Effectiveness of Spiritually Augmented Psychotherapy on Dysfunctional Attitudes in Patients with **Dysthymic Disorder**

Amrollah Ebrahimi¹, Hamid Nasiri-Dehsorkhi², Seyed Ghafour Mousavi³

¹ Associate Professor, Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

² Clinical Psychologist, Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

³ Professor, Behavioral Sciences Research Center AND Department of Psychiatry, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Quantitative Study

Abstract

Background: The aim of this study was to evaluate the efficacy of spiritually augmented psychotherapy (SAPT) on the dysfunctional attitudes of patients with dysthymic disorder.

Methods: A mixed qualitative and quantitative method was used in the present study. SAPT model was prepared in the first phase, and in the second phase, a double-blind randomized clinical trial was performed. The study subjects consisted of 62 patients with dysthymic disorder selected from several clinical centers of Isfahan University of Medical Sciences in Isfahan, Iran. The participants were randomly assigned to 3 experimental groups and 1 control group. The first group received 8 sessions of SAPT treatment, the second group also had 8 sessions of cognitive behavioral therapy (CBT) which was specific to dysthymic disorder, and third group were under antidepressant treatment. The Dysfunctional Attitudes Scale (DAS-26) was used to evaluate all the participants in 4 measurement stages. The data were analyzed using repeated measures MANCOVA.

Results: Findings showed that SAPT had higher efficacy on the modification of dysfunctional attitudes than CBT and medication (P < 0.05).

Conclusion: These findings supported the efficacy of psychotherapy enriched with cultural structures and spiritual teachings.

Keywords: Psychotherapy, Spiritual, Cognitive-behavioral therapy (CBT), Depression, Dysfunctional attitude

Citation: Ebrahimi A, Nasiri-Dehsorkhi H, Mousavi SGh. Effectiveness of Spiritually Augmented Psychotherapy on Dysfunctional Attitudes in Patients with Dysthymic Disorder. Int J Body Mind Culture 2015; 2(1): 34-40.

Received: 20 Jan 2015 Accepted: 25 Mar 2015

Introduction

Dysthymic disorder is a prevalent disorder with

Corresponding Author: Amrollah Ebrahimi Email: a ebrahimi@med.mui.ac.ir the estimated prevalence rate of between 3 and 6%. On the other hand, 36% of psychiatric outpatients suffer from dysthymic disorder and a considerable number of those who refer to primary healthcare centers suffer from this disorder (Bell, Chalklin, Mills, Browne, Steiner, Roberts, et al. 2004).

cognitive-behavioral therapies Although (CBTs) have been known as effective therapies for clinically depressed patients (Haby, Donnelly, Corry, & Vos, 2006; Feldman, 2007), CBTs may not have equal effects on patients with different cultural and religious backgrounds (Propst, Ostrom, Watkins, Dean, & Mashburn, 1992; Post, & Wade, 2009). Almost all authorities agree that cultural variables are important for the diagnosis and treatment of mood problems. In fact, the negligence of cultural differences in clinical studies not only is mismanagement in research policy, but also results in serious misinterpretations of the findings of clinical trials (Hofmann, 2006).

Increasing studies of psychiatry, spirituality, and religion deal with the necessity of mixing original religious teachings and cultural beliefs, and convictions related to health in psychotherapeutic strategies (D'Souza & Rodrigo, Bartza, & Richardsa, 2004; Smitha, 2007; Pargament, 2011; Aten & Worthington, 2009). Different psychotherapeutic models have been created in different cultures by integrating psychotherapy and religious teachings. Some examples of these approaches include religious CBT models for curing depression disorder (Propst et al., 1992), spirituality focused therapy (Cole, 1999), religious psychotherapy plan for depression and anxiety (Berry, 2002) and spiritually augmented CBT (D'Souza & Rodrigo, 2004). Strengthening effectiveness of conventional psychotherapies with spiritual teaching is increasingly considered in Eastern and Islamic countries such as mixed cultural-religious psychotherapy model for curing depression and (Razali, Hasanah, Aminah, anxiety & Subramaniam, 1998; Azhar, & Varma, 1995; Azhar, Varma, & Dharap, 1994). Spiritually augmented psychotherapy (SAPT) accelerates improvement of depression and anxiety symptoms and reduces psychological problems of psychosomatic patients (Townsend, Kladder, Ayele, & Mulligan, 2002). Nevertheless, some studies have shown that this psychotherapy model Ebrahimi et al.

has not been different from other therapies during the 6-month follow-up stages (Azhar & Varma, 1995). In order to resolve these controversies, the aim of this study was to compare the efficacy of SAPT and CBT on the dysfunctional attitudes of patients with dysthymic disorder.

Methods

Mixed method design was used with two qualitative and quantitative phases. In the first phase and using the qualitative method, grounded theory of SAPT model was formulated. The second phase was a doubleblind randomized clinical trial with a control group (waiting list). The participants were included in the study through requesting from general practitioners and psychiatrists, calling health centers, dormitories, and faculties of Isfahan University of Medical Sciences and Isfahan Goldis Psychological Services Center, Isfahan, Iran. Initial screening was performed through a clinical interview and Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, (DSM-IV) Axis I Disorders (SCID-I) (First, Spitzer, Gibbon, & Williams, 2002). Positive screening cases who had the inclusion criteria of the study were randomly assigned to one of the experimental conditions (experimental groups) or the waiting list. The experimental and control groups were evaluated using the Dysfunctional Attitude Scale (DAS-26) in 4 sessions during the study [pre-intervention, 4 weeks after starting, post-intervention, and follow-up (3 months later)]. Inclusion criteria included dysthymic disorder diagnosis according to the DSM-IV-TR, age of between 20 and 65 years, minimum literacy, lack of consumption of any psychiatric medicine in the past 3 months and lack of participation in psychotherapy sessions in the past 6 months, literacy in the Persian language, and willingness to participate in this project. Exclusion criteria included suffering from a severe physical diseases, serious neurology, mental retardation, psychosis disorders or symptoms, bipolar disorder, depression disorders resulting from drug and alcohol abuse and other psychiatric disorders with depression as their secondary symptoms, reluctance of the patient to continue the therapy, serious suicide ideation and risk of suicide which require emergency intervention. After execution of the pre-test by a clinical psychologist, the intervention was started by therapists. The raters and therapists were not aware of each other's work.

Cognitive-behavioral therapy: The CBT protocol which was used in this study was a standard copy of the cognitive-behavioral therapeutic design for chronic depression and dysthymia which was prepared by Moore and Garland (2003). The mentioned therapeutic design was prepared in 8 weekly sessions. Each session lasted 45 minutes and was held separately for each individual.

Spiritually augmented psychotherapy: The content and process of SAPT intervention included theoretical model, intervention strategies, and implementation guideline, which was extracted from spiritual sources using grounded theory in the first phase of the study and designed for 8 sessions. Based on the grounded theory (Speziale & Carpente, 2007), the data were gathered and analyzed in different ways. First, spiritual and psychology experts were interviewed in Iran and their viewpoints were collected until data saturation, and then, data were analyzed and conceptualized. In the next step, spiritual sources, including written and electronic sources, were searched with regard to questions and goals and under the supervision of experts in religious sciences considering the interview data. Then, the data were classified and analyzed in terms of content. Content of therapeutic protocol included spiritual theoretical viewpoint for explaining the depression disorders formation of and therapeutic methods including cognitive, behavioral, emotional-spiritual methods, and recommendations behavioral in religious sources. Therefore, 8 weekly sessions of 45

minutes were held for each individual.

Medication: Medication was prescribed by a psychiatrist and using standard medication protocol for the patients suffering from dysthymia according to the Comprehensive Textbook of Psychiatry (Kaplan & Sadock, 2005) and considering the medications available in Type of medicine and its starting, Iran. continuing, and ending doses were selected by and at discretion of the psychiatrist, and suitable medicines were prescribed in a standard, but flexible design depending on disease symptoms and conditions. The sheet can be for evaluating symptoms and prescribing medicines which were completed by the psychiatrist were revised and confirmed twice by an assistant psychiatrist (professor of psychiatry).

The measurement tools included Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) and the Dysfunctional Attitude Scale (DAS-26). Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) is a tool for diagnosis on the basis of DSM-IV criteria. Inter-rater reliability was reported acceptable on the basis of the kappa coefficient index (0.7) (First, Spitzer, Robert, Gibbon, Williams, & Janet, 2002). The DAS-26 measures underlying attitudes of cognitive content of depression symptoms on the basis of Beck Theory (Oliver, Murphy, Ferland, & Ross, 2007). Its original form contains 40 statements scored on a 7-point Likert scale. Its short form (DAS-26), which was used in this study, was made using its original form during a psychometric study in Iran. Its reliability was calculated using Cronbach's alpha method (92%) and its validity was reported through correlation with depressive disorders as diagnosed by the psychiatrist (0.55) with the total score of General Health Questionnaire-28 (GHQ-28) (0.56) (Ebrahimi & Mousavi, 2011).

SPSS software (version 16, SPSS Inc., Chicago, IL, USA) was used for data analysis and MANCOVA method with repeated measures was applied. Pre-test scores of DAS-26 and age were controlled as covariate variables.

Results

Subjects were 55% female and 45% male. Mean age of participants in the medication, cognitive-behavioral psychotherapy experiment groups, and the control group was 32.26 ± 10.36 , 31.25 ± 8.82 , 31.81 ± 10.31 , and 29.06 ± 9.5 , respectively. Scores of dysfunctional attitudes of the experiment and control groups are reported in four experimental phases in table1.

MANCOVA analysis with repeated measures (Table 2) showed the significant affect of therapeutic intervention on the reduction of DAS-26 scores (P < 0.001). The effect of time

(difference of different stages) was also significant (P < 0.001). Moreover, the interaction between type of therapy and stages was also significant (P < 0.001).

Paired comparison of the mean of groups using post hoc tests showed that experiment groups, except the medication group, were significantly different from the control group (P < 0.05). The SAPT group had more efficacy than the medication and cognitive-behavioral group (P < 0.05), but there were no differences between cognitive-behavioral and medication groups. Figure 1 shows mean DAS-26 scores of groups in four experiment stages.

Table 1: Mean and standard deviation of the DAS-26 in pre-test, 1 month after starting, post-test, and follow-up stages

Groups	Indices	Pre-test	One month after starting	Post-test	Follow-up
		Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Medical intervention (n = 15)	DAS-26 Scores	112.66 ± 26.19	102.40 ± 31.15	92.6 ± 17.4	89.8 ± 27.8
CBT (n = 16)	DAS-26 Scores	109.18 ± 24.15	95.62 ± 25.54	72.6 ± 26.7	65.3 ± 21.3
$\begin{array}{l} \text{SAPT} \\ (n = 16) \end{array}$	DAS-26 Scores	115.25 ± 27.45	86.75 ± 31.83	65.5 ± 23.1	55.7 ± 20.6
Control group (Waiting list) (n = 15)	DAS-26 Scores	110.40 ± 26.35	107.40 ± 24.88	109.2 ± 25.5	113.3 ± 24.6

SD: Standard d; CBT: Cognitive behavioral therapy; DAS-26: Dysfunctional Attitudes Scale; SAPT: Spiritually augmented psychotherapy

 Table 2: MANCOVA analysis with repeated measures of DAS-26 scores of experiment and control groups

df	F	P-value	Test power
3.57	5.12	0.003	0.90
3.55	5.73	0.001	0.96
9.14	8.55	0.001	1.00
	3.55	3.57 5.12 3.55 5.73	3.575.120.0033.555.730.001

df: Degrees of freedom



Figure 1: Mean scores of experiment and control groups in four experiment stages (pre-test, 1 month after starting, post-test, and follow-up)

CBT: Cognitive behavioral therapy; SAPT: Spiritually augmented psychotherapy

Ebrahimi et al.

As shown in the above figure, SAPT had a considerable effect on dysfunctional attitudes over time; however, medicine had no considerable effect on attitudes.

Discussion

The findings revealed that SAPT had a higher efficacy in the reduction of dysfunctional attitudes compared with medication and CBT in post-test and follow-up stages (P < 0.05). Medication had no significant effect on the reduction of dysfunctional attitudes. Thus, it can be inferred that SAPT which was performed in a qualitative study (grounded theory) can be effective in the reduction of cognitive vulnerability of patients suffering from dysthymia.

The findings of this part of the research supported the viewpoint that spirituality-based therapies which concentrate on the components of control, meaning finding, identity, and communication can strengthen the efficacy of therapy through reducing depression components, especially in chronic depression, whether in combination with conventional psychotherapies or by themselves.

The findings of this research were in line with findings of the study by Azhar and Warma (1995). In their study, the results of the spirituality focused psychotherapy group was significant than waiting more list and medication groups at the end of intervention, but did not differ from that of the medication group in the follow-up stage. Furthermore, these findings supported that of Propst et al., 1992 and Azhar and Warma 1995. The results were similar to those of some studies in this field (Hofmann, 2006; Smitha et al., 2007; Avants, Beitel, & Margolin, 2005; Richards, Berrett, Hardman, & Eggett, 2006). Possibly, the effectiveness capability of spirituality-focused intervention is related to the fact that semantic-religious life teachings cause a feeling of orientation for life, support, and optimism for the clients (Peterson & Seligman, 2004). Moreover, when therapy is coordinated with cultural structures, spiritual

needs, and religious thought of the patients, response to and acceptance of the therapy are improved (Smitha et al., 2007; Cole & Pargament, 1999). In addition, the findings of this research, regarding the effectiveness of SAPT, supported Bartoli's approach to the necessity of incorporating spiritual components in intervention designs for dysthymic disorder (Bartoli, 2007).

Another important finding of this study was the confirmation of CBT effectiveness in terms of the symptoms of the patients suffering from dysthymia. These findings were in line with broad meta-analysis results of the studies by Wampold, Minami, Baskin, and Callen (2002), and Chen, Lu, Chang, Chu, and Chou (2006) with regard to CBT effectiveness on dysthymic disorders. The mentioned studies showed that effectiveness of CBT was significantly different from that of the waiting list and pseudo-therapy conditions in all the stages (Wampold et al., 2002; Chen et al., 2006).

Confirming the efficacy of SAPT and its probable preference over the consistency of the effect of therapy and correction of dysfunctional attitudes supports this model's theoretical bases and shows the coordination between theoretical framework and therapeutic solutions. It seems that performing cognitive, behavioral, ontological, and spiritual strategies extracted from spiritual sources along with the application of other believing-behavioral skills such as meditation, prayer, and enjoyable spiritual activities have caused changes in dysfunctional attitude, mood, and behavior. Some examples of such spiritual sources consisted of the viewpoints of Imam Ali based on realistic attitude creation and expectations alignment with current realities (Majlesi, 1996), Imam Sadegh on creating and practicing a positive attitude toward the future and searching for positive points in past experiences to change the present mood (Koleini, 1996), and Imam Bagher on searching for meaning in hardship and positive and divine interpretation of incidents (Ebn Abi Alhadid). Since the efficiency and acceptance of any type of psychotherapy depend on the adjustment of its content with cultural backgrounds and values of the people, SAPT is more suitable for Muslims. The authors agree with Peterson and Seligman (2004) that spirituality, and the mechanisms and interfaces such as the effect on personal coping processes, problem solving skill, increase of self-esteem, hope, sincerity, control, comfort, emotional support, spiritual support, integrated (monotheistic) and interpretation of the world are effective on the individual solidarity and well-being and intra-psychological increased abilities to change lifestyle.

Limitations

One of the limitations of this study was its short follow-up period (3 months); thus, it is necessary to have a longer follow-up period in future studies. Another limitation was that medical intervention which was compared with other methods was not a specified medicine with definite dosage, but medicines prescribed by different psychiatrists on the basis of standard protocol.

Conclusion

The results of this randomized clinical trial revealed that in Iranian patients with dysthymic disorder, because of their spiritual background, SAPT is more effective than medication and CBT in modification of dysfunctional attitudes.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

Authors are thankful to the staff of Noor and Alzahra Medical Centers, Counseling Centers in student dorms, and faculties of Isfahan University of Medical Sciences and Isfahan Goldis Psychological Services Center for helping in this research process.

References

Aten, J. D., & Worthington, E. L., Jr. (2009). Next steps for clinicians in religious and spiritual therapy: an endpiece. *J Clin.Psychol.*, 65(2), 224-229. doi:10.1002/jclp.20562 [doi]. Retrieved from PM:19132640

Avants, S. K., Beitel, M., & Margolin, A. (2005). Making the shift from 'addict self?' to 'spiritual self?': Results from a Stage I study of Spiritual Self-Schema (3-S) therapy for the treatment of addiction and HIV risk behavior. *Mental Health, Religion and Culture,* 8(3), 167-177.

Azhar, M. Z., Varma, S. L., & Dharap, A. S. (1994). Religious psychotherapy in anxiety disorder patients. *Acta Psychiatr.Scand.*, 90(1), 1-3. Retrieved from PM:7976440

Azhar, M. Z., & Varma, S. L. (1995). Religious psychotherapy in depressive patients. *Psychother.Psychosom.*, 63(3-4), 165-168. Retrieved from PM:7624461

Bartoli, E. (2007). Religious and spiritual issues in psychotherapy practice: Training the trainer. *Psychotherapy (Chic.)*, 44(1), 54-65. doi:2007-04278-005 [pii];10.1037/0033-3204.44.1.54 [doi]. Retrieved from PM:22122168

Bell, B., Chalklin, L., Mills, M., Browne, G., Steiner, M., Roberts, J. et al. (2004). Burden of dysthymia and comorbid illness in adults in a Canadian primary care setting: high rates of psychiatric illness in the offspring. *J Affect.Disord.*, 78(1), 73-80. doi:S016503270200174X [pii]. Retrieved from PM:14672800

Berry, D. (2002). Does religious psychotherapy improve anxiety and depression in religious adults? A review of randomized controlled studies. *Int.J Psychiatr.Nurs.Res, 8*(1), 875-890. Retrieved from PM:12448875

Chen, T. H., Lu, R. B., Chang, A. J., Chu, D. M., & Chou, K. R. (2006). The evaluation of cognitive-behavioral group therapy on patient depression and self-esteem. *Arch.Psychiatr.Nurs.*, 20(1), 3-11. doi:S0883-9417(05)00245-1 [pii];10.1016/j.apnu.2005.08.005 [doi]. Retrieved from PM:16442469

Cole, B., & Pargament, K. (1999). Re-creating your life: a spiritual/psychotherapeutic intervention for people diagnosed with cancer. *Psychooncology.*, *8*(5), 395-407. doi:10.1002/(SICI)1099-1611(199909/10)8:5<395::AID-PON408>3.0.CO;2-B [pii]. Retrieved from PM:10559799

Cole, B. S. (1999). The integration of spirituality and psychotherapy for people confronting cancer : an outcome study [PhD Thesis]. Bowling Green, OH: Bowling Green State University. ssertation Abstracts International: Section B: the Sciences & Engineering 2000;61: 10751078.

D'Souza, R. F., & Rodrigo, A. (2004). Spiritually augmented cognitive behavioural therapy. *Australas.Psychiatry.*, *12*(2), 148-152. doi:APY2095 [pii];10.1111/j.1039-8562.2004.02095.x [doi]. Retrieved from PM:15715760

Ebn Abi Alhadid. Nahgolbalagheh Description. A Research Done by Mohammad Ebrahim 1387 AH, Beirut, Darolehya.

Ebrahimi, A. & Mousavi, S. Gh. Development and validation of the Dysfunctional Attitude Scale -26 items : factor structure, reliability and validity in Iranian psychiatric outpatients. Proceedings of the 7th International Congress of Cognitive Psychotherapy; 2011 Jun 2-5; Istanbul, Turkey.

Feldman, G. (2007). Cognitive and behavioral therapies for depression: overview, new directions, and practical recommendations for dissemination. *Psychiatr.Clin.North Am*, 30(1), 39-50. doi:S0193-953X(06)00103-1 [pii];10.1016/j.psc.2006.12.001 [doi]. Retrieved from PM:17362802

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, Janet B.W.: Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Patient Edition. (SCID-I/P) New York, NY: Biometrics Research, New York State Psychiatric Institute, November 2002.

Haby, M. M., Donnelly, M., Corry, J., & Vos, T. (2006). Cognitive behavioural therapy for depression, panic disorder and generalized anxiety disorder: a metaregression of factors that may predict outcome. *Aust.N.Z J Psychiatry.*, *40*(1), 9-19. doi:ANP1736 [pii];10.1111/j.1440-1614.2006.01736.x [doi]. Retrieved from PM:16403033

Hofmann, S. G. (2006). The Importance of Culture in Cognitive and Behavioral Practice. *Cognitive and Behavioral Practice*, *13*(4), 243-245. Retrieved from http://www.sciencedirect.com/science/article/pii/S1077722 906000885

Kaplan, H. I., & Sadock, B. J. (2005). *Comprehensive textbook of psychiatry*. Philadelphia, PA: Williams and Wilkins.

Koleini, M. Y. (1996) Alkafi, Alahadith Noor Comprehensive Software, Qom, Iran, Computer Research Center of Islamic Sciences.

Majlesi, M. B. (1996). Baharolanvar, Alahadith Noor Comprehensive Software, Qom,Iran, Computer Research Center of Islamic Sciences.

Moore RG, & Garland A. (2003). *Cognitive therapy for chronic and persistent depression*. London, UK: Wiley.

Oliver, J. M., Murphy, S., Ferland, D., & Ross, M. (2007). Contributions of the Cognitive Style Questionnaire and the Dysfunctional Attitude Scale to Measuring Cognitive Vulnerability to Depression. *Cogn Ther Res*, 31(1), 51-69. Retrieved from

http://dx.doi.org/10.1007/s10608-006-9067-0. Retrieved from Kluwer Academic Publishers-Plenum Publishers.

Pargament, K. I. (2011). *Spiritually integrated psychotherapy: understanding and addressing the sacred* (1st ed.). New York, NY: The Guilford Press.

Peterson, C., & Seligman, M. (2004). *Character strengths and virtues*. Oxford, UK: Oxford University Press.

Post, B. C., & Wade, N. G. (2009). Religion and spirituality in psychotherapy: a practice-friendly review of research. *J Clin.Psychol.*, 65(2), 131-146. doi:10.1002/jclp.20563 [doi]. Retrieved from PM:19132737

Propst, L. R., Ostrom, R., Watkins, P., Dean, T., & Mashburn, D. (1992). Comparative efficacy of religious and nonreligious cognitive-behavioral therapy for the treatment of clinical depression in religious individuals. *J Consult.Clin.Psychol.*, *60*(1), 94-103. Retrieved from PM:1556292

Razali, S. M., Hasanah, C. I., Aminah, K., & Subramaniam, M. (1998). Religious--sociocultural psychotherapy in patients with anxiety and depression. *Aust.N.Z J Psychiatry.*, *32*(6), 867-872. Retrieved from PM:10084352

Richards, P. S., Berrett, M. E., Hardman, R. K., & Eggett, D. L. (2006). Comparative efficacy of spirituality, cognitive, and emotional support groups for treating eating disorder inpatients. *Eat.Disord.*, *14*(5), 401-415. doi:R0415H71TK16G514

[pii];10.1080/10640260600952548 [doi]. Retrieved from PM:17062450

Smitha, T. B., Bartza, J., & Richardsa, S. (2007). Outcomes of religious and spiritual adaptations to psychotherapy: A meta-analytic review. *Psychotherapy Research*, *17*(6), 643-655. DOI:10.1080/ 10503300701250347.

Speziale, H. S., & Carpente, D. R. (2007). *Qualitative research in nursing: advancing the humanistic imperative*. Philadelphia, PA: Lippincott Williams & Wilkins.

Townsend, M., Kladder, V., Ayele, H., & Mulligan, T. (2002). Systematic review of clinical trials examining the effects of religion on health. *South.Med J*, *95*(12), 1429-1434. Retrieved from PM:12597312

Wampold, B. E., Minami, T., Baskin, T. W., & Callen, T. S. (2002). A meta-(re)analysis of the effects of cognitive therapy versus 'other therapies' for depression. *J Affect.Disord.*, 68(2-3), 159-165. doi:S0165032700002871 [pii]. Retrieved from PM:12063144.