Somebody to lean on: Social relationships predict post-treatment depression severity in adults

Mats Hallgren[a],[*], Andreas Lundin[b], Tee Fwo Yi [a], Bo Burström[c], Yvonne Forsell[a]

[a] Department of Public Health Sciences, Section for Epidemiology and Public Health Intervention Research (EPHIR), Karolinska Institutet, Stockholm, Sweden
[b] Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden; Centre for Epidemiology and Community Medicine, Stockholm County Council, Sweden
[c] Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden, and senior consultant at the Centre for Epidemiology and Community Health, Stockholm County Council, Sweden

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ABSTRACT

Supportive social relationships can help protect against depression, but few studies have examined how social relationships influence the response to depression treatment. We examined longitudinal associations between the availability of social relationships and depression severity following a 12-week intervention. In total, 946 adults aged 18–71 years with mild-to-moderate depression were recruited from primary care centres across Sweden and treated for 12 weeks. The interventions included internet-based cognitive behavioural therapy (ICBT), 'usual care' (CBT or supportive counselling) and exercise. The primary outcome was the change in depression severity. The availability of social relationships were self-rated and based on the Interview Schedule for Social Interaction (ISSI). Prospective associations were explored using and logistic regression models. Participants with greater access to supportive social relationships reported larger improvements in depression compared to those with 'low' availability of relationships ($\beta = -3.95$, 95% CI$= -5.49$, -2.41, p $<$ .01). Binary logistic models indicated a significantly better 'treatment response' (50% score reduction) in those reporting high compared to low availability of relationships (OR$= 2.17$, 95% CI$= 1.40$, 3.36, p $<$ .01). Neither gender nor the type of treatment received moderated these effects. In conclusion, social relationships appear to play a key role in recovery from depression.

1. INTRODUCTION

Depression is a debilitating disorder often associated with social impairment. Although evidence-based treatments have grown, successful treatment and maintenance of treatment response remains limited (Forsell, 2006). Thus, there is a continued need for improved knowledge into factors associated with depression treatment outcomes so that efficacious strategies can be developed and therapeutic outcomes optimized.

Previous research has identified several patient, symptom and intervention-specific factors associated with treatment response; high depression severity, psychiatric co-morbidity, and poor adherence to treatment regime have all been linked to worse outcomes (Hundt et al., 2013; Newton-Howes et al., 2014; Sotsky et al., 1991). Another factor that has been linked to psychiatric morbidity generally, but which remains largely overlooked in prediction studies of depression treatment, is the availability of supportive social relationships. The notion

that social environments and interpersonal relationships are connected to health and wellbeing has an extensive history (Henderson, 1980). Cross-sectional studies have demonstrated associations between higher levels of social support and better mental health (Grav et al., 2012; Henderson et al., 1980a). A general population survey of 40,659 Norwegian adults reported that those who lack adequate social support had four times higher odds for depression (Grav et al., 2012). Another cross-sectional study involving 6105 adults aged 18–84 years found that low frequency of contacts with friends and parents were significant factors associated with depression (Kleinberg et al., 2013).

Several theories have been proposed linking social relationships to better mental health. Early studies suggested that social support may have effects on depression mediated by neuroendocrine pathways (Cobb, 1976). More recent studies have focused on the psychological effects of social relationships. Cohen and Thomas (1985), and later Thoits (2011), argue that support networks may 'buffer' or protect mental health during stressful periods. Specifically, they suggest that

social support could increase one's level of psychological 'wellbeing' by allowing individuals to feel they have more control over stressful circumstances; thus acting as a primary coping mechanism. Social networks might also influence health more directly by providing access to information, which could in turn influence health-related decisions, such as compliance with treatment regimens (Bloom, 1990). Attachment theory is also relevant in this context (Bowlby, 1958); it suggests that people are happiest and most effective when they have someone to confide in – reinforcing the idea that social networks and support serve an evolutionary purpose (Waters et al., 2005).

Recognizing these links, social relationships are often considered in the context of psychiatric care, where it is generally understood that positive relationships can have a protective effect against stressful life events, and may benefit the recovery process (Smith et al., 2015; Thoits, 2011; Wang et al., 2014). In a retrospective study involving 251 outpatients, adequate support from family and friends was associated with better depression outcomes at follow-up (Rundell, 2012). Findings from a recent US survey (n=1,379) indicated that mental health service utilization among depressed patients was 60% lower for those with adequate social relationships (Andrea et al., 2016). Previous studies have also explored the relationship between perceived social support and depression outcomes in the context of other health problems. In an observational study Bucholz et al. (2014) followed 3,432 patients (≤55 years) with acute myocardial infarction for 12-months to assess changes in health status, quality of life and depression (Bucholz et al., 2014). After multivariable adjustments, low levels of social support were associated with lower quality of life and more depressive symptoms at follow-up.

Of relevance to the present study, previous research also suggests that the role of social relationships in depression may be different for men and women. In a 13-year longitudinal study (n=2,823), Sonnenberg et al. (2013) found that a high need for social affiliation was associated with depression in women but not in men. Furthermore, the absence of a household partner and having a small social network predicted the onset of depression in men only.

To date, few studies have examined the influence of social relationships on post-treatment depression severity in a clinical population. Findings from such research could help clinicians optimize therapeutic interventions for affective disorders. To bridge this gap, we explored longitudinal associations between the availability of social relationships reported at the start of treatment, and depression severity following a 12-week intervention in adults with mild-to-moderate depression. Possible moderating effects of gender and treatment type were also explored.

2. METHOD

2.1. Study design

Data originate from the 'Regassa' study, a randomized controlled trial (RCT) conducted in primary care centres across Sweden to assess the long-term effectiveness of three 12-week interventions for mild-to-moderate depression in adults: exercise, internet-based cognitive behavioural therapy (ICBT) and 'treatment as usual' by primary care physicians. The RCT methodology and interim findings have been published previously (Hallgren et al., 2015). The present study includes all participant data using a prospective design with two assessment points: baseline and 3-month follow-up (post-treatment). The ethical review board at the Karolinska Institutet approved the original study (Dnr 2010/1779-31/4). All patients provided written informed consent prior to participation. The trial protocol is registered with German Clinical Trial Register (DRKS study ID: DRKS00008745).

2.2. Patient recruitment

Patients were recruited via primary health care facilities located in

six county councils in Sweden (Stockholm, Skåne, Västra Götaland, Kronoberg, Blekinge and Västmanland). The selection of regions was deliberate and helped ensure that the sample included participants from different locations varying in population size and composition. Together, these counties represent 60% of the Swedish population. Patients aged ≥18 years who scored > 9 on the Patient Health Questionnaire (PHQ-9) were invited to participate in the trial. Recruitment began in February 2011 and the last participants finished the 12-week treatment in March 2013. Exclusion criteria were: a severe somatic illness, a primary alcohol or drug use disorder or a psychiatric diagnosis that required specialist treatment (e.g. psychosis). Potentially eligible patients were referred by their primary health care provider. Upon referral, trained research assistants obtained written informed consent, formally assessed trial eligibility by conducting a standardized diagnostic interview (described below), and administered the baseline questionnaires. This assessment constituted the baseline evaluation.

2.3. Follow-up assessment

All patients were contacted by a research assistant at post-treatment (3-months after baseline) to attend a follow-up interview at their local health care clinic. During the interviews, participants completed the Montgomery-Åsberg Depression Rating Scale (MADRS-clinician rated) and repeated the baseline questionnaires (described below). Those who did not return a completed follow-up questionnaire were contacted on at least two separate occasions with a reminder. 'Hard to reach' participants were contacted by phone after work hours and on weekends where necessary.

2.4. Measures

2.4.1. Screening

The Patient Health Questionnaire (PHQ-9) assessed the presence of depression during the past two weeks (Kroenke et al., 2001). The Mini International Neuropsychiatric Interview (MINI) (Sheehan et al., 1998) assessed psychiatric disorders based on the DSM-IV.

2.4.2. Primary outcome – depression severity

Depression severity was assessed using the Montgomery-Åsberg Depression Rating Scale (MADRS, clinician rated)(Montgomery and Åsberg, 1979) Ten symptoms are rated: apparent sadness, reported sadness, inner tension, reduced sleep, reduced appetite, concentration difficulties, lassitude, inability to feel, pessimistic and suicidal thoughts. Total scores range between 0–60. Snaith et al. (Snaith et al., 1986) propose a severity categorisation based on the following ranges: 35–60=severe, 20–34=moderate, 7–19=mild, and 0–6=remission. Research nurses were trained in scoring the MADRS interview by a consultant psychiatrist.

2.4.3. Exposure variable – social relationships

The availability of social relationships was assessed using a validated Swedish version of the Interview Schedule for Social Interaction (ISSI) (Henderson et al., 1980b) (Undén and Orth-Gomér, 1984). The original schedule measures two dimensions of social relationships; availability and perceived adequacy. The 9-item short version of the ISSI used in the present study assessed one of these dimensions (availability), and was considered appropriate to use within a larger survey due to its' brevity. A previous validation study has shown that the availability and adequacy dimensions of the ISSI could be distinguished empirically and measured reliably as separate entities (Henderson et al., 1980b). Short versions of the ISSI have been used in previous Swedish studies (Boström and Nyqvist, 2010; Undén and Orth-Gomér, 1984). The 9-items which comprise the availability dimension consist of two related categories; the availability of social integration (AVSI) and the availability of attachment (AVAT) (see Supplementary material for full details). As the two sub-categories