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The role of perceived partner alliance on the efficacy of CBT-I: Preliminary findings from the Partner Alliance in Insomnia Research Study (PAIRS)

Jason G. Ellis, PhD^{a,*}, Vincent Deary, PhD^a, and Wendy Troxel, PhD^b

^aNorthumbria Centre for Sleep Research, Northumbria University, Newcastle, UK

^bRAND Corporation, Pittsburgh, PA, US

Abstract

Despite Cognitive Behavioural Therapy for Insomnia (CBT-I) being effective, barriers to adherence have been documented. Perceived partner alliance has been shown to influence adherence and treatment outcome across a range of other health conditions. The present study examined patients' perceptions regarding the role of their partner in CBT-I and the impact of perceived partner alliance on treatment outcome. Twenty-one patients were interviewed, following CBT-I, to examine the areas where partners were thought to influence the process of CBT-I. The majority of statements made during interviews explicitly mentioned a partner's influence (65%). Additionally, the production of more positive partner statements was associated with better treatment outcome (using the Insomnia Severity Index). The integration of perceived partner alliance, into CBT-I, is discussed.

Introduction

Despite considerable evidence of the effectiveness and clinical efficacy of Cognitive Behavioural Therapy for Insomnia (CBT-I), a lack of qualified providers (Manber et al, 2012) and poor adherence, particularly for its behavioural components (Perlis et al, 2004; Riedel & Lichstein, 2001; Sexton-Radek & Overton, 1996), are significant barriers to its widespread uptake. Where developments such as Computerized CBT-I (CCBTI) have begun to address the shortfall in qualified personnel, there have been few modifications to CBT-I specifically addressing adherence and treatment outcome. Research in other health domains shows that integration of family members, in particular partners, into the therapeutic process can positively influence adherence and treatment outcome (Baranowski & Nader, 1985; Black et al, 1990; Keefe et al, 2005; O'Farrell, 1993; Nezu et al, 2003). In this context, partners can influence the approach to therapy, the therapist, and levels of engagement with the active components of the therapy (i.e. partner alliance).

Specific to the domain of Behavioural Sleep Medicine (BSM), involving partners in the management of Continuous Positive Airway Pressure (CPAP) can have a beneficial impact

*Corresponding Author, Dr Jason G Ellis, Northumbria Centre for Sleep Research, Faculty of Health and Life Sciences, Northumbria University, 138 Northumberland Building, Newcastle-upon-Tyne, NE1 8ST, Jason.ellis@northumbria.ac.uk, +44(0)1912273081.

on levels of adherence (Cartwright, 2008; Baron et al, 2011). That said, if the quality of support is perceived as negative or unwanted (e.g. perceived as nagging or intrusive) it can negatively influence outcomes (Gorin et al, 2003; Kuijer et al, 2000; Magill et al, 2010). For example, in Baron et al's study (2011), perceived pressure from partners was associated with poorer adherence. Moreover, Hoy et al (1999) found poorer adherence to CPAP in those who were referred by a partner compared to those who self-referred. As such, partner alliance can be viewed on a continuum from non-existent, or even resistant, through to controlling and overly involved.

As with adherence to CPAP, the influence of partners on CBT-I may be particularly relevant due to the context of the problem (i.e. sleep is commonly a dyadic process) (Meadows et al, 2009; Troxel, 2010; Troxel et al, 2007; Troxel et al, 2008). More specifically, given that CBT-I traditionally involves changing the timing of bed and wake times, leaving the bedroom during the night, and curtailing sleep incompatible behaviours, there is clear potential for partners to influence, either positively or negatively, adherence, and ultimately, the outcome of CBT-I (Rogojanski et al, 2012).

The aim of the present study was to explore, a) the extent to, and ways in which partner alliance is a relevant issue for patients undergoing CBT-I and b) whether perceived partner alliance influences treatment outcome. It was hypothesized that perceived partner alliance would be a significant factor in patient's narratives about their experiences of CBT-I. Moreover, it was hypothesised that a) an increasing number of positive statements generated about partner alliance would be associated with better treatment outcome, and b) an increasing number of negative statements generated about partner alliance would be associated with poorer treatment outcome.

Method

Participants were drawn from an existing database of patients, self-referred to the Northumbria Centre for Sleep Research (NCSR), following local newspaper and poster campaigns in the North East of the UK looking for individuals with insomnia to take part in a series of non-pharmacological (i.e. CBT-I) treatment studies. Participants were eligible to take part in the present study if they; a) had a principle complaint of insomnia, b) were currently in a relationship, and c) they and their partner were over 18 years of age. Participants who met these criteria had attended a briefing session at the centre prior to starting their CBT-I (as is standard for all treatment studies at the NCSR).

At the briefing session participants completed informed consent and were clinically screened, by the study PI (JGE), for Insomnia Disorder according to DSM-5 criteria (Reynolds & Redline, 2010), that is, a reported dissatisfaction with sleep characterised as either a difficulty in initiating or maintaining sleep or early morning awakenings. Further, the insomnia had to be present for three or more nights per week for at least the last three months and cause significant daytime dysfunction. Finally, these conditions had to be met in spite of adequate opportunity for sleep. At the briefing, participants were screened but not excluded for psychiatric and/or physical illnesses and sleep medication (including OTC and

alcohol) use. Participants also completed the Insomnia Severity Index (ISI: Morin, 1993) at this time.

Participants who met DSM-5 criteria were provided sleep diaries and given instructions for completing the diaries over the two weeks prior to commencing treatment (baseline data). Finally, six-week blocks of treatment sessions were agreed upon with each participant starting approximately two weeks following the briefing session. Sessions were delivered on an individual basis by the same therapist (JGE) to avoid differing therapists factors influencing the results and each session lasted between 50–60 minutes. The six-week CBTI was structured as follows: 1) Sleep Education and Sleep Hygiene; 2) Sleep Restriction; 3) Stimulus Control; 4) Cognitive Control and Distraction Techniques; 5) Cognitive Restructuring and Relaxation Exercises; 6) Final Review and Avoiding Relapse. At each session a new sleep diary was provided to account for the following week and each session started with a review of the sleep diary from the previous week. At the end of the final session participants completed the ISI.

Participants who met the eligibility criteria and had completed a programme of CBT-I were asked if they could be interviewed individually, face-to-face or by telephone, about their experiences of CBT-I. Participants gave informed consent for the interview to take place. The mean duration between completion of CBT-I and the interview was 4.33 ± 4.85 weeks. Interviews took approximately 30–45 minutes. At the beginning of the interview participants were asked how long they had been in their current relationship and how often ‘over a typical week’ they and their partner slept apart. Participants who reported sleeping apart more than once a week (e.g. if they did not co-habit, worked opposite shifts, worked away from home) were thanked for their time and the interview was terminated. The format for the interview followed Gold & Dahl’s (2010) ‘importance and confidence rulers’ from their Motivational Interviewing framework for BSM. First, participants were asked to rate, on a scale from zero to ten, how difficult they had found engaging with the CBT-I (zero = really difficult – to – ten = really easy). Once participants had identified a number they were asked what helped them achieve their score and what would have helped them achieve a higher number (unless they reported a ten). Following, participants were asked to rate, again on a scale of zero to ten, how important they felt it had been to do all the techniques outlined during the sessions (zero = not important at all – to – ten = very important). Participants were then asked the reasons for the number given and not a lower score (unless they reported a zero) and what would need to have occurred for them to score higher (unless they reported a ten). Finally, participants completed the same rating procedure based upon how confident they were that they would maintain their treatment gains in the future. In each case, after a reason was given for a score, participants were asked ‘what else?’ until saturation was reached (i.e. the participant felt there were no other factors influencing their scores).

Measures

The ISI (Morin, 1993) measured pre-post treatment changes in insomnia severity. A score of 10 or above (range 0–21) is considered the cut off for a diagnosis of insomnia in community settings (Morin et al, 2011). The ISI has excellent psychometric properties (Bastien et al,

2001) and it has been shown to be sensitive to recovery following CBT-I (Morin et al, 2011).

Standard Sleep Diaries (Morin, 1993) measured perceived sleep continuity; Sleep Latency (SL), Wake After Sleep Onset (WASO), Time in Bed (TIB), Total Sleep Time (TST), Number of Awakenings (NWAK) and Sleep Efficiency (SE). Participants were instructed to complete the diary each morning. Each variable from the diaries was calculated individually and then averaged across the number of days completed. The sleep variables derived from the averaged two-week sleep diaries at baseline were compared against the averaged sleep data from the final week (i.e. post treatment).

Analytic Strategy

Interviews were transcribed verbatim. A quantitative Content Analysis was chosen to analyse the data. Sentences were selected if reference to a partner or significant other was made during the interview. Units of Analysis (phrases within a sentence) (e.g. "...my husband really did not like us going to bed at different times") were coded using an open manifest coding approach. In other words, no interpretations were made on the participant's words.

Partner-related Units of Analysis were then coded into positive or negative units. Positive units were defined as any helpful, encouraging, or supportive statements relating to the process of CBT-I (e.g. my husband stayed up with me past his usual bedtime) and negative units were defined as statements that were unhelpful, disempowering, or counterproductive to the process of CBT-I (e.g. my wife would persuade me to lie-in at the weekend). A series of themes were then created to represent the range of statements made by participants.

Finally, paired t-tests were used to determine whether there were significant changes between baseline and follow-up on subjectively reported sleep and partial correlations (controlling for the duration of current relationship) were used to examine the relationship between changes in ISI scores and the number of positive and negative statements made.

Results

Twenty-five individuals were identified that met criteria for the study, had attended a briefing session, and had completed a full programme of CBT-I. Of those twenty-five, twenty-three agreed to be interviewed (92%). From the interview, data from two participants was excluded as the couple slept apart more than one night per week. The final sample comprised 15 women and six men (Mean age 33.67 ± 9.69 years). The mean length of insomnia was 5.94 ± 4.19 years and the length of current relationship was 4.27 ± 5.34 years. Of the final sample, one participant reported having had a stroke prior to the onset of their insomnia, two reported a history of depression, and one reported a current diagnosis of an anxiety disorder. Additionally, two participants had reported using alcohol or antihistamines to sleep 'once or twice' a month at the briefing. All 21 participants attended six sessions although sessions had to be rescheduled for five participants who missed or were unable to make a session.

On average, participants provided 13.9 ± 5.17 Partner-related Units of Analysis out of a total of 21.12 ± 5.39 Units of Analysis (65.81%). From the content analysis, Partner-related Units of Analysis were grouped under three themes; beliefs (10 statement categories), discourse (31 statement categories), and actions (20 statement categories). Of all Partner-related Units of Analysis, participants reported, on average, 8.81 ± 4.38 positive statements (63.38%) and 5.1 ± 3.3 negative statements (36.61%) (see Table 1).

Paired t-tests showed the subjective sleep of participants had improved following CBT-I (Table 2). After controlling for length of current relationship there was an association between the number of positive statements generated and changes (between baseline and completion) on ISI scores ($r(18)=.47, p<.04$) with an increasing number of positive statements generated being associated with higher change scores on the ISI. No association was found between the number of negative statements generated and change scores on the ISI ($r(18)=.03, p=.89$).

Discussion

The aim of the present study was to determine whether individuals who had undergone CBT-I perceived partner alliance as having an influence on their engagement with CBT-I and to determine whether perceived partner alliance (either positive or negative) was associated with treatment outcome. Findings indicate perceived partner alliance is an important phenomenon for individuals undergoing CBT-I. During the interviews participants frequently reported the influence of partners on their thoughts, feelings, and experiences towards CBT-I. In fact over 65% of all responses given, related in some capacity, to partners. Moreover, these figures were reported despite not being explicitly asked about the role of partners in their therapy. This finding suggests partner alliance is an important consideration in CBT-I and worthy of further exploration (Rogojanski et al, 2012).

The results also suggest, albeit tentatively, that positive partner alliance influences treatment outcome as the number of positive statements generated by participants was associated with better treatment outcome. This preliminary finding holds particular relevance for the newer forms of CBT-I such as CCBTI. As the majority of these computerised programmes are automated there is little opportunity for therapeutic intervention to help manage the impact of partners on the process, and ultimately the outcome, of CBT-I. As such, a useful adjunct would be an online module designed to engage, educate, and inform partners about their potential role in CBT-I. Even with traditional forms of CBT-I inviting partners to the first session of CBT-I, or adding a session before starting CBT-I, outlining their potential contribution, could have a positive impact (as long as the balance between perceived need by the partner and perceived desire by the patient is clearly articulated) on treatment outcome.

Interestingly, the number of negative statements generated by participants was unrelated to treatment outcome. It was hypothesised that more negative statements would relate to poorer treatment outcome, presumably through reduced adherence to the components of CBT-I. What is unknown is whether the negative statements proffered by participants related to

‘perceived’ barriers from their partners (e.g. being told it is a good idea to nap in the day but not actually doing it), which could be considered annoying but not counterproductive, or whether these negative statements resulted in actual behaviour change (e.g. napping during the day) which would have been counterproductive to CBT-I. The results suggest the former more likely as the number of negative statements generated was not associated with poorer treatment outcomes (i.e. the direction of association between the number of negative statements generated and improvements on the ISI was positive). That said, future research should explore which, if any, of the negative statements generated by individuals undergoing CBT-I are more likely to elicit behaviour change and the potential mediators and moderators of any decision to change behaviour or not.

Limitations

There are limitations that should be taken into account. This was a preliminary study and provisions were made to ensure that all the participants completed all six sessions of CBT-I (i.e. rescheduling sessions for five participants who missed or cancelled an appointment). Moreover, no account was taken of other interpersonal or environmental factors that could have influenced the outcome of therapy, such as children in the bedroom. As such, it is unknown whether perceived partner alliance would have; a) affected attrition, and b) whether other environmental factors could have influenced the observed relationship between perceived partner alliance and treatment outcome. In terms of the latter issue, environmental factors that have the potential to adversely affect sleep, such as pets and children in the bedroom, were discussed and discouraged during the sleep education and sleep hygiene session, although not formally assessed for adherence. As such, future studies should replicate the present findings with larger samples to examine issues of attrition and measure a wider variety of interpersonal and environmental factors that may have a bearing on treatment outcome. A final limitation is the self-report nature of the study. Not only were levels of alliance based on the participants’ perception but changes in sleep over the course of CBT-I were also based on self-reports. In terms of the former point, it is likely that perceived partner alliance is going to be at least as, if not more, meaningful than actual partner alliance. For example, if an individual feels they are supported they are more likely to engage with the process irrespective of whether that support is there or not. As for the latter point, insomnia is largely a subjective complaint and therefore perceived improvements or decrements in sleep are more important than objective sleep parameters such as Polysomnography (which is not required for a diagnosis under the American Academy of Sleep Medicine). Moreover, the levels of treatment gain observed here broadly match those reported in recent meta-analyses (Okajima et al, 2011; Mitchell et al, 2012). That said, further research with, for example, actigraphy would provide an objective dimension in understanding the impact of partner alliance on CBT-I outcome. Additionally, it would be of interest to determine the veridicality of the statements made by patients from the partners’ perspective.

Conclusion

In summary, the present study provides preliminary evidence for the role of partner alliance on the process and outcome of CBT-I. Future studies should aim to a) determine ways to

increase perceived partner alliance for CBT-I across the range of delivery modalities, b) examine the impact of partner alliance on attrition levels, and c) examine the impact of negative perceived partner alliance on behaviour change.

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Table 1

Statement categories identified from the interviews (N =21)

Context	Positive	n	Negative	n
Beliefs (my partner...)	Believed in my ability to cope with CBT-I	11	Does not believe in CBT-I / talking therapies	8
	Understands why sleep hygiene is important	9	Believes insomnia is not a proper illness	2
	Provided emotional support throughout the therapy	6	Failed to understand my treatment	2
	Understands the reason for sleep restriction	4	Felt that I should quit	2
	Would know what to do to help me prevent a relapse	1		
	Understands why sleep is so important to me	1		
Discourse (my partner...)	Dissuaded me from quitting	15	Expressed concerns that treatment successes may only be temporary	9
	Motivated me to keep going	10	Complained about me leaving the bedroom during the night	8
	Made positive comments about my improved mood	7	Insisted bedtime routines should stay the same	6
	Asked about the content of sessions	7	Said I was really hard to live with because I was so tired	5
	Encouraged me to attend sessions	6	Voiced concerns that I was not getting better	5
	Asked me to teach them my distraction techniques	5	Said I should stay in bed and try to sleep	5
	Mentioned that I am nicer since starting CBT-I	5	Refused to remove visible clock/alarm clock	4
	Did not complain about new sleep routines even though they were disruptive	5	Complained about changes to the bedroom	4
	Told me I look better / healthier	3	Encouraged me to go to bed if I was falling asleep	4
	Reminded me to complete my sleep diary	3	Made unhelpful comments about having even less energy	3
	Made positive comments about my improved energy	3	Told me off if I deviated from your instructions	3
	Asked what they could do to help me	2	Complained about the new routines	3
	Reminded me to stop working before bedtime	2	Encouraged me to spend more time in bed at the weekend	3
	Made positive comments about our improved relationship	2	Made negative comments about me having even less energy	3
Reminded me to complete my cognitive diary	1	Wanted to see everything I was doing including my diaries	2	
		Said my distraction techniques were strange	1	
Actions (my partner...)	Woke me if I was having a nap / dozing	17	Allowed me to sleep in occasionally	6
	Stopped using technology in the bedroom	12	Will not see someone about their snoring	4
	Helped me find things to do at night	9	Would not keep me company at night	4
	Stayed up later with me at night	8	Used computer/tablet/phone in bedroom	4
	Gave me rewards to keep me going	7	Wanted to talk about sleep and my insomnia just before bed	4
	Provided physical help with making changes	5	Would close the windows overnight	1
	Got up at the same time as me in the morning	4	Interrupted me during my distraction techniques	1
	Gave me space to do my homework	3		
	Changed their pre-sleep routine to fit in with mine	3		

Context	Positive	n	Negative	n
	Did our relaxation exercises together	3		
	Made me lots of non-caffienated drinks	3		
	Purchased me magazines / books to read in my wind down time	2		
	Purchased me fruit teas	1		

n = number of comments made in each category

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Table 2

Differences in Self-reported Sleep Pre/Post CBT-I

Sleep Diary Data	Baseline	End of Treatment	t
Time in Bed	489.72 (35.31)	422.53 (39.85)	-7.64***
Sleep Latency	41.39 (31.41)	21.1 (21.52)	-5.00***
Number of Awakenings	2.28 (1.2)	1.2 (.6)	-4.69***
Wake After Sleep Onset	80.84 (52.72)	41.09 (36.66)	-4.38***
Total Sleep Time	324.48 (47.48)	362.55 (39.9)	4.67***
Sleep Efficiency	66.3 (8.56)	86.08 (8.61)	9.36***
Insomnia Severity Index Scores	14.76 (3.02)	5.29 (2.43)	-13.83***

= p<.001

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