

Running head: Negative metacognitive beliefs predict work status

Social Anxiety and Work Status: The Role of Negative Metacognitive Beliefs, Symptom Severity and Cognitive-Behavioural Factors

Henrik Nordahl^{1,2} and Adrian Wells^{3,4}

¹ Department of Psychology, Norwegian University of Science and Technology, Trondheim, Norway.

² St. Olavs Hospital, Division of Psychiatry, Trondheim, Norway

³ Division of Psychology and Mental Health, School of Health Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, UK

⁴ Greater Manchester Mental Health NHS Foundation Trust, Prestwich, UK

Word count (exc. figures/tables): 2570

Corresponding author:

Henrik Nordahl, Department of Psychology, Norwegian University of Science and Technology, Dragvoll, 7491 Trondheim, Norway. Tlf: +47 951 68 246, e-mail:

henrik.nordahl@ntnu.no

The research was conducted at the Department of Psychology, Norwegian University of Science and Technology, Trondheim, Norway.

Social Anxiety and Work Status: The Role of Negative Metacognitive Beliefs, Symptom Severity and Cognitive-Behavioural Factors

Abstract

Background: Psychological health has a profound effect on personal and occupational functioning with Social Anxiety Symptoms in particular having a major effect on ability to work. Recent initiatives have focused on treating psychological illness with cognitive-behavioural models with a view to increasing return to work. However, the psychological correlates of work status amongst individuals with elevated mental health symptoms such as social anxiety are under-explored. *Aims:* This study reports a test of unique predictors of work status drawing on variables that have been given centre stage in cognitive-behavioural models and in the metacognitive model of psychological disorder. *Method:* The sample consisted of high socially anxious individuals who reported working (n=102) or receiving disability benefits (n=102). *Results:* A comparison of these groups showed that those out of work and receiving benefits had greater symptom severity, higher avoidance and use of safety behaviours, greater self-consciousness, and elevated negative metacognitive beliefs and beliefs about the need to control thoughts. However, when the covariance's between these variables were controlled only negative metacognitive beliefs significantly predicted out-of-work status. *Conclusions:* Our finding might be important because CBT does not focus on metacognitive beliefs, but targets components that in our analysis had no unique predictive value for work status.

Declaration of interest: We declare no conflict of interest. The study was supported by the corresponding author's affiliation number 1.

Key Words: cognitive-behavioural therapy; disability benefits; metacognition; return to work; sick leave; social anxiety; metacognitive therapy

Introduction

The cost of mental ill-health for the individual and society is substantial. Mental health symptoms are related to high incidence of sickness absence and are the biggest single cause of disability benefit claims (OECD, 2012). Moreover, work can potentially facilitate recovery from mental ill health and enhance mental well-being (Modini et al., 2016), and the identification and modification of psychological factors underlying work status is therefore of great importance especially amongst individuals reporting mental health symptoms.

The relationship between Social anxiety disorder (SAD) and work status is particularly interesting. SAD is one of the most common mental disorders with a lifetime prevalence of 13 % (Kessler, Petukhova, Sampson, Zaslavsky & Wittchen, 2012), and several studies indicate that SAD has a particularly negative impact on occupational functioning compared to other mental disorders (e.g., Moitra, Beard, Weisberg, & Keller, 2011). It is associated with a threefold increase in disability days (Fehm, Beesdo, Jacobi & Fiedler, 2008), and also subthreshold SAD is associated with high economic work-related costs (Acarturk, Smit, De Graaf, Van Straten, Ten Have & Cuijpers, 2009). Therefore, the identification of psychological factors contributing to work status may inform interventions that enhance return to work (RTW) among the socially anxious.

Best practice psychological interventions could be one way to treat mental ill-health and change health-related behaviours such as reducing the number of people out of work. This strategy is an impetus driving mental health initiatives such as Improving Access to Psychological Therapies (IAPT) in the UK (e.g., Clark, Layard, Smithies, Richards, Suckling & Wright, 2009). According to the UK NICE-guidelines (NICE, 2013), the treatment of choice for SAD is Cognitive therapy based on the Clark and Wells model (Clark & Wells, 1995). The Clark and Wells' (1995) model suggests that SAD is characterized by activation of specific cognitive and behavioural factors: dysfunctional self-schemas, in-situational

heightened self-focused attention, the use of interoceptive information to construct an impression of the self from an “observer perspective”, and the use of safety behaviours which are intended to prohibit negative evaluation by others. These factors are the targets of higher-level treatments implemented under the IAPT initiative, and whilst this treatment can be effective for the individual (Mayo-Wilson et al., 2014) there is currently no research on the relationship between the psychological factors targeted in this model and work status. Moreover, there is preliminary evidence suggesting that Metacognitive therapy (MCT; Wells, 2009) can be a more effective treatment for anxiety and depression than CBT (Normann, Emmerik & Morina, 2014), and that metacognitive- rather than cognitive change is the more reliable predictor of symptom improvement following treatment for SAD (Nordahl, Nordahl, Hjemdal & Wells, 2017). The association between metacognitive factors and work status in socially anxious individuals should therefore be investigated.

In the metacognitive model, a different set of factors than in cognitive models have been implicated in psychological ill-health (Wells & Matthews, 1994, 1996), and these may also have implications for understanding health-related behaviours such as absence from work. The Wells and Matthews model emphasizes biased metacognitive beliefs (beliefs about thinking: e.g. “I cannot control my worrying”) and a perseverative thinking style called the cognitive attentional syndrome (CAS) as transdiagnostic mechanisms underlying psychological disorder. The CAS consists of worry/rumination, threat monitoring and unhelpful coping strategies. Metacognitive beliefs, e.g. beliefs about the uncontrollability and danger of worry, maintain the CAS and therefore emotional distress and symptoms (Wells, 2009). Hence, the metacognitive model places emphasis on specific knowledge structures and could potentially enhance our understanding of factors underlying work status. For instance, in the metacognitive model, metacognitive beliefs about mental control (e.g. “When I start worrying I cannot stop”) contribute to anxiety and reduced confidence in coping, and

metacognitive beliefs could therefore be important for work status and perceived ability to deal with mental health symptoms and workplace stress.

The current study set out to investigate the factors associated with being out of work within a cohort of individuals with social anxiety. We examined the potential contribution of cognitive-behavioural factors, symptom severity and metacognitive beliefs. We hypothesised that metacognitive beliefs would have additional predictive value for work status among the socially anxious over and above symptom severity and cognitive-behavioural factors.

Methods

Participants and procedure

The study was conducted in Norway and was approved by the Regional committee for medical and health research ethics (REC; ref.nr. 2016/705). Participants were invited to participate in a survey of social anxiety through advertisement on social media. Voluntary organizations for mental health in Norway distributed information about the survey to their members and social media followers. In accordance with the ethical approval from REC, informed consent was obtained online following reading of the survey information sheet that was presented on the first page after accessing the link to the survey. Participants were then screened with the Fear of Negative Evaluation scale (FNE; Watson & Friend, 1969), as individuals scoring 22 or above on this measure are a valid research analogue for SAD (Stopa & Clark, 2001). All participants scoring below this threshold, reporting to be younger than 18 years old, and participants reporting to be students or retired were excluded from the study. Our sample therefore consisted of highly socially anxious individuals, being working age and currently working or out of work and receiving disability benefits. A total of 712 participants signed up for the survey from which 382 were excluded because they scored lower than 22 on the FNE, and another 126 were excluded because they were students (n=125) or retired (n=1).

The total sample consisted of 204 participants of which 102 (50%) were out of work. The mean age in the total sample was 34.03 (10.47) and 174 (85.3%) were female. In the out of work group 89 (87.3%) were female, and the mean age was 34.5 (10.56) years. All 102 reported to be on long-term sick leave; at least 1 year away from work. In the working group, 85 (83.3%) were female and the mean age was 33.5 (10.40) years. There was no significant difference between the groups in gender distribution or age.

Measures

The Fear of Negative Evaluation scale (Watson & Friend, 1969) is a 30-item measure of apprehension and anxiety over anticipated social evaluations. It is widely used in research on social phobia, and has also been shown to be a valid tool for identifying social phobia analogues (Stopa & Clark, 2001). The measure uses a true-false scale with good internal consistency ($\alpha = .94$) and test-retest reliability ($r = .78$) (Watson & Friend, 1969). FNE has a range from 0 to 30, high scores indicating higher levels of social anxiety. In the current study sample, the Cronbach's alpha was .63.

The Social Phobia Rating Scale (Wells, 1997) has five rating-scales assessing key components of the Clark and Wells (1995) model of social anxiety; distress, avoidance, self-consciousness, use of safety behaviors, and negative cognitive beliefs (e.g. "I'm inadequate").

1. Distress: participants are asked to rate how distressed they have been by their social anxiety in the last week on a scale ranging from 0 (not at all) to 8 (extremely, never been worse).
2. Avoidance: participants are asked to rate to what extent they have avoided social situations the previous week on a scale ranging from 0 (not at all) to 8 (all the time).
3. Self-consciousness: participants are asked to rate how self-conscious they have felt in social situations the last week on a scale ranging from 0 (not at all) to 8 (extremely).
4. Use of safety behaviors: participants are asked how often they use different examples of safety behaviors

when they are socially anxious. Participants give a rating for 15 different examples of safety behaviors, e.g. “try to relax” and “avoid eye contact”, on a scale from 0 (not at all) to 8 (all the time). A total score can be derived by summing the ratings for each item. In the current study, the scale had high internal consistency ($\alpha = .78$).

5. Negative cognitive beliefs: participants are asked to rate how much they believe 14 different negative beliefs characterizing social phobia on a scale from 0 (not at all) to 100 (totally convinced that the belief is true) when they are socially anxious, e.g. “I look bad” and “They will notice I’m anxious”. A total score can be derived by summing the belief ratings for each item, so the total scale ranges from 0 to 1400. In the current study, the scale had excellent internal consistency ($\alpha = .91$).

The MCQ-30 (Wells & Cartwright-Hatton, 2004) is a 30-item self-report scale measuring metacognitive beliefs about thinking. Responses are required on a four-point scale ranging from 1 (do not agree) to 4 (agree very much), and each subscale has a range from 6-24 points. A five-factor structure exists: 1) positive beliefs about worry (pos; e.g. “Worrying helps me cope”); 2) negative beliefs about thoughts concerning uncontrollability and danger (neg; e.g. “When I start worrying I cannot stop”); 3) cognitive confidence (cc; e.g. “My memory can mislead me at times”); 4) beliefs about the need to control thoughts (nc; e.g. “Not being able to control my thoughts is a sign of weakness”); and 5) cognitive self-consciousness (csc; e.g. “I pay close attention to the way my mind works”). High scores reflect more reported problems with the item in question. The measure has shown good internal consistency with Cronbach’s alpha ranging from 0.72 to 0.93 (Wells & Cartwright-Hatton, 2004), and it has been used in large samples of ‘analogue’ populations (e.g., Spada, Mohiyeddini & Wells, 2008). In the current study, the Cronbach alpha’s ranged from .76 to .88 (pos: $\alpha = .87$, neg: $\alpha = .79$, cc: $\alpha = .88$, nc: $\alpha = .79$, csc: $\alpha = .76$).

Overview of data analyses

Independent samples t-tests were computed to compare the working and the disability groups on FNE total score, distress, avoidance, self-consciousness, use of safety behaviours, negative cognitive beliefs and maladaptive metacognitive beliefs. As we ran 11 independent t-tests, Bonferroni correction was applied (α -level .0045).

Binary logistic regression was run to test the unique contribution of variables to work status and to examine any additional variance that could be explained by metacognitive beliefs. In the first block, we controlled for FNE total score (i.e. severity of social anxiety), distress and the components emphasised in CBT models (avoidance, self-consciousness, use of safety behaviours, cognitive beliefs). In the final step we specified all MCQ-30 subscales and selected backward Wald entry to determine the optimal set of possible additional predictors.

Results

Group comparisons

The group comparisons are presented in Table 1. After applying Bonferroni corrections, the group receiving disability benefits showed significantly greater symptom severity measured by the FNE and SPRS distress. They also reported significantly greater severity of avoidance, self-consciousness, use of safety behaviours, negative beliefs about the uncontrollability and danger of thoughts, and greater beliefs about the need to control thoughts compared to the working group.

Insert table 1 here

Binary logistic regression analysis

We used binary logistic regression to determine if metacognitive beliefs were independent predictors of membership of the working or the disability group and the associated odds after controlling for FNE score, distress, and factors central in the cognitive model.

We found that negative metacognitive beliefs were a significant predictor of group membership, with an odds ratio above 1 indicating that a higher score on negative metacognitive beliefs was associated with belonging to the disability group. Neither severity (FNE-score, level of social anxiety distress in the last week), nor factors emphasized in CBT (avoidance, self-consciousness, use of safety behaviours, negative cognitive beliefs [schemas]) were significant predictors. Apart from negative metacognitive beliefs, none of the other metacognitive belief domains were significant as predictors in this analysis. In the final equation, the Nagelkerke R^2 for the model was .215, $\chi^2(6) = 35.875$, $p < .001$, and the odds ratio for negative metacognitive beliefs was 1.132. The Hosmer and Lemeshow's test was not significant ($p = .403$) indicating a good model fit. The final step of the binary logistic regression is presented in Table 2.

Insert table 2 here

Discussion

Our results showed that, whilst the out of work group were more severe on most indices measured, only negative metacognitive beliefs had unique predictive value for work status in this socially anxious sample. Higher scores on negative metacognitive beliefs were associated with higher odds of belonging to the group receiving disability benefits. To our surprise, neither severity levels nor any of the treatment components emphasised in CBT were significant as predictors of work status in the final model. However, negative metacognitive

beliefs showed predictive value over and above these variables suggesting that the construct should be assessed further for predictive and clinical utility in this context. The finding suggests that negative metacognitive beliefs might be important for work status, and the effect of examining these beliefs in treatment as a means to facilitate return to work should be investigated.

Why should negative metacognitive beliefs predict work status? According to the metacognitive model (Wells & Matthews, 1994), dysfunctional metacognitive beliefs lead to the activation and persistence of worry and ruminative thinking styles (Wells, 2009). Thus, it is possible that beliefs about the uncontrollability and corresponding danger of thoughts contribute to a persistent and negative orientation to internal cognitive experiences, compromising mental self-regulation efforts and biasing perceived ability to deal with workplace stress. For example, negative metacognitive beliefs about the dangerousness of thoughts (e.g. “My worrying could make me go mad”) are likely to lead to internal monitoring of mental functioning and to fear of cognitive and emotional processes. This is likely to contribute to difficulty handling stress and challenges in the workplace which culminates in work avoidance.

Our finding that negative metacognitive beliefs, but not the components emphasized in CBT, are important for work status in an analogue SAD sample, is interesting in light of a recently published systematic review and meta-analysis on enhancing return to work in common mental disorders; CBT-based interventions were associated with a decrease in the number of sick leave days, but no significant difference was found between the intervention and the control groups in overall success of return to work (Nigatu et al., 2016). A possible explanation is that CBT-based interventions may not address the underlying factors contributing to work status. Metacognitive therapy (Wells, 2009) could potentially be more effective for enhancing return to work than CBT because it is specifically designed to modify

dysfunctional metacognitive knowledge (e.g., negative metacognitive beliefs). Our results support this notion and imply that negative metacognitive beliefs should be targeted to enhance ability to work in individuals with social anxiety.

A limitation of the current study is its cross-sectional design, and therefore no causal inferences can be made. Moreover, we used no formal assessment of diagnosis. However, our aim was to provide a 'proof of concept' test of the utility of metacognitive predictors in an analogue SAD sample. We suggest further research to replicate this study with a longitudinal design including more detailed information concerning psychopathology. We also suggest that factors underlying work status in a broader spectrum of diagnostic groups should be evaluated. Further, the effectiveness of Metacognitive therapy (Wells, 2009) using return to work as an outcome variable should be evaluated.

In conclusion, the current study suggests that negative metacognitive beliefs may be an important factor for work status among individuals with social anxiety. Negative metacognitive beliefs were a significant predictor of work status, even after controlling for symptom severity and the cognitive-behavioural variables that are targeted in recommended treatment models.

References

- Acarturk, C., Smit, F., De Graaf, R., Van Straten, A., Ten Have, M., & Cuijpers, P. (2009). Economic costs of social phobia: a population-based study. *Journal of Affective Disorders, 115*, 421-429. <http://dx.doi.org/10.1016/j.jad.2008.10.008>
- Clark, D. M., Layard, R., Smithies, R., Richards, D. A., Suckling, R., & Wright, B. (2009). Improving access to psychological therapy: Initial evaluation of two UK demonstration sites. *Behaviour Research and Therapy, 47*, 910-920. <http://dx.doi.org/10.1016/j.brat.2009.07.010>
- Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope & F. Schneier, R. (Eds.), *Social Phobia: Diagnosis, Assessment, and Treatment* (pp. 69-93). New York: The Guilford Press.
- Fehm, L., Beesdo, K., Jacobi, F., & Fiedler, A. (2008). Social anxiety disorder above and below the diagnostic threshold: prevalence, comorbidity and impairment in the general population. *Social Psychiatry and Psychiatric Epidemiology, 43*, 257-265. doi:10.1007/s00127-007-0299-4
- Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. U. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research, 21*, 169-184. doi:10.1002/mpr.1359
- Mayo-Wilson, E., Dias, S., Mavranouzouli, I., Kew, K., Clark, D. M., Ades, A. E., & Pilling, S. (2014). Psychological and pharmacological interventions for social anxiety disorder in adults: a systematic review and network meta-analysis. *The Lancet Psychiatry, 1*, 368-376. doi:10.1016/S2215-0366(14)70329-3
- Nordahl, H., Nordahl, H. M., Hjemdal, O., & Wells, A. (2017). Cognitive and metacognitive predictors of symptom improvement following treatment of social anxiety disorder: A

- secondary analysis from a randomized controlled trial. *Clinical Psychology and Psychotherapy*, 1-7. doi:10.1002/cpp.2083
- Normann, N., Emmerik, A. A., & Morina, N. (2014). The efficacy of metacognitive therapy for anxiety and depression: A meta-analytic review. *Depression and Anxiety*, 31, 402-411. doi:10.1002/da.22273
- Modini, M., Joyce, S., Mykletun, A., Christensen, H., Bryant, R. A., Mitchell, P. B., Harvey, S. B. (2016). The mental health benefits of employment: Results of a systematic meta-review. *Australasian Psychiatry*. doi:10.1177/1039856215618523
- Moitra, E., Beard, C., Weisberg, R. B., & Keller, M. B. (2011). Occupational impairment and social anxiety disorder in a sample of primary care patients. *Journal of Affective Disorders*, 130, 209-212. doi: <http://dx.doi.org/10.1016/j.jad.2010.09.024>
- National Institute for Health and Care Excellence. Social anxiety disorder: recognition, assessment and treatment of social anxiety disorder. (Clinical guideline 159.) 2013. <http://guidance.nice.org.uk/CG159>
- Nigatu, Y. T., Liu, Y., Uppal, M., McKinney, S., Rao, S., Gillis, K., & Wang, J. (2016). Interventions for enhancing return to work in individuals with a common mental illness: systematic review and meta-analysis of randomized controlled trials. *Psychological Medicine*. doi:110.1017/S0033291716002269
- Organisation for Economic and Co-operation Development (2012). *Sick on the job?: myths and realities about mental health and work*. OECD Publishing. doi:10.1787/9789264124523-en
- Spada, M. M., Mohiyeddini, C., & Wells, A. (2008). Measuring metacognitions associated with emotional distress: Factor structure and predictive validity of the metacognitions questionnaire 30. *Personality and Individual Differences*, 45, 238-242. <http://dx.doi.org/10.1016/j.paid.2008.04.005>

- Stopa, L., & Clark, D. M. (2001). Social phobia: Comments on the viability and validity of an analogue research strategy and British norms for the fear of negative evaluation questionnaire. *Behavioural and Cognitive Psychotherapy*, 29, 423-430.
<http://dx.doi.org/10.1017/S1352465801004039>
- Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology*, 33, 448-457. doi:10.1037/h002780.
- Wells, A. (1997). *Cognitive therapy of anxiety disorders: A practice manual and conceptual guide*. John Wiley & Sons.
- Wells, A. (2009). *Metacognitive therapy for anxiety and depression*. New York: Guilford press.
- Wells, A., & Cartwright-Hatton, S. (2004). A short form of the metacognitions questionnaire: properties of the MCQ-30. *Behaviour Research and Therapy*, 42, 385-396.
doi:10.1016/S0005-7967(03)00147-5
- Wells, A., & Matthews, G. (1994). *Attention and Emotion: A clinical perspective*. Hove UK: Erlbaum.
- Wells, A. & Matthews, G. (1996). Modelling cognition in emotional disorder: The S-REF model. *Behaviour Research and Therapy*, 34, 881-888. doi:10.1016/S0005-7967(96)00050-2

Table 1: Group comparison between the working group and the group receiving disability benefits; mean score, standard deviation and t-value.

	Working		Disability		t-value
	(n = 102)		(n = 102)		
	Mean	Std.	Mean	Std.	
FNE: total score	26.50	2.54	27.53	2.44	2.971*
SPRS: Distress	4.26	2.06	5.61	1.79	4.971*
SPRS: Avoidance	3.36	2.50	5.09	2.41	5.023*
SPRS: Self-consciousness	4.38	2.17	5.55	1.94	4.054*
SPRS: Use of safety behaviours	48.53	19.10	59.61	18.77	4.179*
SPRS: Negative cognitive beliefs	982.78	300.90	1076.71	244.13	2.448
MCQ-30: Positive beliefs	10.45	3.66	10.96	4.56	.881
MCQ-30: Negative meta-beliefs	16.07	4.12	18.61	3.30	4.867*
MCQ-30: Cognitive confidence	13.41	5.19	15.24	5.08	2.554
MCQ-30: Need for control	11.67	3.79	14.06	4.30	4.206*
MCQ-30: Cognitive self-consciousness	14.33	3.68	15.71	3.73	2.660

Note: Bonferroni correction applied. *p<.0045.

Table 2: Hierarchical logistic regression statistics with group membership (working/disability benefits) as the outcome variable and FNE total score, distress, avoidance, self-consciousness, use of safety behaviours, cognitive beliefs and negative metacognitive beliefs as predictor variables (n=204).

	B	SE	Wald	p	Exp(B)
FNE: total score	.087	.071	1.478	.224	1.091
SPRS: Distress	.118	.115	1.058	.304	1.126
SPRS: Avoidance	.148	.080	3.403	.065	1.159
SPRS: Self-consciousness	.012	.100	.015	.902	1.012
SPRS: Safety behaviours	.020	.011	3.364	.067	1.020
SPRS: Cognitive beliefs	-.001	.001	2.299	.129	.999
MCQ-30: Negative beliefs	.124	.048	6.675	.010*	1.132
Constant	-5.600	1.799	9.692	.002	.004

Note. *p<.05