Aging and Disease
www.aginganddisease.org
Volume 4, Number 6; 329-336, December 2013
http://dx.doi.org/10.14336/AD.2013.0400329

Review Article

Depression Treatment Non-adherence and its Psychosocial Predictors: Differences between Young and Older Adults?

Ifat Stein-Shvachman, Dikla Segel Karpas, Perla Werner*

[1]Department of Gerontology, [2]Center for Research and Study of Aging, and [3]Department of Gerontology, University of Haifa, Israel Mt. Carmel, Haifa 31905, Israel

[Received August 26, 2013; Revised 16, 2013; Accepted September 19, 2013]

ABSTRACT: Depression is a common disease among young and older adults. Although it can be treated, non-adherence is very common among individuals of different ages. The aim of the present paper is to review and summarize research findings regarding depression among young and older adults, with a special focus on the phenomenon of treatment non-adherence among young and older adults with depression. The first section of the review focuses on describing the characteristics of depression in young and older adults. The second section focuses on treatment non-adherence of young and older adults, the prevalence of this phenomenon, and its consequences. The third section focuses on several factors (illness beliefs, treatment beliefs, self-stigma, and self-esteem) that were identified as having a significant association with treatment non-adherence of individuals with depression, with special attention focused on age differences. Results of the review of the literature reveal that research in the area of depression treatment non-adherence and its predictors among young and older adults has received, to date, very minor and limited attention. Thus, there is a need to expand the current body of knowledge and promote future interventions geared towards the unique characteristics of depression among young and older adults, in order to increase their treatment adherence.

Key words: depression, treatment adherence, age differences

Depression is one of the most common mental health problems in young and older adults. According to the World Health Organization (WHO), 350 million people around the world suffer from depression, representing around 20% of the population (www.who.int/mental_health/management/depression/who_paper_depression_wfmh_2012.pdf.). Depression has recently been defined as the fourth cause of disability worldwide, and it is projected to become the second leading cause by 2020 [1].

There are several types of depressive disorders. According to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Revised* (*DSM-IV-R*) [2], the criteria for major depression include five of the following symptoms present for a period of two weeks—depressed mood, loss of pleasure in most activities, weight loss or gain, insomnia or hypersomnia, psychomotor agitation, fatigue, feelings of worthlessness, guilt, impaired concentration, and suicidal ideation. Symptoms of minor depression include depressed mood during most days for a period of two years and at least two of the following symptoms: poor appetite or overeating,

***Correspondence should be addressed to:** Perla Werner, Ph.D., Center for Research and Study of Aging, University of Haifa, Mt. Carmel, Haifa 31905, ISRAEL.Email: werner@research.haifa.ac.il

ISSN: 2152-5250

insomnia or hypersomnia, low energy or fatigue, low self-esteem, poor concentration and feelings of hopelessness. Over the last years, probably as a consequence of the increase in the number of elderly persons worldwide (www.aging.senate.gov/crs/pension34.pdf) [3], we have witnessed increased attention in the study of depression among the older population. Researchers in the area have concentrated on examining a variety of topics including prevalence, possible treatment trajectories, and consequences of depression in elderly persons [3-7]. Although overall results demonstrate that depression has essentially different etiologies, symptom profiles, prognoses and treatment implications [8-10], in older populations in comparison to younger populations, no clear consensus regarding these differences has been attained. Moreover, one of the most significant issues in the area of depression – the problem of treatment non-adherence in young and older persons with depression, still awaits further clarification.

The aim of this paper is to review and summarize research findings regarding depression among young and older adults, highlighting age-related differences, with a special focus on the phenomenon of treatment non-adherence among young and older adults with depression. It is not intended to be either an exhaustive or systematic review, but to discuss and focus on several important issues associated with age-related differences in depression. The paper starts with an overview of the characteristics of the disease (such as prevalence, symptoms, and risk factors) in young and older adults. It continues with an examination of the studies conducted in the area of treatment non-adherence in young and older adults, and concludes with a discussion of practical implications and directions for future research.

Characteristics of depression in young and older adults

Prevalence of depression in younger and older adults

The estimated prevalence of major depression is 19.4% among persons aged 18-34, 22.7% among persons aged 35-49, and 20.7% among persons aged 50-64 [11]. Depression is also very common among older adults, and is considered the most prevalent mood disorder in old age [12]. The estimated prevalence of major depression in persons aged 65 and over is 9.8% [11], although it varies according to dwelling place, with rates ranging from 0.9% to 9.4% in community-dwelling elderly, and from 14% to 42% among institutionalized elderly [13].

Symptoms of depression in young and older adults

Although several researchers argue that there are no significant differences between the symptoms of young and older adults with depression [14, 15], the majority of the research suggests that the presentation of symptoms is different in both groups, and identifies symptoms unique to older adults. For example, older adults tend, less than younger adults, to express cognitive-affective symptoms, such as dysphoria, and instead their depression is expressed in terms of psychosomatic complaints, loss of interest in personal care, worry and nervousness, and an inability to derive pleasure from life [16]. Another distinct presentation of depression in the old population is termed "depression-executive dysfunction syndrome", expressed by impaired cognitive functioning, such as impaired verbal fluency, and often in psychomotor retardation [8,17].

Risk factors of depression in young and older adults

Another unique attribution of late life depression is its prevalence as a comorbidity factor. Indeed, comorbidity is considered a major cause of depression in older adults [18-20], where any serious chronic condition may serve as a catalyst to the development of depression [21]. Studies have consistently shown that depression is prevalent among older populations suffering from other medical conditions, such as heart conditions [22], stroke [23], and Alzheimer's disease [24]. Anxiety disorder and sleep problems, common risk factors of depression in all age groups, are more significant in older adults, probably as a result of their increased prevalence in old age [25, 26].

Other risk factors associated with late life depression include social situations and, specifically, bereavement and caregiving. Although bereavement was found to triple the risk for depression among older adults [27], its effects on middle-aged adults is even more prominent [21, 28]. Caregiving is an additional risk factor for depression in later life, especially since older adults and elderly persons are often required to provide daily assistance and care to a disabled spouse or parent [29, 30]. Inadequate social support (that is, insufficient or excessive support), as well as unfavorable socioeconomic status, are also unique risk factors related to depression in old age [21].

Suicidality in young and older adults

Another noteworthy difference between older and younger populations suffering from depression concerns the relationship between depression and suicidality, although the findings regarding this relationship are not consistent. On the one hand, numerous studies found that suicide rates are higher among older adults, [12, 19, 31, 32], and suggest that age-related losses, both social and medical, are the main reasons for this worrisome phenomena [33]. However, on the other hand, several

studies suggest that younger depressed persons (under 30), rather than older depressed persons, express higher suicidality in response to the development of the disease [34-38]. These differences are attributed to the financial and career-related costs of severe illness among the younger population [34].

In sum, depression is a serious public health problem for all age groups, and although it can be effectively treated [39-41], many patients suffering from depression do not adhere to treatment [42, 43]. In the next section, we will review the literature on depression treatment non-adherence, with special attention given to differences between young and older adults.

Depression treatment non-adherence among young and older persons

Treatment non-adherence can be expressed in several ways, such as dropping out of therapy before the goals have been achieved, lack of consistency in arriving to scheduled therapy meetings, non-adherence in obtaining prescriptions, in taking the prescribed medicine, or in following medical instructions (www.bhrm.org/guidelines/stigma.pdf) [44-45].

Treatment non-adherence bears major personal and social costs. At the personal level, non-adherence has obvious negative consequences for the depressed person's quality of life, daily functioning, and the ability for self-care [46-48]. Non-adherence can also lead to deterioration in one's mental health status and to relapses into depression [44, 49]. At the social level, treatment non-adherence is associated with increased costs, mostly due to indirect expenses – such as a loss of productivity resulting from absenteeism and early retirement [50].

Given these deleterious consequences, it is of utmost importance to understand the phenomenon of depression treatment non-adherence and to examine whether young and older adults differ in their characteristics regarding non-adherence.

Prevalence of treatment non-adherence in young and older adults with depression

Estimates of non-adherence vary widely, ranging from 13% to 52% over the course of a lifetime [51-54]. This great variance is possibly a result of differences in the methodology used to assess treatment adherence, including clinician estimation, patients' self-report, pill-counting, estimation of drug blood levels, metabolite or tracer substance, and the use of electronic monitoring systems that record pill dispensing [55]. Despite this variability in estimations, it is clear that non-treatment adherence is a serious clinical and public health challenge among younger and older adults with depression.

Empirical results comparing depression non-adherence in young and older adults vary among studies. On the one hand, several studies found that older adults with depression tend to adhere less to treatment in comparison to younger adults, probably as a result of their increased comorbidity and multipharmacy, and the experienced side effects of the medications taken [56, 57], as well as because of the prevalence of cognitive and functional impairment in elderly patients. On the other hand, there is evidence that treatment non-adherence is more common among younger patients [43, 58]. For example, Ackincigil and her colleagues (2007) examined treatment adherence among 4,312 patients with depression (aged 18 and over) and found that the younger age group was associated with lower adherence rates. A similar trend was found in a recent study including 4,349 persons with depression aged 18 – 70+ [59]. These findings might be associated with the greater life experience of older adults, which might contribute to their understating of the importance of treatment adherence.

Due to the contradictory findings regarding age differences in treatment non-adherence, and the importance of adherence in order to achieve satisfactory results, it is important for future studies to continue to explore this area of research.

Predictors of treatment non-adherence among young and older adults with depression

The prevalence of depression treatment non-adherence and its negative consequences have produced an extensive body of research aimed at identifying predictors of non-adherence, in order to suggest possible solutions. However, only a few factors have been identified as affecting adherence to treatment for depression. A recent review, published by the World Health Organization (2003) and covering 287 studies published between 1990 and 2001, found that therapy-related factors (such as high dosage frequencies and the co-prescribing of benzodiazepines) were the main factors decreasing adherence. Other factors included poor health education and psychiatric co-morbidity.

Due to the difficulty in identifying objective factors (such as socio-demographic factors) affecting adherence to depression treatment, recent research has concentrated on examining patient-related factors, such as beliefs and attitudes [52]. In the following section, we will briefly describe findings regarding these correlates, and discuss the few studies assessing the impact of age on these factors. More specifically, findings regarding the influence of illness beliefs, treatment beliefs, self-stigma, and self-esteem on treatment adherence of persons with depression will be described.

Illness beliefs

Illness beliefs or illness representations, defined as beliefs about the symptoms, causes, controllability, consequences, and the timeline of a specific disease, were identified as an important factor influencing treatment adherence in the area of depression. Prins, Verhaak, Bensing and Van-der-Meer [60], in a systematic review of 71 studies examining health beliefs regarding anxiety and depression, described the importance of illness beliefs (including identity, causes, time-line, consequences, control and perceived need) for the understanding and treatment of the disease.

Regarding the association between illness beliefs and non-adherence, several studies showed that patients' beliefs regarding their ability to control the disease predicted their treatment adherence, with those who believed that control over depression can be achieved by turning to external factors (i.e. turning to professionals for treatment), presenting a higher tendency to adhere to treatment [61, 62]. Additionally, Adams and Scott (2000), in a study assessing illness beliefs among 27 persons with affective disorders (mean age = 48), found that individuals who believed that their depression was more severe tended to present higher levels of adherence to treatment than those who believed that their illness was relatively mild.

Other beliefs found to be associated with treatment adherence include beliefs about the causes and treatment for depression. For example, two qualitative studies conducted with individuals with depression showed that knowledge and awareness about the disease [63, 64] were associated with increased treatment adherence. Similarly, a quantitative study conducted with 95 veterans (78% aged 25 – 64 and 22% aged 65+) prescribed with antidepressant medications showed that the belief that the efficiency of the treatment is conditioned by personal adherence was related to higher treatment adherence [65]. It should be noted that although these studies included both young and older patients with depression, the role of age in the relationship between illness beliefs and treatment adherence was not specifically examined. Future studies should be conducted to further examine whether the relationships between illness representations and depression treatment adherence is conditioned by age.

Treatment beliefs

In addition to beliefs about the disease, patients' beliefs regarding the treatment of their disease were identified as an additional factor associated with treatment adherence of individuals with depression. The treatment beliefs examined in the literature included specific beliefs regarding the necessity of the medication and concerns about the negative effects it might have, as well as general beliefs, such as concerns about the way physicians use medications and beliefs that medication is harmful [66]. Overall, a large number of quantitative studies examining these beliefs consistently showed that patients' positive attitudes toward medication were associated with increased adherence treatment, either directly[53, 62, 66-70] or indirectly, through the impact on physician-patient communication style [71].

Similar to the examination of age-related differences in the area of illness beliefs and non-adherence, research regarding possible differences between older and younger populations in the relationship between treatment beliefs and depression treatment adherence is extremely scant. Aikens and his colleagues (2008), in a study including 165 persons with depression (mean age = 35), found that beliefs about the necessity of the treatment, which led to higher treatment adherence, were positively associated with older age [72]. Despite the importance of this study, it should be noted that the participants' age ranged from 27 to 44, and older adults were not included in the study.

Self-stigma and perceived stigma

Self-stigma is defined as "the prejudice which people with mental illness turn against themselves" [73]. A recent meta-analysis of 127 studies showed that high levels of self-stigma are associated with negative effects, such as low levels of hopefulness, self-esteem, self-efficacy, quality of life and social support, as well as with increased levels of psychiatric symptoms and treatment non-adherence [74].

In addition, perceived stigma, defined as the individual's perception regarding others' stigmatized views and negative responses towards people with mental health problems [75], was found to be associated with decreased treatment adherence. Moreover, this association was also examined among young and older adults with depression. For example, in a study of 92 persons with depression, aged 18 and older, it was found that although young patients (below 65) perceived a higher level of stigma than older patients (65 and older), perceived stigma predicted treatment discontinuation only among older adults [76]. Although these findings suggest that age may have a significant effect on perceived stigma, self-stigma, and the relationship between these and treatment adherence, further research is needed to elucidate these relationships. This is especially important in light of the findings of Roeloffs et al., suggesting that younger patients (17–34 years of age) are less concerned about the effects that stigma might have on future employment than older patients [77].

Self-esteem

Self-esteem reflects a person' perceptions about himself, his accomplishments and capabilities. High self-esteem is considered an important component of mental health, whereas low self-esteem and feelings of worthlessness are common depressive symptoms [78].

Self-esteem was shown to fluctuate as a function of age, with older adults over 60 reporting lower levels of self-esteem in comparison to adults (aged 30 to 60 and over) [79]. However, surprisingly, the relationships between self-esteem and treatment adherence in older and younger persons with depression have received limited research attention and the few studies that examined these relationships included, to the best of our knowledge, only young adults with depression [80, 81]. These studies found that self-esteem has a significant effect on treatment adherence, such that higher levels of self-esteem were associated with higher levels of adherence to psychosocial treatment. Future studies should explore these associations in older samples of persons with depression.

Conclusions and future directions

As outlined in this review, although effective treatments for depression are available, many young and older adults suffering from depression fail to adhere to treatment. Since treatment non-adherence has important individual and social implications, and considering the research findings regarding differences in the etiological characteristics of depression between young and older adults, we strongly believe there is an urgent need to expand the existing body of knowledge in the following areas:

Prevalence of non-adherence among young and older adults

Due to inconsistent findings about the prevalence of the non-adherence phenomenon among younger and older patients with depression, additional studies are required to assess these differences. It is recommended that in order to allow prospective inferences and cross-national comparisons, studies will be based on nationally representative samples. Additionally, longitudinal panel studies should be conducted in order to shed light on the development of depression and treatment non-adherence across time, and help explore individual trajectories which, in turn, could help develop specific intervention plans more finely-tuned to the needs of specific populations.

Relationships between illness beliefs, treatment beliefs and treatment non-adherence

Further future studies are required to examine the effect of age on the relationships between illness and treatment beliefs and treatment non-adherence among younger and older adults with depression.

Relationships between self-stigma and treatment non-adherence

It is important to examine whether the relationships between the entire self-stigma process (not only perceived stigma) and treatment non-adherence of young patients with depression differ from such relationships among older adults.

Relationships between self-esteem and treatment non-adherence

Knowledge regarding the influence that self-esteem has on medication treatment adherence should be examined among young and older adults with depression. Furthermore, the way in which self-esteem influences psychosocial treatment adherence has not been examined so far among older adults with depression, despite the fact that many older adults suffer from depression as well as lower levels of self-esteem, in comparison to their younger counterparts. Therefore, there is a need to develop this area of research.

In sum, as the efforts to curb the increasing prevalence and the negative consequences of depression worldwide are expanding [1], a more thorough understanding of the factors affecting adherence to depression treatment is needed. Since, as shown in this review, differences in the characteristics of the disease between younger and older adults clearly exist, the examination of these factors in the context of treatment non-adherence should take into account age-related differences. Only after this knowledge has been attained through sound methodological studies, can clinical, educational and psychosocial interventions - geared to meet the unique characteristics of younger and older adults treated for depression - be developed.

References

[1] Kessler RC, Bromet EJ (2013). The epidemiology of depression across cultures. Ann Rev Public Health, 34:119-38.

[2] American Psychiatric Association (2000). Diagnostic and statistical manual of mental disorders: DSM-IV-TR®. American Psychiatric Pub.

[3] Blazer DG (2003). Depression in late life: Review and commentary. J Gerontol A-Biol, 58:M249-65.

[4] Beekman ATF, Geerlings SW, Deeg DJH, Smit JH, Schoevers RS, de Beurs E, Braam AW, Penninx BWJH,

van Tilburg W (2002). The natural history of late-life depression: A 6-year prospective study in the community. Arch Gen Psychiatry, 59:605-11.
[5] Penninx BW, Deeg DJ, van Eijk, Jacques TM, Beekman AT, Guralnik JM (2000). Changes in depression and physical decline in older adults: A longitudinal perspective. J Affect Disord, 61:1-12.
[6] Schulz R, Drayer RA, Rollman BL (2002). Depression as a risk factor for non-suicide mortality in the elderly. Biol Psychiatry, 52:205-25.
[7] Steffens DC, Skoog I, Norton MC, Hart AD, Tschanz JAT, Plassman BL, Wyse BW, Welsh-Bohmer KA, Breitner J (2000). Prevalence of depression and its treatment in an elderly population: The cache county study. Arch Gen Psychiatry, 57:601-7.
[8] Alexopoulos GS, Raue PJ, Kanellopoulos D, Mackin S, Arean PA (2008). Problem solving therapy for depression-Executive dysfunction syndrome of late life. Int J Geriatr Psychiatry, 23:782-8.
[9] Baldwin R (2002). Psychiatry in the Elderly. In: Jacoby R, Oppenheimer C, editors. 3rd ed. Oxford University Press, p. 627-76.
[10] Gottfries C (2001). Late life depression. Eur Arch Psychiatr Clin Neurosci, 251:57-61.
[11] Kessler RC, Birnbaum H, Bromet E, Hwang I, Sampson N, Shahly V(2010). Age differences in major depression: Results from the national comorbidity survey replication (NCS-R). Psychol Med, 12:225-37.
[12] Hasche L, Morrow-Howell N (2007). Depression.In: Blackburn JA, Dulmus CN, editors. Handbook of Gerontology: Evidence-based approaches to theory, practice, and policy. New York: John Wiley & Sons. pp. 269-08.
[13] Djernes J (2006). Prevalence and predictors of depression in populations of elderly: A review. Acta Psychiatr Scand, 113:372-87.
[14] Corruble E, Gorwood P, Falissard B (2008). Association between age of onset and symptom profiles of late-Life depression. Acta Psychiatr Scand, 118:389-94.
[15] Stage K, Bech P, Kragh-Sørensen P, Nair N, Katona C (2001). Differences in symptomatology and diagnostic profile in younger and elderly depressed inpatients. J Affect Disord, 64:239-48.
[16] Gallo JJ, Rabins PV, Lyketsos CG, Tien AY, Anthony JC (1997). Depression without sadness: Functional outcomes of nondysphoric depression in later life. J Am Geriatr Soc, 45:570-8.
[17] Alexopoulos GS, Kiosses DN, Klimstra S, Kalayam B, Bruce ML (2002). Clinical presentation of the "depression-executive dysfunction syndrome" of late life. Am J Geriat Psychiat, 10:98-106.
[18] Birrer RB, Vemuri SP (2004). Depression in later life: A diagnostic and therapeutic challenge. Am Fam Physician, 69:2375-82.
[19] Fischer LR, Wei F, Solberg LI, Rush WA, Heinrich RL (2003). Treatment of elderly and other adult patients for depression in primary care. J Am Geriatr Soc, 51:1554-62.
[20] Soref E (2007). The aging of the population and late-life depression - Implications for the medical sciences and presentation of one therapeutic modality. Harefuah, Jan, 146:38-41.
[21] Fiske A, Wetherell JL, Gatz M (2009). Depression in older adults. Annu Rev Clin Psycho, 5:363-89.
[22] Lichtman JH, Bigger JT, Blumenthal JA, Frasure-Smith N, Kaufmann PG, Lespérance F, Mark DB, Sheps DS, Taylor CB, Froelicher ES (2008). Depression and coronary heart disease recommendations for screening, referral, and treatment: A science advisory from the American heart association prevention committee of the council on cardiovascular nursing, council on clinical cardiology, council on epidemiology and prevention, and interdisciplinary council on quality of care and outcomes research: Endorsed by the American psychiatric association. Circulation. 118:1768-75.
[23] Barker-Collo SL (2007). Depression and anxiety 3 months post stroke: Prevalence and correlates. Arch Clin Neuropsych, 22:519-31.
[24] Caraci F, Copani A, Nicoletti F, Drago F (2010). Depression and Alzheimer's disease: Neurobiological links and common pharmacological targets. Eur J Pharmacol, 626:64-71.
[25] Hettema JM, Kuhn JW, Prescott CA, Kendler KS (2006). The impact of generalized anxiety disorder and stressful life events on risk for major depressive episodes. Psychol Med, 36:789-95.
[26] Perlis ML, Smith LJ, Lyness JM, Matteson SR, Pigeon WR, Jungquist CR, Tu X (2006). Insomnia as a risk factor for onset of depression in the elderly. Behavioral sleep medicine, 4:104-13.
[27] Cole MG, Dendukuri N (2003). Risk factors for depression among elderly community subjects: A systematic review and meta-analysis. Am J Psychiatry, 160:1147.
[28] Torges CM, Stewart AJ, Nolen-Hoeksema S (2008). Regret resolution, aging, and adapting to loss. Psychol Aging, 23:169-80.
[29] Thompson A, Fan M, Unützer J, Katon W (2008). One extra month of depression: The effects of caregiving on depression outcomes in the IMPACT trial. Int J Geriatr Psychiatry, 23:511-6.
[30] Aggar C, Ronaldson S, Cameron ID (2010). Reactions to caregiving of frail, older persons predict depression. Int J Ment Health Nu, 19:409-15.
[31] Tadros G, Salib E (2007). Elderly suicide in primary care. Int J Geriatr Psychiatry, 22:750-6.
[32] Waern M, Rubenowitz E, Wilhelmson K (2003). Predictors of suicide in the old elderly. Gerontology, 49:328-34.
[33] Ron P (2004). Depression, hopelessness, and suicidal ideation among the elderly: A comparison between men and women living in nursing homes and in the community. J Gerontol Soc Work, 43:97-116.
[34] Chang H, Lin H, Lee H, Lin C, Pfeiffer S (2009). Risk of mortality among depressed younger patients: A five-year follow-up study. J Affect Disord, 113:255-62.
[35] Szanto K, Mulsant BH, Houck P, Dew MA, Reynolds III CF (2003). Occurrence and course of suicidality during short-term treatment of late-life depression. Arch Gen Psychiatry, 60:610.

[36] Thompson AH (2008). Younger onset of depression is associated with greater suicidal intent. Soc Psych Psych Epid, 43:538-44.
[37] Zisook S, Rush A, Lesser I, Wisniewski S, Trivedi M, Husain M, Balasubramani G, Alpert J, Fava M (2007). Preadult onset vs. adult onset of major depressive disorder: A replication study. Acta Psychiatr Scand, 115:196-205.
[38] Zivin K, Kales HC (2008). Adherence to depression treatment in older adults: A narrative review. Drugs Aging, 25:559-71.
[39] Akincigil A, Bowblis JR, Levin C, Walkup JT, Jan S, Crystal S (2007). Adherence to antidepressant treatment among privately insured patients diagnosed with depression. Med Care, 45:363-69.
[40] Palazidou E, Tiffin E (2003). AetiologyIn E. Palazidou & E. Tiffin (Eds.), *Depression* (pp.12 – 16). Spain: Mosby.In: Palazidou E, Tiffin E, editors. Depression. Spain: Mosby; p. 12-6.
[41] Raue PJ, Schulberg HC, Heo M, Klimstra S, Bruce ML (2009). Patients' depression treatment preferences and initiation, adherence, and outcome: A randomized primary care study. Psychiatric services (Washington, DC).60:337-43.
[42] Bosworth HB, Voils CI, Potter GG, Steffens DC (2008). The effects of antidepressant medication adherence as well as psychosocial and clinical factors on depression outcome among older adults. Int J Geriatr Psychiatry, 23:129-34.
[43] Sirey JA, Bruce ML, Alexopoulos GS, Perlick DA, Friedman SJ, Meyers BS (2001). Stigma as a barrier to recovery: Perceived stigma and patient-rated severity of illness as predictors of antidepressant drug adherence. Psychiatric services, 52:1615-20.
[44] Demyttenaere K, Mesters P, Boulanger B, Dewe W, Delsemme M, Gregoire J, Van Ganse E (2001). Adherence to treatment regimen in depressed patients treated with amitriptyline or fluoxetine. J Affect Disord, 65:243-52.
[45] Keller MB, Hirschfeld R, Demyttenaere K, Baldwin D (2002). Optimizing outcomes in depression: Focus on antidepressant compliance. Int Clin Psychopharmacol, 17:265-71.
[46] Berlim MT, Pargendler J, Brenner J, Fleck M (2007). Significant improvement in the quality of life of Brazilian depressed outpatients 12 weeks following the start of antidepressants. Psychiatry Res, 153:253-9.
[47] Papakostas GI, Petersen T, Mahal Y, Mischoulon D, Nierenberg AA, Fava M (2004). Quality of life assessments in major depressive disorder: A review of the literature. Gen Hosp Psychiatry, 26:13-7.
[48] Schlenk EA, Dunbar-Jacob J, Engberg S (2004). Medication non-adherence among older adults: A review of strategies and interventions for improvement. J Gerontol Nurs, July; 30:33-43.
[49] Tay S (2007). Compliance therapy: An intervention to improve inpatients' attitudes toward treatment. J Psychosoc Nurs Ment Health Serv, 45:29-37.
[50] Von-Knorring LV, Akerblad AC, Bengtsson F, Carlsson A, Ekselius L (2006). Cost of depression: Effect of adherence and treatment response. Euro Psychiat, 21:349-54.
[51] Bosworth HB, Voils CI, Potter GG, Steffens DC (2008). The effects of antidepressant medication adherence as well as psychosocial and clinical factors on depression outcome among older adults. Int j geriatr psych, 23:129-34.
[52] Lingam R, Scott J (2002). Treatment non-adherence in affective disorders. . Acta Psychiatrica Scandinavica, 105:164-72.
[53] Maidment R, Livingston G, Katona C (2002). 'Just keep taking the tablets': Adherence to antidepressant treatment in older people in primary care. Int J Geriatr Psychiatry, 17:752-7.
[54] Julius RJ, Novitsky Jr MA, Dubin WR (2009). Medication adherence: A review of the literature and implications for clinical practice. J Psychiatr Pract, 15:34-44.
[55] Pompili M, Serafini G, Del Casale A, Rigucci S, Innamorati M, Girardi P, Tatarelli R, Lester D (2009). Improving adherence in mood disorders: The struggle against relapse, recurrence and suicide risk. Expert review of neurotherapeutics, 9:985-1004.
[56] Demyttenaere K (2003). Risk factors and predictors of compliance in depression. Eur Neuropsychophar, 13:69-75.
[57] Heidenreich PA (2004). Patient adherence: The next frontier in quality improvement. Am J Med, 117:130-2.
[58] Granger AL, Fehnel SE, Hogue SL, Bennett L, Edin HM (2006). An assessment of patient preference and adherence to treatment with Wellbutrin SR: A web-based survey. J Affect Disord, 90:217-21.
[59] Rolnick SJ, Pawloski PA, Hedblom BD, Asche SE, Bruzek RJ (2013). Patient characteristics associated with medication adherence. Clinical medicine & research, 11: 54 – 5.
[60] Prins MA, Verhaak PF, Bensing JM, van der Meer K (2008). Health beliefs and perceived need for mental health care of anxiety and depression—The patients' perspective explored. Clin Psychol Rev, 28:1038-58.
[61] Adams J, Scott J (2000). Predicting medication adherence in severe mental disorders. Acta Psychiatr Scand, 101:119-24.
[62] Edlund MJ, Fortney JC, Reaves CM, Pyne JM, Mittal D (2008). Beliefs about depression and depression treatment among depressed veterans. Med Care, 46:581-9.
[63] Waite R, Killian P (2008). Health beliefs about depression among African American women. Perspect Psychiatr Care, 44:185-95.
[64] Bollini P, Tibaldi G, Testa C, Munizza C (2004). Understanding treatment adherence in affective disorders: A qualitative study. J Psychiatr Ment Health Nurs, 11:668-74.
[65] Gonzalez J, Williams JW, Noël PH, Lee S (2005). Adherence to mental health treatment in a primary care clinic. J Am Board Fam Pract, 18:87-96.
[66] Brown C, Battista DR, Bruehlman R, Sereika SS, Thase ME, Dunbar-Jacob J (2005). Beliefs about antidepressant medications in primary care patients:

Relationship to self-reported adherence. Med Care, 43:1203-7.

[67] Burra TA, Chen E, McIntyre RS, Grace SL, Blackmore ER, Stewart DE (2007). Predictors of self-reported antidepressant adherence. Behav Med, 32:127-34.

[68] Chakraborty K, Avasthi A, Suresh Kumar MD D, Grover S (2009). Attitudes and beliefs of patients of first episode depression towards antidepressants and their adherence to treatment. Soc Psychiatry Psychiatr Epidemiol, 44:482-8.

[69] Vergouwen AC, Burger H, Verheij TJ, Koerselman F (2009). Improving patients' beliefs about antidepressants in primary care: A cluster-randomized controlled trial of the effect of a depression care program. Prim Care Companion J Clin Psychiatry, 11:48.

[70] Yen C, Lee Y, Tang T, Yen J, Ko C, Chen C (2009). Predictive value of self-stigma, insight, and perceived adverse effects of medication for the clinical outcomes in patients with depressive disorders. J Nerv Ment Dis, 197:172-7.

[71] Bultman DC, Svarstad BL (2000). Effects of physician communication style on client medication beliefs and adherence with antidepressant treatment. Patient Educ Couns, 40:173-85.

[72] Aikens JE, Nease DE, Klinkman MS (2008). Explaining patients' beliefs about the necessity and harmfulness of antidepressants. Ann Fam Med, 6:23-9.

[73] Corrigan PW, Watson AC (2002). Understanding the impact of stigma on people with mental illness. World Psychiatry, 1:16-20.

[74] Livingston JD, Boyd JE (2010). Correlates and consequences of internalized stigma for people living with mental illness: A systematic review and meta-analysis. Soc Sci Med, 71:2150-61.

[75] Corrigan PW, Watson AC, Barr L (2006). The self-stigma of mental illness: Implications for self-esteem and self-efficacy. J Soc Clin Psychol, 25:875-84.

[76] Sirey JA, Bruce ML, Alexopoulos GS, Perlick DA, Raue P, Friedman SJ, Meyers BS (2001). Perceived stigma as a predictor of treatment discontinuation in young and older outpatients with depression. Am J Psychiatry, 158:479-81.

[77] Roeloffs C, Sherbourne C, Unützer J, Fink A, Tang L, Wells KB (2003). Stigma and depression among primary care patients. Gen Hosp Psychiatry, 25:311-5.

[78] Vandenbos, GR (2007). APA Dictionary of Psychology. Washington, DC: American Psychological Association.

[79] Robins RW, Trzesniewski KH, Tracy JL, Gosling SD, Potter J (2002). Global self-esteem across the life span. Psychol Aging, 17:423-34.

[80] Fung KM, Tsang HW, Corrigan PW, Lam CS, Cheng W (2007). Measuring self-stigma of mental illness in China and its implications for recovery. Int J Soc Psychiatry, 53:408-18.

[81] Tsang HW, Fung KM, Corrigan PW (2006). Psychosocial treatment compliance scale for people with psychotic disorders. Aust N Z J Psychiatry, 40:561-9.