

Young Adults' Beliefs about People Living with HIV/AIDS and Rheumatoid Arthritis: Thematic Analysis of a Think-Aloud Questionnaire Investigation

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The Common-Sense Model of illness beliefs was applied to HIV/AIDS and rheumatoid arthritis (RA), two chronic illnesses with differences in media exposure, which may relate to illness beliefs. Think-aloud methodology was used to explore how 12 young adults approached a questionnaire about people living with HIV/AIDS and RA. The present article addresses three themes that arose in a thematic analysis of the think-aloud transcripts. Participants described HIV/AIDS and RA in ways that reflect and inform the Common-Sense Model. Sources of information were simultaneously critiqued and relied upon. Beliefs about other people's knowledge suggested empathy, but assumptions about access to healthcare. These findings add support for the Common-Sense Model and inform methods of assessing illness belief.

It is pertinent to investigate the nature and sources of beliefs about chronic illnesses held by illness-free individuals because these beliefs inform how illness-free individuals perceive people living with a chronic illness (Seacat, Hirschman, & Mickelson, 2007). Leventhal's Common-Sense Model (CSM) of illness beliefs is a theoretical perspective that has been applied to the beliefs of individuals with a number of specific chronic illnesses (Leventhal, Brissette, & Leventhal, 2003; see also Hagger & Orbell, 2003) and to illness-free individuals (e.g., Figueiras & Alves, 2007; Holliday, Wall, Treasure, & Weinman, 2005; Schiaffino & Cea, 1995). Further research is required to evaluate the methods used to assess illness beliefs and also to consider the function of any descriptive information about specific chronic illnesses given to respondents who do not have the illness in question. The present study provides an exploration of these issues in relation to two chronic illnesses: rheumatoid arthritis (RA) and HIV/AIDS. These two specific immune-related illnesses make for a pertinent comparison because RA

has been found the subject of beliefs that are stigmatising (McQuade, 2002), although it does not hold the renown of HIV/AIDS (Seacat et al., 2007).

Infection with the human immunodeficiency virus (HIV) is considered a chronic illness for individuals who have access to antiretroviral treatment, which can extend the timeline of progression to acquired immune deficiency syndrome (AIDS) (Klimas, Koneru, & Fletcher, 2008). The global HIV prevalence has been estimated to be 33.3 million (UNAIDS, 2010). Although Australasia appears relatively isolated from this pandemic (UNAIDS, 2010), it remains pertinent to examine beliefs about HIV in this location because of local discursive constructions of 'complacent' attitudes to sex (Braun, 2008) and arguments about potential 'vulnerability' to the sexual transmission of HIV (Dickson & Davidson, 2006).

Routes of HIV transmission have been the subject of considerable public health education efforts (Albarracín et al., 2005; Willig, 1992). Sexual transmission of HIV is a critical moral

junction given the perception that the pandemic can be attributed to gay men (Seacat et al., 2007) and/or women (Dworkin, 2005). These attributions are likely to link to the stigmatization of individuals living with HIV/AIDS, as well as stigmatizing the behaviours associated with transmission (Seacat et al., 2007; Visser, Makin, & Lehoby, 2006).

Another prevalent immune-related chronic illness is rheumatoid arthritis (RA), which affects around 1 in 100 people (Lee & Weinblatt, 2001; Taylor, Smeets, Hall, & McPherson, 2004). RA is an autoimmune disease resulting in swelling and destruction of the joints (Lee & Weinblatt, 2001). The exact cause of RA is uncertain but viral infections or mineral tars (e.g., in coffee or cigarette smoke) have been implicated as precipitating factors (Alamanos & Drosos, 2005; Karlson, Mandl, Aweh, & Grodstein, 2003). Like HIV/AIDS, RA has no known cure but medications can ease symptoms and slow progression (Lee & Weinblatt, 2001).

Although these descriptions of HIV/AIDS and RA might appear straight-forward, there are likely to be variations in the nature and sources of illness-free individuals' beliefs about both illnesses. Theoretically-informed research is required to map beliefs about the spectrum of chronic illnesses, particularly HIV/AIDS and musculoskeletal conditions such as RA, in order to further examine the content and basis of beliefs about these illnesses among illness-free individuals. One informative theory is the CSM, which

describes how people rely on common-sense beliefs when experiencing a health threat (Leventhal et al., 2003). Five core illness beliefs (identity, cause, timeline, consequences and control/cure) have been differentiated and are commonly assessed using the Revised Illness Perception Questionnaire (IPQ-R; Moss-Morris et al., 2002).

In their administration of the IPQ-R to illness-free individuals, Figueiras and Alves (2007) presented participants with the label for an illness and asked them to fill in the questionnaire as if they had the illness. They used this approach to examine Portuguese students' and workers' beliefs about either AIDS (as they specifically termed it), skin cancer or tuberculosis using a between-participants design. Compared to skin cancer and tuberculosis, AIDS was believed to be more chronic and cyclical, to have more severe consequences and emotional impact, but to be less coherent and controllable and to be less influenced by personal behaviours.

Discrepancies between the beliefs held by people with a particular illness and those without the illness have also been discovered in previous research. Holliday, Wall, Treasure, and Weinman (2005) investigated these discrepancies using the IPQ-R and found that people in the UK diagnosed with anorexia nervosa perceived it to be more chronic and less controllable than people with no eating disorder. Schiaffino and Cea (1995) examined US undergraduate students' beliefs about HIV (as they specifically termed it), RA and multiple sclerosis (MS) using the Implicit Models of Illness Questionnaire (IMIQ). Students perceived all three illnesses to be chronic but believed RA to be more curable than both HIV and MS and as having less severe consequences than HIV and MS. The onset of RA was believed to be less influenced by personal behaviours than HIV and MS. Schiaffino and Cea (1995) also recruited a sample of people with RA who completed the IMIQ and perceived that the onset of their illness was less influenced by personal behaviours than students did. Participants with RA also perceived that their illness was less curable, more cyclical and had more severe consequences than students did, which suggests that illness-free

individuals underestimate the impact of RA, amongst other illnesses. RA also appears to be more stigmatized than other causes of disability. McQuade (2002) found that illness-free undergraduate psychology students in the US evaluated hypothetical workers with RA as having worse interpersonal job skills and lower overall job performance than hypothetical workers with paraplegia or no illness.

Previous studies have investigated reactions to the various routes of transmission of HIV using hypothetical personal diagnosis and hypothetical individuals. Senior et al. (2002) found that undergraduate nursing students in the UK who were asked to imagine being diagnosed HIV positive anticipated more negative emotions and discrimination than those asked to imagine diagnosis with hypertension. Moreover, hypothetical reactions were more negative when the cause of HIV transmission was described as more controllable (unsafe consensual sexual intercourse versus a blood transfusion). Similarly, among undergraduate psychology students in the US, Seacat et al. (2007) found that vignettes in which a man with HIV was homosexual or had contracted it through sexual intercourse were associated with lower sympathy and decreased likelihood of helping the person than when the man was heterosexual or had contracted HIV through a blood transfusion. These studies demonstrate the influence that various types of information can have and the potential impact of illness-free individuals' beliefs about HIV/AIDS. More research is needed into the broad general beliefs that illness-free individuals hold about people with specific chronic illnesses like HIV/AIDS or RA. Comparing beliefs about two chronic illnesses is likely to be a fruitful method for drawing attention to differences in beliefs and provide insights into stigmatization and effective ways to deliver public health information. Presenting varied information about illnesses has been shown to be an effective method of altering the answers participants give in the above studies, and exploratory investigations of the thought processes that underlie the how individuals drawing upon provided information

could be informative to this ends.

The aim of the present study was to investigate the beliefs that illness-free people hold about HIV/AIDS and RA using a version of the IPQ-R adapted for completion by people without the illness in question. One way to conduct exploratory research on the beliefs that underlie answers on a questionnaire is the think-aloud procedure, which uses verbal reports as data on the psychological processes underlying a task whilst attempting to preserve the nature of the task itself (Drennan, 2003). French and colleagues have used the think-aloud method to the process of answering questionnaires about health-related behaviours (Darker & French, 2009; French, Cooke, McLean, Williams, & Sutton, 2007). The think-aloud method has thus been successful in providing an understanding of psychological processes that participants go through when completing questionnaires.

In the present study we applied the think-aloud method to completion of an adapted form of the IPQ-R. We addressed the open research question of how beliefs about HIV/AIDS and RA held by illness-free people might be revealed as respondents complete the IPQ-R after being provided with brief information about HIV/AIDS and RA as a way of investigating their beliefs about these illnesses.

Method

Participants

The 12 participants were undergraduate students at a New Zealand university. Their characteristics are described in Table 1. Seven participants were women and five were men, and the age range was 18–21 years. All participants described themselves as heterosexual. Ten of the participants were studying introductory psychology and received course credit for completing a pedagogical questionnaire reflecting on their participation in the study. Two further participants were recruited via email from the university's Māori Centre and were reimbursed \$10 to cover any travel costs; both identified as Māori and European/Pākehā. Eight participants identified solely as European/Pākehā, one identified as Chinese and one

Table 1. Participants' demographics, health status and study information condition

ID	Sex	Age	Cultural origins	First language	Health conditions	Causal information	Illness presented first
1	Female	20	European/Pākehā	English	No health conditions	External	HIV/AIDS
2	Female	19	European/Pākehā	English	1. Hayfever	Personal behaviour	HIV/AIDS
3	Female	20	European/Pākehā	English	No health conditions	External	Rheumatoid arthritis
4	Female	19	Chinese	Chinese	No health conditions	Personal behaviour	Rheumatoid arthritis
5	Female	20	European/Pākehā	English	No health conditions	None (label-only)	HIV/AIDS
6	Female	18	Māori & European/Pākehā	English	No health conditions	None (label-only)	Rheumatoid arthritis
7	Female	19	Māori & European/Pākehā	English	No health conditions	External	HIV/AIDS
8	Male	18	European/Pākehā	English	No health conditions	Personal behaviour	HIV/AIDS
9	Male	19	Tongan & European/Pākehā	Tongan	1. Epilepsy	External	Rheumatoid arthritis
10	Male	21	European/Pākehā	English	1. A cold, cough or the 'flu 2. Stomach or bowel disease 3. Lung disease	Personal behaviour	Rheumatoid arthritis
11	Male	19	European/Pākehā	English	No health conditions	None (label-only)	HIV/AIDS
12	Male	21	European/Pākehā	English	1. A cold, cough, or the 'flu	None (label-only)	Rheumatoid arthritis

identified as Tongan and European/Pākehā. The study was granted ethical approval by the university's human research ethics committee. Participants were made aware of the task demands and informed consent was obtained prior to participation.

Procedure and Measures

Participants completed a questionnaire pack including a range of background questions and an adapted version of the IPQ-R designed to investigate the beliefs that illness-free participants hold about HIV/AIDS or RA (after Moss-Morris et al., 2002; adapted wording available on request from the corresponding author). The key difference between the present study and routine administration of questionnaires such as the adapted IPQ-R was that participants were requested to think aloud whilst they completed the questionnaire. Specifically, they were asked to verbalise any thoughts that they were having in relation to their understanding of the questions, how they came up with their answers, or any thoughts that came up in relation to the topics presented. The participants were

told that the researcher (the first author) would remain in the room with them throughout and would prompt them to keep talking if they ceased to do so for more than 10 seconds. Participants were provided with a bottle of water in an attempt to ensure they were able to keep talking. Anonymity was emphasised and the researcher read out brief fictional examples of think-aloud transcripts to explain the procedure.

The background questions included gender, age, cultural origins, sexual orientation, work status, educational qualifications and health status. Participants were asked to report whether they had any health conditions from a broad list including RA and HIV/AIDS, with space to write any additional conditions. An opt-in answer format was used that only required participants to note any conditions that they wished to divulge (with a reminder that no question was compulsory). Most participants did not report any chronic or acute illness (see Table 1).

The standard version of the IPQ-R has been found to have good reliability and validity among individuals with

various illnesses (Moss-Morris et al., 2002) and among illness-free Portuguese individuals (Figueiras & Alves, 2007). The questionnaire was adapted for the present study in the following manner: 20 causal statements were presented (e.g., 'A germ or virus causes [illness label]'), which participants responded to on a 5-point Likert scale ranging from 'strongly disagree' (scored 1) to 'strongly agree' (scored 5), with midpoint 'neither agree nor disagree' (scored 3). Two novel causal items on coffee and tea consumption were included because of specific reference made to coffee consumption in the description of RA that some participants received (available on request from the corresponding author). Participants were next asked to rank the three most important causes from the 20 statements or their own ideas. Finally, participants responded on the same 5-point Likert scale to the remaining 38 items of the IPQ-R presented using third person wording (e.g., '[Illness label] is a mystery to patients'): timeline acute/chronic (six statements), timeline cyclical (four statements), consequences (six statements), personal control

(six statements), treatment control (five statements), illness coherence (five statements), and emotional representations (six statements).

Participants were asked to think aloud as they completed the adapted IPQ-R twice, once for HIV/AIDS and once for RA, with the order of the two illnesses counterbalanced. The information given about the illnesses was varied as a between-participants variable (Table 1) as a preliminary test for a larger experimental study of the utilisation of such descriptions. Participants were assigned to one of three information conditions: label-only, external causal information and personal behaviour causal information (Table 1). In the label-only condition, participants were provided with the unabbreviated label for the illness. In the external causal information condition, the two illnesses were described as chronic but not immediately life-threatening and commonly contracted by externally controlled factors (HIV/AIDS: blood transfusions and mother-child transmission; RA: previous infections), and in the personal behaviour causal information condition, the two illnesses were described as chronic and life-threatening and commonly contracted in association with personal behaviour (HIV/AIDS: unprotected sex and drug-taking; RA: cigarette smoking and coffee consumption). All of the seriousness and causal assertions are based on evidence described in the introduction of the present article. The variations in these information passages reflect the various amounts of information that have been provided in similar previous studies (Figueiras & Alves, 2007; Holliday et al., 2005; Schiaffino & Cea, 1995; Seacat et al., 2007; Senior et al., 2002; Visser et al., 2006) and allow more flexible consideration of how participants use such information.

After the questionnaire had been completed the researcher asked whether participants had any further comments to make about the questionnaire and asked about their exposure to the popular television programme 'Home and Away' because at the time of data collection an ongoing storyline involved one of the female characters being diagnosed HIV positive whilst pregnant. The length of the main questionnaire session lasted

between 28 and 81 minutes. Participants were then provided with debriefing information about HIV/AIDS and RA listing academic references that formed the basis of the information provided in the study. A range of information leaflets about both illnesses and local healthcare services was also made available for participants to take.

The think-aloud responses of all 12 participants were audio-recorded and transcribed by the first author using orthographic representation of verbalisations, with continuation marks indicating notable pauses. All transcriptions were checked by the both the first and second authors and one of two additional researchers familiar with the questionnaire.

Analysis

The transcripts were subjected to an inductive thematic analysis (Braun & Clarke, 2006). This analysis was conducted primarily by the first author, with support from the second author, who also read all transcripts and provided feedback on the structure and resonance of the themes. Briefly, the thematic analysis involved: 1) becoming familiar with the data through transcription of the think-aloud sessions and repeated reading of the transcripts; 2) generating initial codes during further readings of the transcripts; 3) searching for themes within the sets of codes; 4) reviewing themes by re-examining the transcripts in light of the derived codes; 5) defining and naming themes; and 6) producing the report and revising the themes (Braun & Clarke, 2006). The purpose of the analysis was to capture the range of issues that arose from the think-aloud process rather than attempting to confirm the theoretically independent component of illness perceptions (Leventhal et al., 2003; Moss-Morris et al., 2002) in a deductive fashion.

The analysis resulted in three themes regarding beliefs about the illnesses. Illustrative quotes are presented to provide the essence of the themes. Participants' direct reading of the wording of questionnaire instructions or questions is bolded in the quotes. Any apparent discrepancies between what participants verbalised and their answers marked on the questionnaire are noted. Continuation marks in square brackets [...] are used to note editing of quotes or

quotes that continue beyond the section presented.

Results

Characteristics of the Illnesses

The first theme entailed participants' knowledge and theories of the two illnesses that were evident in the transcripts of participants' engagement with the think-aloud process. Although direct comparisons were rarely made, RA did not appear to be considered as 'serious' as HIV/AIDS:

Rheumatoid arthritis is a serious condition. *Well I think it's serious in the sense that you will start to seize up but I don't think it's like, I don't think it's gonna kill you [...]* (Participant 5)

Ageing was commonly considered a cause of RA, generally without elaboration:

The most important causes of rheumatoid arthritis are: *Um number 1, I'll say ageing. [...]* (Participant 2)

Participants hypothesised that some potential causes of RA such as physical lifestyle factors, for example excessive activity or weight, might act physically (rather than through the immune system):

Um diet or eating habits cause rheumatoid arthritis. *Um I'm gonna put neither agree nor disagree on that one too, um yeah I guess if you're um very large, then extra weight on your joints probably would not help [...]* (Participant 3)

For HIV/AIDS, participants emphasised illicit drug use and sexual behaviour in relation to behavioural responsibility regardless of the introductory information they were provided with:

Um the patient's behaviour causes HIV. *Well that's strongly agree because if they behave, well get involved, with someone who has it even if they know or don't know, then it's their behaviour that causes it [...]* (Participant 2)

Participants suggested that being diagnosed with a chronic illness would be distressing, but that patients might adjust over time:

Um patients get depressed when they think about their HIV/AIDS. Um... yeah I'm gonna say 3 um I'm sure it would be upsetting, um... um and they proba they probably would have got depressed when they first found out, but I think after they've had it for a while it it wouldn't be such an issue [...] (Participant 3)

Timeline was frequently elaborated on in relation to chronicity, variability, progression and terminality of HIV/AIDS and RA:

Rheumatoid arthritis is very unpredictable. I think it would be, I think you'd have really bad days and good days, so I'm gonna agree. (Participant 11)

Although the CSM has both timeline and controllability components (Leventhal et al., 2003) neither of these explicitly cover terminality, which is not the exact opposite of curability. In particular, HIV/AIDS tended to be discussed in irrevocable terms:

[...] Um you've either got it [HIV/AIDS] or you don't, and if you've got it you're going to die with it. (Participant 8)

There was some uncertainty about the treatments that were available for HIV/AIDS and RA. For HIV/AIDS, treatment was most commonly referred to in terms of expense:

HIV or AIDS has serious financial consequences. I'm pretty sure it does I strongly agree, cos I'm pretty sure the treatment can be quite expensive. (Participant 10)

For RA, treatment was referred to in terms of pharmaceutical forms of pain relief and physical forms of rehabilitation:

There is a lot which people with rheumatoid arthritis can do to control their symptoms. Strongly agree I think there's a lot of pain killers and a lot of um activity oh gentle activities like aqua-jogging [...] (Participant 6)

This theme can be summarised as giving a broad indication that illness-free individuals hold complex representations about the causes, nature and treatment of HIV/AIDS and RA.

Sources of Information

The second theme concerned the ways in which participants drew on various sources of information when verbalising their responses to the IPQ-R. Those participants provided with brief passages of information about the illnesses (see Table 1) often described assuming that this passage was a reliable source. Participants seemed to know less about RA than HIV/AIDS and were therefore more likely to refer to ideas from the passage of information that appeared previously unknown to them:

The patient's behaviour causes rheumatoid arthritis. I have to slightly agree with that cos of what was mentioned on the last page [where the information was presented], in the way of habits, smoking and drinking coffee. (Participant 10)

Participants were less confident of their answers when they had not 'heard' of the ideas presented in the passages of information:

Um patients go through cycles in which their rheumatoid arthritis gets better and worse. Um... yeah I'm not sure on that one, to be honest, I've heard that some people have good days maybe but I I wouldn't know, can't even say where I heard that so, can't really go by it. (Participant 3)

Some participants were avid fans of the television programme 'Home and Away' and believed that the storyline about mother-child transmission of HIV had influenced their responses, whereas others either did not watch it regularly or varied in their degree of trust in such media depictions:

Um yeah I thought about it a lot when I was answering the questions, but then I thought oh that's stupid cos it's just something on TV so it could be completely inaccurate, so I was like trying to not think about it when I was answering them. (Participant 2)

The essence of this theme demonstrates the diverse sources of information that illness-free individuals draw upon when rating their beliefs about illnesses, which incorporate active thinking about information provided in the study and external sources.

The State of Other People's Knowledge

The third theme concerned participants' insights into not only the state of their own personal knowledge, but that of: 1) individuals with the illness; 2) the people surrounding the individual with the illness; and 3) members of 'society' in an ephemeral sense. One way in which participants expressed their theories of patients' knowledge was to imagine how they themselves would feel if they had the illness:

HIV/AIDS makes patients feel afraid. I'm gonna put strongly agree for that because I think if I got something terrible like that I'd be very scared [...] (Participant 5)

Participants noted that they themselves and others were not well-informed about the details of living with HIV/AIDS and, even more so, of living with RA. Participants also highlighted a perceived need for further education:

HIV/AIDS strongly affects the way others see people who suffer from it. Um HIV/AIDS strongly affects the way others see people who suffer from it, um it has got quite a bad rap um... it's quite well known I suppose, and not many people are educated about it [...] (Participant 11)

Doctors were described as playing an automatic role in educating and informing individuals with HIV/AIDS or RA about their illness, and a common assumption was that individuals would have a clear understanding of their illness if they had seen a doctor:

Rheumatoid arthritis does not make any sense to patients. I'm sure once they've seen a doctor it would [...] (Participant 10)

Some participants appeared unwilling to make generalisations in their answers, which appeared to play a role in the tendency to answer 'neither agree nor disagree':

HIV/AIDS strongly affects the way others see people who suffer from it. I guess it depends on who the person is that is seeing them, like I'm gonna put neither agree nor disagree because I think it depends on who, like some people it would be bothered by it and

some people wouldn't so, I'm gonna put 3. (Participant 5)

These findings about the state of other people's knowledge demonstrate that participants are able to empathise to some extent with the thoughts and feelings of individuals with HIV/AIDS or RA and the people who surround them. Uncertainty appeared to stem from the vague frames of reference (as opposed to concrete cases in the media).

Discussion

The present study revealed three themes from an application of thematic analysis to think-aloud data generated from young adults' completion of a questionnaire about people living with HIV/AIDS and RA. Beliefs about the characteristics of the illness were evident, and demonstrated how participants were thinking beyond the individual question they were answering. Sources of information were drawn upon by participants and were sometimes critiqued, but often appeared to be taken on face-value. Beliefs about other people's knowledge were evident and suggested empathy but also further assumptions. These three themes support and expand previous research and provide avenues for future research, which we will outline for each theme.

The theme covering the various characteristics of the illnesses provides some specific insights into the beliefs that illness-free individuals hold about HIV/AIDS and RA, which fit with but cut across the traditional components of the CSM: identity, causes, consequences, timeline and controllability (Leventhal et al., 2003; Moss-Morris et al., 2002). Providing participants with the structured questionnaire limited the exploratory ability of the present study as a co-constructed merging of the questionnaire items and participants' beliefs. However, although some of the ideas that participants expressed were artefacts of the IPQ-R subscales, other ideas about the identity, causes, timeline, consequences and controllability of HIV/AIDS and RA were expressed outside of their respective subscales. The issue of the relative terminality of HIV/AIDS (as terminal) and arthritis (as not life threatening) was raised by Bishop (1991), and was echoed in the

present study even though RA is more specific than 'arthritis' and despite advances in treatment of both illnesses (Klimas, Koneru, & Fletcher, 2008; Lee & Weinblatt, 2001). Future research could benefit from further qualitative and quantitative explorations of the common and specific beliefs about the characteristics of HIV/AIDS and RA, with particular focus on beliefs about the way the two illnesses can be treated, which participants seemed to be least certain about.

The theme regarding sources of information suggested ways in which preconceptions and new information were drawn upon. It can be argued that researchers should not assume respondents will have the relevant knowledge or an opinion on the issues presented (Oppenheim, 1992), but participants made use of the brief introductory information that some were provided with (see Table 1). This kind of introductory information tends to be given minimal attention in surveys of beliefs about HIV/AIDS and RA (Figueiras & Alves, 2007; Holliday et al., 2005; Schiaffino & Cea, 1995; Seacat et al., 2007; Senior et al., 2002; Visser et al., 2006). The information was described as definitive by some participants in the present study but might reflect their expectations in the specific research setting. The content of such introductory information is pertinent because previous research has found that emphasising (homo)sexual transmission of HIV might lead to discrimination through implications of personal control compared to situations that are considered to be out of the individual's control (Seacat et al., 2007; Senior et al., 2002; Visser et al., 2006). Moreover, Coppola and Camus (2007) found that describing the incidence rate of HIV/AIDS using a daily (rather than a yearly) timeframe and in a highly argumentative manner (using wording of "more than n" compared to "exactly n") enhanced participants' intentions to use condoms but simultaneously reduced their tolerance towards individuals with the illness. These beliefs require further investigation using a variety of methods in order to triangulate understanding of the status quo of beliefs and inform potential public health intervention efforts. Caution might need to be

exercised when selecting specific illness-related information to present in public health education materials about HIV/AIDS, RA or other illnesses, and would benefit from piloting to ensure that the information being provided is drawn upon in a useful fashion.

The theme on the state of other people's knowledge highlighted how participants were able to theorise about the thoughts and feelings of individuals with HIV/AIDS or RA. These theories provide evidence of the ways in which education and publicity (e.g., information disseminated by charitable organisations) might inform the views held by the general population about individuals with these illnesses. Variations in the quality of communication with doctors were not mentioned by any participant nor were variations in access to doctors and care-seeking behaviour, although these vary considerably for people with HIV/AIDS (Dickson & Davidson, 2006) and RA (Sandhu, et al., 2007). This may reflect idealisation of medical communication and Aotearoa/New Zealand's nationalised healthcare system as taken-for-granted (cf. Braun, 2008). Future research into people's expectations of interactions with medical doctors and other health professionals could enhance understanding of people's rationalisations for seeking or avoiding healthcare when they have illnesses that they are not familiar with.

The think-aloud approach proved to be an informative and effective way of conducting an in-depth exploration of the adapted version of the IPQ-R and has provided preliminary evidence for its face validity. The results of the present study provide further evidence regarding the interwoven but distinctive nature of components of the CSM (Leventhal et al., 2003) and the sources that can inform those beliefs. The present study also supports the application of the CSM to illness-free individuals, and builds upon existing research on the beliefs that illness-free people hold about illnesses (Figueiras & Alves, 2007; Holliday et al., 2005; McQuade, 2002; Schiaffino & Cea, 1995; Seacat et al., 2007; Senior et al., 2002; Visser et al., 2006).

The results of the present study should be considered within the constraints of the specific method that

was applied. Firstly, the researcher's presence may have influenced what was said (Oppenheim, 1992), and thinking aloud under observation is a novel and demanding task for most participants. However, Drennan argued that the process of questionnaire completion is not fundamentally changed by thinking aloud, other than slightly increasing the time taken (Drennan, 2003). French and Weinman acknowledged the benefit of using the IPQ-R as a starting framework for generating detailed discussion of beliefs about specific illnesses (French & Weinman, 2008). The present study generated a wealth of information that could not have been elicited through standard questionnaire procedures. Considerable work underlies the development and validation of questionnaires (e.g., Moss-Morris et al., 2002), but our research demonstrates the additional knowledge that can be generated by investigating expansion and attempting explication (Stainton Rogers, 2009).

Our personal role in analysing the data also deserves consideration. Both authors are more familiar with musculoskeletal pain experienced by people with RA than symptoms and syndromes of HIV/AIDS, and we both live in relatively privileged circumstances with easy access to all levels of healthcare. The present data were coded in an inductive manner, drawing on recommendations for thematic analysis (Braun & Clarke, 2006). We therefore made an active effort to reflect on our position and think beyond a deductive categorisation in the present study. This analytic approach led to insights that cut across the established components of the CSM, particularly regarding psychological processes believed to be related to experiencing the illnesses. Moreover, findings about issues other than the nature of illness beliefs were explicated through this inductive approach.

The size of the present sample can be deemed appropriate given the exploratory nature of our in-depth inductive analysis of the think-aloud data, which informed the qualitative findings about issues underlying illness-free individuals' beliefs about chronic illness. Further studies are required to investigate whether these themes

are relevant to other questionnaires or other illnesses and to broaden upon the specific geographical location and specific characteristics of the present sample. In particular, we were unable to recruit any non-heterosexual participants despite having no inclusion or exclusion criterion relating to sexuality. Future studies could address this absence in addition to further consideration of the role of cultural origins/identification for beliefs about illnesses.

As HIV/AIDS and RA have both been identified as common chronic illnesses around the world (Lee & Weinblatt, 2001; UNAIDS, 2010), it is important that the beliefs about these illnesses held by illness-free individuals are taken into consideration given the potential impact that these beliefs could have on the well-being of those who are ill or for those who become ill. The present study makes a contribution towards deepening this understanding by providing a novel and exploratory examination of the common-sense beliefs that illness-free individuals hold about HIV/AIDS and RA, beliefs which highlight some stereotyping and assumptions but also evidence of empathy. We have demonstrated how the application of thematic analysis to the think-aloud process can be a useful way of conducting in-depth research on health-related questionnaires, producing complex and relevant data that would not be evident from standard questionnaire completion processes that continue to dominate much of the research into beliefs about illnesses.

References

Alamanos, Y., & Drosos, A. A. (2005). Epidemiology of adult rheumatoid arthritis. *Autoimmunity Reviews*, 4(3), 130-136.

Albarracín, D., Gillette, J. C., Earl, A. N., Glasman, L. R., Durantini, M. R., & Ho, M.-H. (2005). A test of major assumptions about behavior change: a comprehensive look at the effects of passive and active HIV-prevention interventions since the beginning of the epidemic. *Psychological Bulletin*, 131(6), 856-897.

Bishop, G. D. (1991). Lay disease representations and responses to victims of disease. *Basic and Applied Social Psychology*, 12(1), 115-132.

Braun, V. (2008). "She'll be right"? National

identity explanations for poor sexual health statistics in Aotearoa/New Zealand. *Social Science & Medicine*, 67(11), 1817-1825.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(1), 77-101.

Coppola, V., & Camus, O. (2007). Preventing without stigmatizing: the complex stakes of information on AIDS. *Patient Education and Counseling*, 67(3), 255-260.

Darker, C. D., & French, D. P. (2009). What sense do people make of a theory of planned behaviour questionnaire? A think-aloud study. *Journal of Health Psychology*, 14(7), 861-871.

Dickson, N., & Davidson, O. J. (2006). HIV prevention in New Zealand - still room for improvement. *New Zealand Medical Journal*, 119(1243), U2250.

Drennan, J. (2003). Cognitive interviewing: verbal data in the design and pretesting of questionnaires. *Journal of Advanced Nursing*, 42(1), 57-63.

Dworkin, S. L. (2005). Who is epidemiologically fathomable in the HIV/AIDS epidemic? Gender, sexuality, and intersectionality in public health. *Culture, Health & Sexuality*, 7(6), 615-623.

Figueiras, M. J., & Alves, N. C. (2007). Lay perceptions of serious illnesses: an adapted version of the Revised Illness Perception Questionnaire (IPQ-R) for healthy people. *Psychology & Health*, 22(2), 143-158.

French, D. P., Cooke, R., McLean, N., Williams, M., & Sutton, S. (2007). What do people think about when they answer Theory of Planned Behaviour questionnaires? A 'think aloud' study. *Journal of Health Psychology*, 12(4), 672-687.

French, D. P., & Weinman, J. (2008). Assessing illness perceptions: beyond the IPQ. *Psychology and Health*, 23(1), 5-9.

Hagger, M. S., & Orbell, S. (2003). A meta-analytic review of the common-sense model of illness representations. *Psychology and Health*, 18(2), 141-184.

Holliday, J., Wall, E., Treasure, J., & Weinman, J. (2005). Perceptions of illness in individuals with anorexia nervosa: A comparison with lay men and women. *International Journal of Eating Disorders*, 37(1), 50-56.

Karlson, E. W., Mandl, L. A., Aweh, G. N., & Grodstein, F. (2003). Coffee consumption and risk of rheumatoid arthritis. *Arthritis & Rheumatism*, 48(11), 353-355.

Klimas, N., Koneru, A. O., & Fletcher, M. A.

- (2008). Overview of HIV. *Psychosomatic Medicine*, 70(5), 523-530.
- Lee, D. M., & Weinblatt, M. E. (2001). Rheumatoid arthritis. *Lancet*, 358(9285), 903-911.
- Leventhal, H., Brissette, I., & Leventhal, E. A. (2003). The common-sense model of self-regulation of health and illness. In L. D. Cameron & H. Leventhal (Eds.), *The Self-Regulation of Health and Illness Behaviour* (pp. 42-65). London: Routledge.
- McQuade, D. V. (2002). Negative social perception of hypothetical workers with rheumatoid arthritis. *Journal of Behavioral Medicine*, 25(3), 205-217.
- Moss-Morris, R., Weinman, J., Petrie, K. J., Horne, R., Cameron, L. D., & Buick, D. (2002). The revised illness perception questionnaire (IPQ-R). *Psychology and Health*, 17(1), 1-16.
- Oppenheim, A. N. (1992). *Question wording. In Questionnaire Design, Interviewing, and Attitude Measurement* (pp. 119-149). London: Pinter.
- Sandhu, R., Treharne, G. J., Justice, E. A., Jordan, A. C., Saravana, S., Obrenovic, K., et al. (2007). Accessibility and quality of secondary care rheumatology services for people with inflammatory arthritis: a regional survey. *Clinical Medicine*, 7(6), 579-584.
- Schiaffino, K. M., & Cea, C. D. (1995). Assessing chronic illness representations: the Implicit Models of Illness Questionnaire. *Journal of Behavioral Medicine*, 18(6), 531-548.
- Seacat, J. D., Hirschman, R., & Mickelson, K. D. (2007). Attributions of HIV onset controllability, emotional reactions, and helping intentions: implicit effects of victim sexual orientation. *Journal of Applied Social Psychology*, 37(3), 1442-1461.
- Senior, V., Weinman, J., & Marteau, T. M. (2002). The influence of perceived control over causes and responses to health threats: a vignette study. *British Journal of Health Psychology*, 7(2), 203-211.
- Stainton Rogers, W. (2009). Research methodology. In D. Fox, I. Prilleltensky & S. Austin (Eds.), *Critical Psychology: An Introduction* (2nd ed., pp. 237-246). London: Sage.
- Taylor, W., Smeets, L., Hall, J., & McPherson, K. (2004). The burden of rheumatic disorders in general practice: consultation rates for rheumatic disease and the relationship to age, ethnicity, and small-area deprivation. *New Zealand Medical Journal*, 117(1203), U1098.
- UNAIDS. (2010). *Report on the Global AIDS Epidemic 2010*. Geneva: UNAIDS. Accessed 4 April 2011 at http://www.unaids.org/documents/20101123_GlobalReport_em.pdf
- Visser, M. J., Makin, J. D., & Lehigh, K. (2006). Stigmatizing attitudes of the community towards people living with HIV/AIDS. *Journal of Community & Applied Social Psychology*, 16(1), 42-58.
- Willig, C. (1992). Assumptions in people's talk about AIDS. *Journal of Community & Applied Social Psychology*, 2(3), 217-221.

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