12-month outcome and predictors of recurrence in psychiatric treatment of depression – a retrospective study.

Johansson, Olof; Lundh, Lars-Gunnar; Bjärehed, Jonas

Published in:
Psychiatric Quarterly

DOI:
10.1007/s11126-015-9341-y

2015

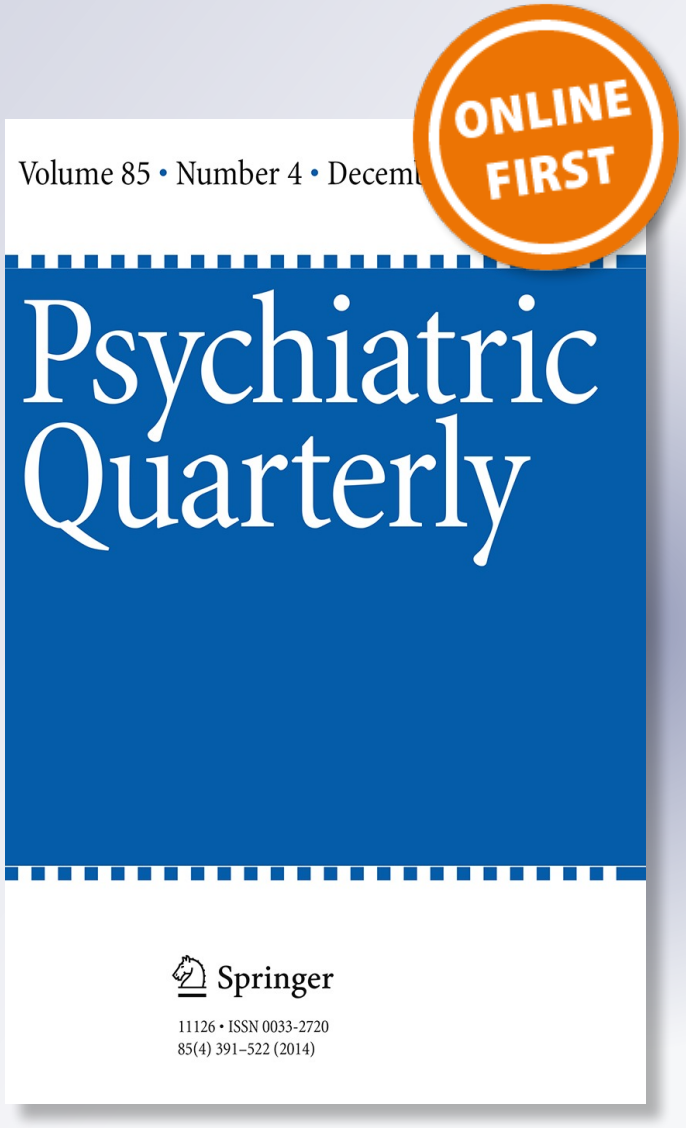
12-Month Outcome and Predictors of Recurrence in Psychiatric Treatment of Depression: A Retrospective Study

Olof Johansson, Lars-Gunnar Lundh & Jonas Bjärehed

Psychiatric Quarterly

ISSN 0033-2720

Psychiatr Q
DOI 10.1007/s11126-015-9341-y



Springer

Psychiatr Q
DOI 10.1007/s11126-015-9341-y

ORIGINAL PAPER

12-Month Outcome and Predictors of Recurrence in Psychiatric Treatment of Depression: A Retrospective Study

Olof Johansson · Lars-Gunnar Lundh · Jonas Bjärehed

Abstract Many individuals treated for depression suffer relapse or recurrence after treatment. Known risk factors include number of previous depressive episodes and residual symptoms after treatment. Both relapse/recurrence rates and predictors of relapse/recurrence, however, may differ between various settings. To perform a naturalistic evaluation of the sustained effectiveness of treatment for adult clinical depression in a psychiatric out-patient setting and to examine psychosocial and clinical predictors of relapse/recurrence. 51 individuals, who were successfully treated/discharged from psychiatric care 12 months prior, were assessed regarding current depressive status and regarding relapse and recurrence. Logistic regression was used to assess the predictive impact of the variables measured. At the 12-month follow-up, 26 % of the participants were in complete remission, 45 % were in partial remission, and 29 % were clinically depressed. In 1 year, 61 % suffered a new depressive episode. Having a greater number of previous episodes and having no partner significantly increased the risk of relapse or recurrence. A high prevalence of depression and partially remitted depression is reported at 12-month follow up, and a large proportion of the sample would likely benefit from active treatment. Relapse/recurrence rates are higher in this study than in many other studies, and it may be hypothesized that they are generally higher in psychiatric settings than in primary care. If so, this would indicate the need for a different treatment strategy in the psychiatric care of depression, with emphasis on long-term management of depression.

Keywords Depression · Recurrence · Psychiatry · Follow-up

Background

Depression is considered one of the world's largest public health problems and affects approximately 5 % of the world population at any given time [1]. Depressive disorders

O. Johansson (✉) · L.-G. Lundh · J. Bjärehed
Department of Psychology, Lund University, Box 213, 22100 Lund, Sweden
e-mail: olof.johansson@psy.lu.se

Published online: 18 January 2015

impose large economic costs [2] and bring life-long suffering among a considerable part of those affected [3]. Effective treatments include antidepressant medication and psychotherapy. After successful treatment however, the risk of recurrence in new depressive episodes is high, rates varying considerably in different settings ranging from roughly 7–76 % as early as 12 months after termination of acute treatment [4, 5]. Outcome is moderated by type of treatment, e.g. antidepressant medication or psychotherapy [6, 7], as well as by patient clinical and demographical characteristics [8].

In a systematic review investigating recurrence of depression in specialized mental health care settings [9], recurrence rates up to 40 % already within a year after remission is reported. Possibly as a result of the above mentioned moderators, different outcomes in terms of recurrence rates are reported in primary and specialized health care. In a Swedish primary care sample Åkerblad et al. [10] reported a relapse/recurrence rate of 34 % over a follow up period of 2 years. A Finnish study comparing recurrence between primary and psychiatric care patients reported recurrence rates of 42 and 61 % respectively over a 7-year follow up period [11].

The large variation between studies suggests that this is an area that needs to be explored further. Both in terms of recurrence rates among different populations and contexts, and in terms of what factors affect the risk of recurrence in depression. Previous research has suggested several risk factors, including the number of previous depressive episodes, severity of the index episode, and residual symptoms after treatment of the index episode [8, 12]. Research to date, however, has not supported demographic variables (gender, SES, marital status) as risk factors for recurrence [8]. To examine the nature of risk factors for depressive recurrence there is a need for studies carried out in various settings. Naturalistic follow-up studies are an effective way to examine the actual effectiveness of treatment in health care settings in regard to depressive recurrence, and to study variables influencing recurrence in different clinical settings.

Aim

The purpose of this study was to evaluate the sustained ecological effectiveness of treatment for adult clinical depression in a psychiatric out-patient setting at 12-month follow-up and to examine psychosocial and depression related predictors of relapse/recurrence during this period.

Method

Participants

A sample of 147 psychiatric outpatients, successfully treated for depression 12-months prior, was identified using records from a psychiatric hospital in southern Sweden. Participants were identified through the hospital registry based on diagnostic status upon discharge from treatment. Of the 147 outpatients, 45 could not be reached and 26 did not provide consent to participate in the study. 76 outpatients were interviewed and among these, 13 were excluded as remission from depression (at discharge) could not be validated during the interview, 7 were excluded due to language barriers, and 5 were excluded since they had received electroconvulsive therapy (ECT) for the index period. 51 individuals

were included in this study. Table 1 describes the sample in terms of clinical and demographical data.

All participants were (a) outpatients with a primary diagnosis of depressive episode or recurrent depressive disorder, ICD-10 criteria; (b) at least 18 years of age; and (c) in remission at time of discharge. The latter criterion entailed both that the participant was considered to be in remission by the treating psychiatrist at discharge, 12–14 months prior to contact, and that this assessment was validated during the structured interview at follow-up. Exclusion criteria were individuals with psychotic features, a diagnosis of bipolar disorder, and having received ECT for the index period.

Participants had received treatments including psychodynamic and cognitive behavioral psychotherapy, pharmacotherapy (mainly SSRI/SNRI) or combination treatment (i.e., pharmacotherapy plus psychotherapy). The participants averaged 16 visits to their outpatient clinic, averaging 4 visits to a psychiatrist and 12 visits to other mental health professionals. Further clinical characteristics are presented in Table 1.

Procedure

Participants' depressive status was assessed 12–14 months after treatment termination (referred to henceforth as 12-month follow-up) via structured telephone interviews; relapse/recurrence was assessed retrospectively at the same occasion along with validation of remission status at discharge. Interviews were performed by a clinical psychologist and two clinical psychology students at the master level, all with prior training and experience with the instrument. Symptomology was assessed using a self-rating form. The study was approved by the Regional Ethical Review Board.

Measurements

The Montgomery–Åsberg depression rating scale—self rating scale (MADRS-S) [13], paper and pencil version, was used at follow-up for symptom assessment. Relapse/recurrence and current depressive status was established using the sections Mood episodes and

Table 1 Descriptive characteristics of the sample

	Mean	SD	Range
Age (years)	47	17.0	20–86
Age at depressive onset (years)	34	17.6	9–85
MADRS-S at 12-month follow-up	18	10.2	2–48
			Frequencies
Gender (females/males)			36/15
Occupational status (employed/unemployed)			30/21
Having a partner (yes/no)			30/21
Type of treatment (pharmacotherapy/psychotherapy/combined)			17/8/26
Previous episodes (none/one/two/three or more)			8/7/8/28
Sought treatment during follow-up (yes/no)			15/36
Remission status at 12-month follow-up (full/partial)			13/23

mood disorders from The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) [14]. Severity of index period was based on the treating psychiatrist assessment of index period (mild, moderate, or severe).

Definitions

The definitions of full and partial remission, and of relapse and recurrence in this study are based on the proposals by Frank et al. [15]. These definitions are used to categorize the patients' diagnostic status at the 12-month follow-up, with the following adaptations: partial remission is defined as not fulfilling the criteria of DSM-IV depressive episode but having more than minimal symptoms (i.e. MADRS-S > 9). Full remission is defined as not fulfilling the criteria of DSM-IV depressive episode and showing only minimal symptoms (i.e. MADRS-S < 10), as proposed in a study of remission cut-off on the MADRS-S scale [16]. Relapse is defined as having a depressive episode within 2 months of discharge, and recurrence is defined as having a depressive episode after a period of recovery (at least 2 months after discharge). Sustained treatment response is defined as no relapse or recurrence during the 12 months following treatment termination and being in full remission at 12-month follow-up (i.e. optimal outcome in this context).

Statistical Analyses

Chi square tests and *t* tests were used to compare groups, and Pearson correlations were used to analyze associations between variables. To analyze predictors of relapse/recurrence, logistic regression was used. Based on number of outcome events, the model only allowed for two predictor variables [17]. To select these, two groups of predictor variables were examined: demographical and clinical predictors. Demographical variables included: gender, age, partner and occupational status (i.e. employed or unemployed at the time of treatment termination). Clinical variables included: treatment type (pharmacotherapy, psychotherapy or combination treatment), severity (of the index episode), number of previous depressive episodes, number of treatment sessions and age at depressive onset. From these, the two predictor variables were chosen which showed the strongest independent correlations with relapse/recurrence.

Results

Group comparisons revealed no significant differences between included participants (n = 51) and attrition-group (n = 96) in terms of gender, age, severity of treated episode, treatment length or treatment type (all p's > 0.05). Among the individuals not giving consent 42 % (11 out of 26) did not provide any reason for doing so. Stated reasons for not wanting to participate were: feeling somatically ill 4 (15 %), wanting to leave this episode in the past 3 (12 %), feeling too depressed for participation 3 (12 %), and 5 participants (19 %) reported other specific reasons for not participating.

Relapse, Recurrence and Diagnostic Status at 12-Month Follow-Up

An overview of participants with relapse, recurrence and their status at 12-month follow-up can be seen in Fig. 1. Out of the 51 participants, 31 (61 %) reported having suffered a new

depressive episode during the 12 months following discharge from the psychiatric clinic. Of these, 7 (23 %) participants were categorized as having relapsed (new depressive episode within 2 months of discharge) and another 24 (77 %) participants were categorized as having recurrence of depression (suffering a depressive episode after at least 2-month of sustained treatment effect).

Further, of the total sample 15 participants (29 %) were categorized as suffering from an ongoing depressive episode at follow-up, 23 participants (45 %) were categorized as being in partial remission at the 12-month follow up, and 13 (26 %) were categorized as being in full remission. Of the 51 participants, 11 (22 %) were categorized as having a sustained treatment response (in full remission and with no relapse or recurrence of depression during the follow-up period).

Table 1 shows descriptive characteristics of the sample, and Table 2 shows a cross-tabulation of the relapse/recurrence and the no relapse/recurrence groups with other patient characteristics. No significant differences were detected between different types of treatment in terms of relapse/recurrence, symptoms at 12 months or depressive status at 12 months.

Associations Between Depression Status Outcome and Other Variables

Chi square tests and t-tests were used to identify variables significantly related ($p < 0.05$) to outcome (i.e., depressive relapse/recurrence during the 12-month period). As seen in Table 3, relapse/recurrence correlated significantly with number of previous episodes, depressive onset (i.e., age at first depressive episode), having a partner, age and severity. The predictor variable that showed the strongest correlation with relapse/recurrence was number of previous episodes. Because a study of the correlation matrix revealed that number of previous episodes was virtually uncorrelated with having a partner, but showed a considerable correlation with age and age of depressive onset, having a partner was chosen as the second variable to enter into the logistic regression analysis.

A logistic regression was performed to predict relapse/recurrence with having a partner and number of previous depressive episodes as predictors (see Table 4). A test of the full model against a constant only model was statistically significant, indicating that the predictors reliably distinguished between relapse/recurrence and no relapse/recurrence (Chi square = 20.66, $p < 0.001$ with df = 2). Nagelkerke's R^2 of 0.45 indicated a moderate relationship between prediction and grouping. Prediction success overall was 78 % (90 % for relapse/recurrence and 60 % for no relapse/recurrence). The Wald criterion demonstrated that significant contributions to the prediction were made from both number of previous depressive episodes ($p = 0.002$) and presence of partner ($p = 0.013$). In this model an additional previous episode increased the ratio of depressive relapse/recurrence within 12-month of treatment termination and having a partner at the time of treatment termination reduced the ratio of depressive relapse/recurrence as compared to not having a partner. No suppressor variables were observed and tests were performed to check for collinearity. No influential cases were found.

Discussion

This study describes outcome at 12-month follow-up in a sample of patients discharged from psychiatric care for depression. The results are discussed below, first in terms of 12-month outcome and then in terms of predictors for relapse/recurrence.

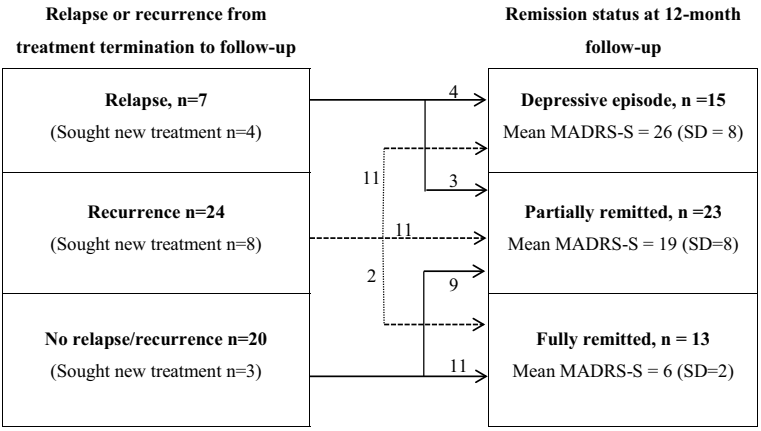


Fig. 1 Number of participants with relapse and recurrence of depression during follow-up period, and their statuses at time of 12-month follow-up

Status of Depression at 12-Month Follow-Up

In this sample 22 % showed a sustained response with no relapse/recurrence in the 12-month period following treatment termination. This can be compared with the results reported by Åkerblad et al. (34.7 % sustained response during a 2-year follow up of a Swedish primary care sample). In the present study 26 % of the patients were considered to be in full remission at the 12-month follow-up, as compared with 70.7 % using the same criteria (e.g. not fulfilling criteria for depression and MADRS-S < 10) in the Åkerblad et al. study. At the 12-month follow-up 74 % of the total sample was assessed as having either partially remitted depression or an ongoing depressive episode. The suffering and difficulties related to depressive episodes are well documented, but also partially remitted depression has been associated with serious impairments. For example in a study by Viinamäki and colleagues a partially remitted sample showed lowered psychosocial functioning, life dissatisfaction, hopelessness and suicidality [18]. Viinamäki and colleagues therefore concludes that along with depression partially remitted depression also ought to be actively treated. This is shown also in this study as the symptom burden of the group with partially remitted depression is considerably higher than in the group with fully remitted depression, MADRS-S $= 19$ (SD).

In the present study, 61 % had a depressive episode within 12 months after concluding treatment, as compared with 34 % within 24 months in the Åkerblad et al. study. As shown in a review by Hardeveld et al. [9], rates of relapse/recurrence and long term effectiveness of psychiatric treatment vary, but a relapse/recurrence rate of 61 % must still be considered high. However examples of similar relapse/recurrence rates have been reported in several out-patient settings among samples discontinuing antidepressant medication [5, 19, 20].

Of the participants with relapse/recurrence 39 % sought new treatment. Studies of treatment seeking report that somewhere between 36.5 and 50 % of individuals with depression actually seek professional help [21, 22]. This indicates that even though the participants in the present study had recent contact with psychiatric health care this did not seem to facilitate renewed contact with a professional. Clinical strategies to make it easier for previous patients to seek new treatment may therefore be of potential help, particularly

Table 2 Cross-tabulation of relapse/recurrence and no relapse/recurrence groups with other patient characteristics

	Relapse/recurrence	No relapse/recurrence
Gender		
Male	7	8
Female	24	12
Occupational status		
Unemployed	14	7
Employed	17	13
Partner		
Single	17	4
In a relationship	14	16
Severity of index episode (as assessed by treating psychiatrist)		
Not specified	6	8
Mild	4	4
Moderate	19	8
Severe	2	0
Previous episodes		
None	2	6
One	2	5
Two	4	4
Three or more	23	5
Type of treatment		
Pharmacotherapy	11	6
Psychotherapy	3	5
Combination	17	9
Number of treatment sessions n (SD)	19 (15)	13 (10)
Pharmacological maintenance treatment		
No	7	8
Yes	24	12
Remission status at 12-month follow-up		
Full remission	2	11
Partial remission	14	9
Depressive epsiode	15	0
Sought treatment during follow-up		
No	19	17
Yes	12	3

in view of the fact that only 26 % of the sample in this study was in complete remission at follow-up.

This study also demonstrates the need for future research to identify methods for relapse/recurrence prevention that are easily integrated into routine psychiatric care. The most effective methods to date include pharmacological maintenance therapy and continuation CBT to be added after acute treatment [7, 19]. Yet with limited resources outpatient clinics in this study seems to prioritize acute treatment of depressed individuals

Table 3 Pearson correlations between demographic variables, clinical variables, and relapse (n = 51)

	Number of previous episodes	Depressive onset	Having a partner	Age	Severity
Depressive onset	−0.57*				
Having a partner	−0.03	0.28*			
Age	−0.25	0.80**	0.34*		
Severity	0.19	−0.07	−0.26	0.05	
Relapse	0.49**	−0.45**	−0.35*	−0.29*	−0.29*

* $p < 0.05$; ** $p < 0.01$

Table 4 Logistic regression model predicting depressive relapse/recurrence

	B	SE	Wald	Sig.	Odds ratio	95 % CI	
						Lower	Upper
Partner	−2.14	0.87	6.12	0.01	0.12	0.02	0.64
Previous episodes	1.19	0.39	9.50	0.00	3.30	1.55	7.06
Constant	−0.68	0.86	0.62	0.43	0.51		

$R^2 = 2.97$ (Hosmer and Lemeshow), 0.33 (Cox and Snell), 0.45 (Nagelkerke). Model $\chi^2(2) = 20.66$ (df = 2, $p < 0.001$)

over different type of continuation interventions. Therefore, in addition to enhanced risk identification methods (for optimal use of resources), there is a need for easily accessed and easily disseminated prevention methods, such as possibly physical exercise [23] or internet delivered CBT [24].

Predictors of Relapse/Recurrence

In this study, a greater number of previous depressive episodes and not having a partner were predictors of depressive relapse/recurrence. Number of previous episodes is a well-established moderator of depressive relapse/recurrence [25, 26].

Previous results pertaining to the impact of having a partner on depressive relapse/recurrence are not conclusive [27–29]. However these studies examine marital status rather than having a partner, which are slightly different concepts and may possibly explain the different outcome in this study. Having a partner could arguably be related to social support, which in several studies has been related to depressive relapse/recurrence [30, 31]. In their review of this research, Burcusa and Iacono [8] also discuss the possibility that lack of social support is a result of recurrent depression. Consequently the participants in this study with more previous episodes could arguably be single as a result of an underlying variable which would give a predisposition for both recurrent depression and inability to arouse social support. What speaks against this possibility, however, is that having a partner, in this study, is not correlated to number of previous episodes. Relatedly, it might be argued that, although the chronological order in which the variables (i.e. having a partner and relapse/recurrence) occur is established, the partner variable has not been experimentally manipulated and may therefore represent some third underlying variable among people prone to relapse/recurrence. Still, in this case the variable (having a partner)

would aid a clinician in identifying individuals at risk for recurrent depression and as such the variable could be of value.

In this context, it is interesting to note that in a Finnish study [11] the related concept of social functioning was found to be associated with depressive relapse/recurrence in psychiatric patients but not in a sample of primary care patients.

To summarize, number of previous episodes seems to be an obvious risk factor for further episodes also in this context and as such it is a relevant clinical factor in the assessment of risk for relapse/recurrence. Not having a partner was another risk factor in this study, which is interesting also because of its potential to change as a result of intervention. Whether the absence of partner in itself is important for depressive relapse/recurrence, or whether it is a marker of an underlying variable such as social functioning, the area of social interaction is susceptible to change (for example via psychotherapy) in a manner that number of previous episodes is not.

Strengths and Limitations

A main strength of the present study is that it includes a real world sample based on actual psychiatric discharge. A retrospective design means that the participants are not affected by frequent contact with health care professionals or researchers during follow-up.

A main limitation of this study is that no baseline measures were taken, except the report of participants being in remission as assessed by treating psychiatrist and confirmed by participant. Remission as baseline measure does not entail the notion of partial remission which has been shown to be relevant for later outcome. The lack of baseline measures makes it impossible to draw conclusions about the role of residual symptoms for depressive relapse/recurrence, and to compare the psychiatrist's assessment to that of a diagnostic interview.

Also, the use of retrospective assessment of relapse/recurrence instead of a prospective design and the use of telephone interviews instead of live interviews for diagnostic assessment decreases diagnostic accuracy. In addition, the small sample size allowed only for two predictor variables, which means that other potentially important variables could not be in the prediction model.

Conclusion

The outcome of depression treatment varies considerably in different settings. This sample of individuals treated within a Swedish psychiatric context has a noticeably high prevalence of depression and partially remitted depression at 12-month follow up. A large proportion of the sample would likely benefit from active treatment. A comparison with other research suggests the hypothesis that relapse/recurrence rates are higher in psychiatric settings than in primary care. If so, this would indicate a need for a different treatment strategy in the psychiatric care of depression, where emphasis on long-term management of depression should be the primary concern for treatment, rather than focusing resources strictly on acute treatment.

Acknowledgments The authors gratefully acknowledge the participants for their involvement in this project. The author also wishes to thank Dan Comstedt and Lisa Haraldsson for their contribution to this study.

Conflict of interest Olof Johansson was, at the time of the study, employed by the psychiatric hospital in which the study was conducted. Lars-Gunnar Lundh and Jonas Bjärehed declare that they have no conflict of interest.

Informed Consent All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

References

1. Ferrari AJ, Somerville AJ, Baxter AJ, Norman R, Patten SB, Vos T, et al.: Global variation in the prevalence and incidence of major depressive disorder: A systematic review of the epidemiological literature. Psychological Medicine 43:471–481, 2013.
2. Greenberg PE, Stiglin LE, Finkelstein SN, Berndt ER: The economic burden of depression in 1990. Journal of Clinical Psychiatry 54:405–418, 1993.
3. Eaton WW, Shao H, Nestadt G, Lee HB, Lee BH, Bienvenu OJ, et al.: Population-based study of first onset and chronicity in major depressive disorder. Archives of General Psychiatry 65:513–520, 2008.
4. Shapiro DA, Rees A, Barkham M, Hardy G, Reynolds S, Startup M: Effects of treatment duration and severity of depression on the maintenance of gains after cognitive-behavioral and psychodynamic-interpersonal psychotherapy. Journal of Consulting Psychology 63:378–387, 1995.
5. Hollon SD, DeRubeis RJ, Shelton RC, Amsterdam JD, Salomon RM, O'Reardon JP, et al.: Prevention of relapse following cognitive therapy vs medications in moderate to severe depression. Archives of General Psychiatry 62:417–422, 2005.
6. Williams N, Simpson AN, Simpson K, Nahas Z: Relapse rates with long-term antidepressant drug therapy: A meta-analysis. Human Psychopharmacology 24:401–408, 2009.
7. Vittengl JR, Clark LA, Dunn TW, Jarrett RB: Reducing relapse and recurrence in unipolar depression: A comparative meta-analysis of cognitive-behavioral therapy's effects. Journal of Consulting Psychology 75:475–488, 2007.
8. Burcusa SL, Iacono WG: Risk for recurrence in depression. Clinical Psychology Review 27:959–985, 2007.
9. Hardeveld F, Spijker J, De Graaf R, Nolen WA, Beekman ATF: Prevalence and predictors of recurrence of major depressive disorder in the adult population. Acta Psychiatrica Scandinavica 122:184–191, 2010.
10. Akerblad A-C, Bengtsson F, von Knorring L, Ekselius L: Response, remission and relapse in relation to adherence in primary care treatment of depression: A 2-year outcome study. International Clinical Psychopharmacology 21:117–124, 2006.
11. Poutanen O, Mattila A, Seppälä NH, Groth L, Koivisto A-M, Salokangas RKR. Seven-year outcome of depression in primary and psychiatric outpatient care: Results of the TADEP (Tampere Depression) II Study. Nordic Journal of Psychiatry 61:62–70, 2007.
12. Paykel ES, Ramana R, Cooper Z, Hayhurst H, Kerr J, Barocka A: Residual symptoms after partial remission: an important outcome in depression. Psychological Medicine 25:1171–1180, 1995.
13. Svanborg P, Åsberg M: A new self-rating scale for depression and anxiety states based on the comprehensive psychopathological rating scale. Acta Psychiatrica Scandinavica 89:21–28, 1994.
14. First MB, Gibbon M: User's Guide for the Structured Clinical Interview for DSM-IV Axis I Disorders SCID-I: Clinician Version. Arlington, American Psychiatric Publishing, 1997.
15. Frank E, Prien RF, Jarrett RB, Keller MB, Kupfer DJ, Lavori PW, et al.: Conceptualization and rationale for consensus definitions of terms in major depressive disorder. Remission, recovery, relapse, and recurrence. Archives of General Psychiatry 48:851–855, 1991.
16. Zimmerman M, Posternak MA, Chelminski I: Defining remission on the Montgomery-Asberg depression rating scale. Journal of Clinical Psychiatry 65:163–168, 2004.
17. Peduzzi P, Concato J, Kemper E, Holford TR, Feinstein AR: A simulation study of the number of events per variable in logistic regression analysis. Journal of Clinical Epidemiology 49:1373–1379, 1996.
18. Viinamäki H, Hintikka J, Tolmunen T, Honkalampi K, Haatainen K, Koivumaa-Honkanen H: Partial remission indicates poor functioning and a high level of psychiatric symptoms: A 3-phase 6-year follow-up study on major depression. Nordic Journal of Psychiatry 62:437–443, 2008.
19. Williams N, Simpson AN, Simpson K, Nahas Z: Relapse rates with long-term antidepressant drug therapy: A meta-analysis. Human Psychopharmacology 24:401–408, 2009.
20. Jarrett RB, Kraft D, Schaffer M, Witt-Browder A, Risser R, Atkins DH, et al.: Reducing relapse in depressed outpatients with atypical features: A pilot study. Psychotherapy and Psychosomatics 69:232–239, 2000.

21. Gagne S, Vasiliadis H-M, Preville M: Gender differences in general and specialty outpatient mental health service use for depression. BMC Psychiatry 14:135, 2014.
22. Alonso J, Angermeyer MC, Bernert S, Bruffaerts R, Brugha TS, Bryson H, et al.: Use of mental health services in Europe: Results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. Acta Psychiatrica Scandinavica 109:47–54, 2004.
23. Mammen G, Faulkner G: Physical activity and the prevention of depression: A systematic review of prospective studies. The American Journal of Preventive Medicine 45:649–657, 2013.
24. Holländare F, Johnsson S, Randestad M, Tillfors M, Carlbring P, Andersson G, et al.: Randomized trial of internet-based relapse prevention for partially remitted depression. Acta Psychiatrica Scandinavica 124:285–294, 2011.
25. Berlanga C, Heinze G, Torres M, Apiquián R, Caballero A: Personality and clinical predictors of recurrence of depression. Psychiatric services (Washington, DC) 50:376–380, 1999.
26. O'Leary DA, Lee AS: Seven year prognosis in depression. Mortality and readmission risk in the Nottingham ECT cohort. The British Journal of Psychiatry 169:423–429, 1996.
27. Kessing LV, Andersen PK, Mortensen PB: Predictors of recurrence in affective disorder: A case register study. Journal of Affective Disorders 49:101–108, 1998.
28. Gonzales LR, Lewinsohn PM, Clarke GN: Longitudinal follow-up of unipolar depressives: an investigation of predictors of relapse. Journal of Consulting and Clinical Psychology 53:461–469, 1985.
29. Mueller TI, Leon AC, Keller MB, Solomon DA, Endicott J, Coryell W, et al.: Recurrence after recovery from major depressive disorder during 15 years of observational follow-up. The American Journal of Psychiatry 156:1000–1006, 1999.
30. Lewinsohn PM, Hoberman HM, Rosenbaum M: A prospective study of risk factors for unipolar depression. The Journal of Abnormal Psychology 97:251–264, 1988.
31. Wilhelm K, Parker G, Dewhurst-Savellis J, Asghari A: Psychological predictors of single and recurrent major depressive episodes. Journal of Affective Disorders 54:139–147, 1999.

Olof Johansson MSc and clinical psychologist, Department of Psychology, Lund University. His research focuses on effective long-term management of depression.

Lars-Gunnar Lundh PhD, professor and chair of clinical psychology at the Department of Psychology, Lund University. He has done research in a number of different areas, including insomnia, anxiety disorders and non-suicidal self-injury.

Jonas Bjärehed PhD and clinical psychologist, Department of Psychology, Lund University. His research focuses on deliberate self-harm/non-suicidal self-injury.