (2.4)
Philippines	2 (0.9)	Current medications <i>n</i> (%)	
Germany	1 (0.4)	No	154 (74.3)
Vietnam	1 (0.4)	SSRI	28 (13.5)
Italy	1 (0.4)	SNRI	12 (5.7)
Other	21 (10.1)	Benzodiazepine	6 (2.8)
Primary language, <i>n</i> (%)		Antipsychotic	7 (3.3)
English	162 (78.2)	Other	11 (5.3)
Vietnamese	12 (5.8)	Past treatment (e.g. medications and psychotherapy) <i>n</i> (%)	
Cantonese	10 (4.8)	Medication	27 (13)
Mandarin	10 (4.8)	Psychotherapy	58 (28)
Tagalog	2 (0.9)	Self-report measures mean (SD)	
Other	11 (5.3)	RTQ-10	29.4 (9.4)
Relationship status, <i>n</i> (%)		DASS-21	38.8 (22.3)
Never married	145 (70)	DASS-21 Depression subscale <i>n</i> (%)	
Married/de facto	50 (24.1)	Normal	90 (43.4)
Separated/Divorced	11 (5.3)	Mild–Moderate	78 (37.6)
Widowed	1 (0.4)	Severe–Extremely Severe	39 (18.8)
Employment status, <i>n</i> (%)		DASS-21 Anxiety subscale <i>n</i> (%)	
Student	95 (45.8)	Normal	80 (38.6)
Full-time paid work	33 (15.9)	Mild–Moderate	73 (35.2)
Part-time paid work	45 (21.7)	Severe–Extremely Severe	54 (26)
Seeking work	9 (4.3)	DASS-21 Stress subscale <i>n</i> (%)	
Retired	5 (2.4)	Normal	96 (46.3)
Registered sick/disabled	9 (4.3)	Mild–Moderate	82 (39.6)
Other	11 (5.3)	Severe–Extremely Severe	29 (14)

Perceived purpose of rumination and worry

When asked what purpose they thought ruminating and/or worrying served for them, just over a third of participants reported that there was no purpose (33%; *n* = 62/190) whilst 9% (*n* = 17/190) said they were unsure or did not know. Almost a quarter of participants reported that ruminating and/or

TABLE 2 Survey responses

	<i>n</i> (%)
What time of the day are you most likely to worry or ruminate? Please choose all that apply (<i>n</i> = 190)	
Morning	48 (25.2)
Afternoon	39 (20.5)
Evening	75 (39.4)
Late at night/in bed	140 (73.6)
When you worry or ruminate, how long do you typically spend worrying/ruminating? (<i>n</i> = 190)	
Less than 5 min	13 (6.8)
5–10 min	35 (18.4)
10–20 min	40 (21)
20–30 min	28 (14.7)
Between 30 min – 1 h	36 (18.9)
1–2 h	17 (8.9)
More than 2 h	21 (11)
On average, how often do you find yourself worrying/ruminating? (<i>n</i> = 190)	
Daily	73 (38.4)
Weekly	38 (20)
Fortnightly	15 (7.8)
More than half the days a week	50 (26.3)
Monthly	10 (5.2)
Every couple of months or more	4 (2.1)
What do you typically worry/ruminate about? Please choose all that apply (<i>n</i> = 191)	
Finances	82 (42.9)
Personal relationships	121 (63.3)
Past events	108 (56.5)
Assignments/examinations	102 (53.4)
Work	67 (35)
Upcoming social events	66 (34.5)
Things you should have said/done	120 (62.8)
Past mistakes	132 (69.1)
Past conversations or interactions with others	118 (61.7)
Future conversations or interactions with others	85 (44.5)
World events/the news	30 (15.7)
Your health	64 (33.5)
Your family	82 (42.9)
Past negative experiences	123 (64.4)
How you feel	87 (45.5)
Why things have happened to you	74 (38.7)
How you would cope if certain things were to happen	89 (46.6)
Things that might happen in the future	111 (58.1)
Why you feel a certain way	67 (35)
Other	11 (5.7)

TABLE 3 Examples of participant responses

	Theme	Example	
Definition of worry	Negative emotions	'Feeling anxious or concerned about something' 'Being afraid that something bad is about to happen'	
	The future	'Thinking of all the negative outcomes that could happen'	
	Unwanted, perseverative, uncontrollable	'Persistent thoughts in my head that I have difficulty letting go of' 'State of mind where I can't stop thinking about something'	
Definition of rumination	Thinking deeply	'Dwelling on a certain thought for a long period of time'	
	Repetitive, perseverative, difficult to stop	'Thinking about the same thing over and over, replaying situations in your mind' 'Difficult thoughts that you can't think your way out of even if you logically know this thinking isn't helpful'	
	Negatively focused	'Like constantly thinking your worthless and life is not worth living' 'Constantly going over something distressing'	
Perceived purpose and metacognitive beliefs	No purpose	'Absolutely none. But I have no control' 'None. I try to tell myself that, but it does not help. My mind thinks if I think about it enough, I will find an answer or solution and then I will feel better'	
	Processing and coming to an understanding	'Allows me to think things through and work through my thoughts' 'Acts as a source of reflection. I can consider my actions and what went wrong/right, and how I could change my actions if a similar situation occurred in the future'	
	Protective	'To try to prevent bad things from happening to those I love or to me'	
	Helps prepare them	'I'm able to think about all possible outcomes for an event' 'Keeps me prepared for what could possibly happen'	
Triggers	Social interactions	'When someone speaks to me in a different tone/acts differently' 'A bad social interaction, like an argument or someone hurting me' 'If I feel ignored or unwanted'	
		Negative events or experiences	'Things seem to be going wrong, things not going how I expect them to go' 'Major life stresses (housing and financial insecurity, migration, relationship issues, family issues, health issues)'
			Performance/demanding situations
	External reminders	'A thought, a conversation, the TV news, radio news, internet news' 'Hearing bad news from friends or family' 'Receiving an email' 'Getting a bad grade'	

worrying helped them to process events or their thoughts and come to an understanding of something (22%; $n = 41/190$). 12% suggested that ruminating/worrying helped remind them to do something/not repeat something ($n = 22/190$) and that it acted as a source of motivation (11%; $n = 21/190$). Participants also reported ruminating/worrying was protective and helped prevent negative things (e.g. mistakes) from occurring (9%; $n = 17/190$) and that it helped them to be prepared and plan for the future (7%; $n = 14/190$).

Typical content and triggers

As shown in Table 2, participants reported most commonly ruminating and/or worrying about past mistakes, past negative experiences, personal relationships, things they should have said or done, and past conversations or interactions. When asked what time of the day they were most likely to ruminate/worry, the most commonly selected response was 'late at night/in bed' (73%; $n = 140/191$).

The most commonly reported triggers for rumination and/or worry were social situations/interpersonal interactions (27%; $n = 51/190$) and negative events or experiences (24%; $n = 45/190$). Participants also referenced performance situations or situations in which demands and pressure were placed on them (16%, $n = 31/190$), external reminders such as conversations, reading something or seeing something on TV (15%; $n = 29/190$), remembering past events (11%; $n = 20/190$) and physical states such as being tired or in pain (8%; $n = 15/190$). Being alone (9%; $n = 17/190$) or bored (7%; $n = 14/188$) were reported as less common triggers. A third of participants were unsure what typically triggered them to start ruminating and/or worrying (31%; $n = 58/190$). The majority of participants reported worrying/ruminating less when they were around other people (83%; $n = 158/191$).

Coping strategies

Whilst 21% of participants reported that there was nothing they could do to stop themselves from ruminating/worrying ($n = 40/191$), almost half reported that distracting themselves or doing activities (e.g. exercise) was effective in interrupting their rumination/worry (48%; $n = 92/191$). Talking to others (13%; $n = 25/191$), being around family and friends (8%; $n = 16/191$), practicing mindfulness, meditation, relaxation or breathing exercises (11%; $n = 21/191$) and seeing things from a different perspective or engaging in positive self-talk (11%; $n = 21/191$) were also identified as being helpful. 7% of participants reported that going to sleep was also an effective way of stopping themselves from ruminating/worrying ($n = 14/191$).

DISCUSSION

Although rumination and worry are commonly experienced and extensively studied cognitive processes implicated across a number of clinical disorders, research into peoples' personal experiences and understanding of these processes is sparse. Accordingly, this survey aimed to investigate both of these important topics. Our results suggest that individuals are more familiar with the concept of worry than rumination, with all participants aware of worry whereas 28% indicated that they had never heard of rumination. Participants endorsed worrying and/or ruminating about a number of different themes, the most common of which were personal relationships and past mistakes, negative experiences and conversations/social interactions. Our findings also provided insight into triggers for ruminating and/or worrying, with social situations/internal interactions and negative events/experiences the most commonly reported triggers. These findings are reflective of participants' *personal* experiences and understandings and thus may differ from clinical or theoretical definitions. Our sample included both undergraduate students and community participants, many of whom had previously engaged in or were currently engaged in psychotherapy for anxiety and/or depression. Scores on the self-report measure of depression, anxiety and stress (DASS-21) ranged from normative to clinical levels on each subscale. This suggests that a variety of personal perspectives and experiences of the interventions' target population were captured.

Our first aim was to determine how participants understand and define rumination and worry. Participants provided a variety of definitions of rumination and worry, suggesting it is important to enquire about an individual's understanding of these terms during assessment and treatment to ensure that clinicians and patients are indeed referring to the same processes. Further, almost a third of participants

reported that they had not heard of the term rumination before or were unsure if they had. This suggests that this term needs to be clearly defined in the intervention and highlights the benefit of incorporating psychoeducation into face-to-face and online treatments. This also highlights the importance of clarifying what individuals mean when they use these terms, particularly in clinical contexts. In line with previous qualitative studies (Oliver et al., 2015; Pearson et al., 2008; Sloan et al., 2021), rumination and worry were consistently characterized as intrusive, repetitive and uncontrollable. Although participants were asked to define these processes separately, a number of terms were common to participants' definitions of both worry and rumination, including 'overthinking', 'negative', 'distressing' and 'excessive', reflecting the similarities between these two processes (Papageorgiou & Wells, 1999; Watkins et al., 2005).

Our second aim was to determine participants' typical experiences of rumination and worry, and identify the terminology used to describe them. Participants reported most commonly ruminating and/or worrying about personal relationships, things they should have said or done, and past mistakes, negative experiences, conversations and social interactions. Rumination has been shown to prompt the recall of negative autobiographical memories (Wisco & Nolen-hoeksema, 2009), which may explain why participants frequently reported focusing on past experiences. Consistent with previous qualitative studies (Oliver et al., 2015; Pearson et al., 2008), the most commonly reported triggers for rumination and/or worry were social situations/interpersonal interactions and negative events/experiences. As noted by Oliver et al. (2015), this is likely because interpersonal stress has been shown to influence rumination (Hammen, 2006) and negative thoughts about the self are common after an interpersonal stressor (Hilt & Pollak, 2013).

Clinicians and developers of treatment interventions can draw on these reported experiences, and the language that participants use to describe these experiences, to create relevant, real-world examples. Indeed, as noted above, this is one of our broader goals in conducting this survey. In addition to advancing the field by obtaining insight into the everyday experiences of rumination and worry, we will also use these data to inform the development of an online intervention specifically targeting rumination and worry. Accordingly, the language used by participants will also be incorporated into recruitment materials to better target those who ruminate and/or worry. Adopting the language and examples of potential end-users may help to improve the understandability, relatability and acceptability of treatment. Furthermore, treatment engagement and adherence may also be improved if treatments better match the experiences of end-users (e.g. Beatty & Binnion, 2016).

By identifying typical themes, triggers and coping strategies, our findings also provide clinicians and developers of interventions with examples of cognitions, behaviours and situational factors which can then be targeted in treatment. For example, consistent with previous studies (Pearson et al., 2008; Sloan et al., 2021), participant responses often referenced positive and negative metacognitive beliefs about rumination and worry. This suggests there may be value in providing psychoeducation about the maintaining role of these beliefs and in helping participants to identify, evaluate and modify these in treatment (e.g. Wells, 2009). Our findings also provide real-world insight into high-risk times for rumination and worry and the strategies that individuals find most helpful to counteract them, which can also be incorporated into treatment interventions. For example, the inclusion of strategies to help manage rumination and worry at night may be particularly relevant to end-users given that almost three-quarters of participants reported that this was a common time to engage in these processes. In line with previous studies (Oliver et al., 2015; Pearson et al., 2008; Sloan et al., 2021), distraction and engaging in activities was the most commonly reported coping strategy to interrupt rumination and worry. As noted by Pearson et al. (2008), this may be indicative of the difficulty that individuals have controlling or stopping RNT using willpower alone and suggests that relying on external stimuli is a more effective coping strategy. Behavioural approaches focused on absorbing activities may then be useful and acceptable suggestions to interrupt rumination and worry. This could include behavioural activation (Jacobson et al., 2001) or absorption in 'flow' experiences (Watkins, 2016). The effectiveness of these suggested coping strategies will be explored when we evaluate the intervention program. As noted earlier, a third of participants were unsure about what typically triggered them to start ruminating and/or worrying. Interventions may thus also benefit from incorporating self-monitoring and helping users to create individualized formulations (e.g. functional analysis, Watkins, 2016).

The findings of the current study also add to our theoretical understanding of RNT and provide qualitative support for existing theoretical models and definitions. Participants' definitions of rumination and perceptions of its purpose were consistent with Nolen-Hoeksema's (1998) definition of a passive, repetitive and evaluative focus on the causes, symptoms and consequences of depressive symptoms. Similarly, participants' definitions and descriptions of worry commonly referenced an uncontrollable and repetitive process focused on anticipated future negative outcomes, consistent with Borkovec's (1994) frequently cited definition. Although worry is typically characterized as a cognitive process (Borkovec, 1994; Borkovec & Lyonfields, 1993), participants' definitions of worry frequently encapsulated cognitive, emotional and physiological components. This suggests that individuals in the community may not differentiate engaging in the process of worrying from the consequences of doing so (e.g. anxious arousal). Our findings also complement those of previous studies which suggest rumination and worry are highly correlated and share more similarities than differences (e.g. Papageorgiou & Wells, 1999; Watkins, 2004; Watkins et al., 2005), with participants' definitions and reported experiences of rumination and worry referring to them both as uncontrollable, repetitive, difficult to stop and negatively valenced. The focus and content of worry were also judged to be more future-oriented whilst rumination tended to focus on the past, consistent with previous research on the temporal orientation of these processes (e.g. Papageorgiou & Wells, 1999; Watkins, 2004; Watkins et al., 2005).

The clear articulation of positive and negative metacognitive beliefs about rumination and worry in this study are also consistent with theoretical accounts which propose that rumination and worry are initiated, maintained and exacerbated by metacognitive beliefs about these processes (Dugas et al., 1998; Nolen-Hoeksema, 1991; Papageorgiou & Wells, 2001, 2003; Wells & Carter, 2009). For example, participants in the current study ascribed a number of positive or useful features to worry and rumination, reporting that this thinking helps to prepare and plan for the future, remember to do something and not repeat previous actions, and to process thoughts and events. Participants also reported that worry served a protective function by helping to prevent negative things (e.g. mistakes) from occurring. Similarly, participants' responses also referenced negative metacognitive beliefs, frequently referring to rumination and worry as unwanted, uncontrollable and difficult to stop.

Strengths and limitations

The use of open-ended survey questions allowed for an in-depth and individualized understanding of beliefs about and experiences of rumination and worry. However, a disadvantage of this approach is that it does not enable researchers to clarify participant responses or ask follow-up questions, as is possible in interviews or focus groups. Participants were not provided with a definition of rumination and worry in order to avoid potentially influencing their responses and to better capture their subjective descriptions, experiences and language. Nonetheless, we cannot rule out the possibility that participants may have reported on thoughts in general, rather than RNT. Almost a third of participants reported that they had never heard of rumination, whilst a small proportion referenced animal digestion when defining rumination. Therefore, we also cannot rule out that some participants may have answered subsequent questions in relation to worry only. In future studies, it may be useful to provide participants with a definition of these terms after they have provided their own definitions before they answer subsequent questions. As the majority of questions were about rumination and worry, it is unclear whether participant responses were in relation to rumination, worry or both. Future studies could include more specific questions. This would also allow researchers to explore potential differences between these processes. In addition, our sample was predominantly female and well-educated, and half were students, which may limit the generalisability of our findings. That said, our sample was broad: no inclusion or exclusion criteria were applied, participants were recruited from both undergraduate and community samples, and participants' responses on each of the subscales on the self-report measure of depression, anxiety and stress ranged across the continuum from normal to extremely severe. Participants reported mental health difficulties and engagement with treatment services were also reflective of the broader

population (Slade et al., 2009). This sample diversity likely led to a range of opinions and experiences, thus increasing generalisability in this respect.

CONCLUSION

This study adopted a qualitative approach to explore the understanding and experience of RNT in a mixed/nonclinical sample. The results provide important insights into the personal experiences and understanding of rumination and worry, and in turn, an important foundation from which to develop effective and engaging interventions that target RNT.

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CONFLICT OF INTEREST

All authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Amy Joubert: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Writing – original draft. **Michelle L. Moulds:** Conceptualization; Methodology; Writing – review & editing. **Aliza Werner-Seidler:** Conceptualization; Methodology; Writing – review & editing. **Jill M. Newby:** Conceptualization; Methodology; Supervision; Writing – review & editing.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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APPENDIX A

Survey questions

1. In your own words, please write your personal definition of 'worry'. Please note there are no right or wrong answers.
2. Have you heard of 'rumination'? If yes, please describe what you think it means. If no, please indicate what you think it means. Please note there are no right or wrong answers.
3. What time of the day are you most likely to worry or ruminate? Please choose all that apply.
 - Morning
 - Afternoon
 - Evening
 - Late at night/in bed
4. What do you typically worry/ruminate about? Please choose all that apply.
 - Finances
 - Personal relationships
 - Past events
 - Assignments/exams
 - Work
 - Upcoming social events
 - Things you should have said/done
 - Past mistakes
 - Past conversations or interactions with others
 - Future conversations or interactions with others
 - World events/the news
 - Your health
 - Your family
 - Past negative experiences
 - How you feel
 - Why things have happened to you
 - How you would cope if certain things were to happen
 - Things that might happen in the future
 - Why you feel a certain way
 - Other (please specify)
5. Do you tend to worry/ruminate more or less when you are with other people?
 - I worry/ruminate less when I am with others
 - I worry/ruminate more when I am with others
6. What usually triggers you to start worrying/ruminating (i.e. what happens just before you start thinking like this?). Please list all the triggers in the space provided. If you're unsure, please write 'unsure'.
7. In general, what makes your worrying/ruminating better?
8. On average, how often do you find yourself worrying/ruminating?
 - Daily
 - Weekly
 - Fortnightly
 - More than half the days a week
 - Monthly
 - Every couple of months or more

9. When you worry or ruminate, how long do you typically spend worrying/ruminating?
 - Less than 5 min
 - 5–10 min
 - 10–20 min
 - 20–30 min
 - Between 30 min – 1 h
 - 1–2 h
 - More than 2 h
10. Is there anything that you can do to stop yourself from worrying/ruminating? If yes, please describe what you do. If no, please write 'N/A'
11. What purpose do you think worrying/ruminating serves for you?