

The Effectiveness of Method on Maintenance Treatment on the Addicted Life Quality in the World: Meta – Analysis and Systematic Review

Research Article

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Abstract

Objective: The aim of the present study was to assess the effectiveness of method on maintenance treatment of the addicted life quality through Meta - analysis method.

Method: All of the data bases inside the country, and also, PUB MED, Scopus, ISI, Sid, Iran Medex, Google scholar, and Magiran researches which have investigated the life quality of the addicted both before and after method on treatment, have entered into the research without any time limits.

Findings: In 12 studies with 1591 subjects which have investigated life quality both before and after method on treatment, the mean value of the standardized effect in 9 studies which have been done by WHO index, was 58/0 (44/0 – 72/0 with the certainty range of 95%) which was statistically significant ($p= 0.000$). The mean value of the standardized effect for each continent in combination with all of the studies having the effect value of 77 (58 -95 and certainty range of 95%) was significant.

Results: The findings of the research showed that the method on maintenance treatment has been effective on the life quality of the addicted.

Keywords: Method on Maintenance Treatments; Quality of Life; The Addicted.

Introduction

Today, the disorder of abusing and addiction to drugs is seen as one of the problems of public health which is accompanied by high morbidity and mortality. Due to the continuous increasing of the tendency toward using drugs among the youth, especially through injection, an inclusive program is required to deal with the problem of the addiction to drugs and its related behaviors [1].

Drugs abuse changes the temperament and behavior, and, is one of the most obvious psychosocial damages which, dependency to it is a complicated disorder resulted from biological, psychological, political, and spiritual causes. In fact, the interrelation of biological, mental, social, economic, political, and cultural factors has changed this problem into one of the most complicated personal, familial and social problem [1].

One of the substitution treatments is drugs with drawl addiction, is the substitution treatment with methadone. Treatment with methadone affects both directly and indirectly, on addiction prognosis [2].

Methadone is a human-made opiate substance; an agonist which, after being used, causes elation, analgesia, and the other effects related to using pseudo-opiate substances. This treatment method was first introduced in 1965 by Vansal Dole and Nisvander. This medicine is applied orally whose fixed dose prevents from the high elation caused by heroin [3].

Methadone has the physiologic and anti-pain characteristics similar to opium and heroin, but it is not an intoxicating substance. By prescribing methadone and with drawing from opium and heroin, the addicted has not quitted, but he/she has been addicted to a less dangerous substance. Methadone maintenance treatment satisfies the individuals being treated; and with drawl from it is

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easier than opium and heroin, too [4].

Methadone maintenance treatment has many advantages; it reduces the use of the illegal drugs, allows a productive life, stabilizes the addicted individual's life, and, in the end, reduces the dangerous behaviors, such as shared injection which are accompanied by the risk of the transfer of such diseases as AIDZ and hepatitis. Therefore, Methadone maintenance treatment is helpful for both the addicted individual and society. Although it is considered as a physical dependence to the drug, it is not equaled with addiction, because, due to the regular application of the drug, the monotonic sequence of "use, elation, hangover, looking forward to the next turn to use drugs, and use "is left [5].

The results of the researches on the effects of methadone maintenance treatment on the addicted mental health are conflicting. For example, some of the researches have shown that, compared to the public population, the addicted under methadone treatment showed high levels of the problems related to mental health and most of them have experienced behavioral and affective disorders such as anxiety and depression [6].

Nonetheless, the results of the research by Ra'easi-iDehkordi and colleagues (2013) [7]. revealed that 72 addicted individuals were afflicted by depression before being treated by methadone. One month after treatment, this reduced to 46 individuals which was significant, that is, the level of depression decreased after receiving methadone treatment and the quality of life improved significantly. Amato and colleagues [8]. In systematically investigation of methadone maintenance treatment claimed that the consumption of methadone had had a significant effect on the improvement of the patients' both mental and physical health.

The quality of life is each individual's estimation of his/her health status and his/her level of satisfaction of this state [9]. Moreover, the quality of life has been defined as the individual's feeling of well-being, satisfaction or dissatisfaction with their life, joy and happiness, or unhappiness and the like [10]. The World Health Organization sees the quality of life as the individuals' perception of their situation in the life within cultural domains, the values of the system within which they are living, and their relationships with the goals, desires and concerns [11]. Decreased quality of life, increased rate of mortality, devaluation of social and moral values, and the increased criminal behaviors are some of the drugs abuse [12].

The findings of this research show that methadone can increase the quality of the performance and the quality of life, the psychiatric status and general adjustment of the treated patients for a long term [13-19].

Therefore, the aim of the present research was to investigate the effectiveness of Methadone Maintenance Treatment on the addicted quality of life through systematic review and meta-analysis method.

Materials and Methods

Data Sources and Search

This research has dealt with the investigation of the effectiveness

of methadone maintenance treatment on the addicted life quality through using systematic review and meta-analysis method. The findings of this research are based on the investigations done across the country. These findings have been extracted from the articles published in internal journals of Jihad-iDaneshgahi (SID), Medlib, IranMedex, MAG Iran, and Google Scholar. Searching was done through making use of such authentic Persian keywords as methadone, life quality, and methadone in the addicted, their English equivalents and the combination of these words as the strategy of searching.

The Manner of Data Collection

At first, all of the articles related to the effect of methadone on the life quality of the addicted were collected. After the search was complete, a list of the abstracts of those articles was prepared. In this phase, all of the articles whose titles or abstracts contained methadone or life quality were included in the primary list and the other articles focusing on the effects of methadone on other psychological aspects of life were excluded from the list. Then, a checklist containing necessary information for the research (the name of the researcher, the title of the article, year of conduction of the research, location of conduction, number of the subjects of the sample, the instrument for the measurement of life quality, statistics, and the statistics measures), for the studies which had gone through early assessments was prepared for the final assessment. The final checklist was assessed by the researchers and, then, the articles related to the title of the present article entered into the research process for performing meta-analysis. In the end, 12 appropriate articles were chosen for meta-analysis phase. The quality of the articles was evaluated through STROBE checklist. This checklist has 22 items which cover various parts of a report. Each item is given one score, but some of them which were more important in our viewpoint were given more scores. Therefore, the articles which did not get the required scores were eliminated.

Statistical Analysis

In each study, the variables such as the early and later mean and standard deviation for both experiment and control groups, the year of the conduction of the research, number of the subjects of the sample, name of the author, location of conduction of the research, and the results of the test were included in the checklist of content analysis and, then, in the EXEL Software through which transferred to SPSS Software. There, a series of primary analyses were performed on the data. As meta-analyses are not performed in SPSS, the data were conveyed to STATA Software, Version11.2, through which meta-analyses were conducted. As, in each study, the mean score of cognitive-behavioral treatment, before and after treatment, should be measured for both experiment and a control group, the following formula has been used:

$$SMD = (ES_c - ES_e) / SD$$

Where,

ES_e : The measure of the effectiveness of the experiment group;

ES_c : The measure of the effectiveness of the control group;

SD : The shared variance; and

SMD: the measure of the standardized total effect;

$$SD^2 = ((n_1 - 1)S_1^2 + (n_2 - 1)S_2^2) / (n_1 + n_2 - 2)$$

Where,

S_1^2 : The variance of the experiment group;

S_2^2 : The variance of the control group;

n_1 : Number of samples in experiment group; and

n_2 : Number of samples in control group.

The statistics of Q of the index of I^2 through Drsimonia and Laird Methods was used to assess the homogeneity of the studies. As the heterogeneity among the studies was significant, the measure of the total effectiveness was calculated through making use of Random Effects Model. To evaluate the effect of each study on total outcome, the total effect was calculated by elimination of the study from each model (sensitivity analysis). The relationship of the year and the number of the sample with the effectiveness measure was investigated through meta-regression model. The measure of the bias publication effect was shown by Publication Bias Plot.

Results

In a systematic review during the search 82 articles were found. After checking the titles, 22 abstracts were assessed. After final review, 12 articles had the requirements of the checklist, and were used by the researcher. The final studies were analyzed between 2005 and 2012. The total volume of sample to be studied included 1591 subjects. All articles were analyzed through case-control method. To measure the life quality in 9 articles, the questionnaire of WHO and in 2 of them GOL and in one, SF-36 were used (Figure 1).

The total number of the subjects in this research was 1591. The researches taken into consideration had been conducted between 2007 and 2014.

In 12 studies performed on various indices, the following results were obtained: in Rouhani's article [20], through using the index of EQ-5D, the effect of methadone on life quality was investigated: the mean before and after intervention (effectiveness measure of 0.45 and the certainty interval of 0.95) was significant. In research by Chou [21], the effect of methadone on 4 factors of life quality was investigated which was not statistically significant. In addition, the results of the studies done by Baharom [22] on Life quality, Lim Dwee [23], and WooiHuon [24] were not significant (Figure 2).

In the research by [25] too, the mean before and after intervention by methadone, the effect measure of (0.81) and the certainty interval of (0.95) was known to be 0.30 - 1.33, which was significant. The results of Bakhshani's study [26] in the items of social relations of WHO scale for the quality of life, with the effectiveness measure of 1.85 and the certainty interval of 0.95 was significant at 0.23-1.93. In the research conducted by Xiao (2009), the item of the dependence to drugs of the subscale of L-DA quality has been more effective in the studies and has been significant at 0.52-4.22 (effectiveness measure of 3.87 and the certainty interval of 0.95).

Through the combination of the results of the studies done through using WHO index, the measure of the total effect was 0.85 (certainty interval of 0.95 at 0.44-0.95) which was statistically significant ($p=0.000$). In addition, in SF-36 instrument, the measure of the total effect was 0.77 (certainty interval of 0.95) which was significant at 0.85-0.95.

The mean of the standardized measure of effectiveness for each continent (Figure 3) showed that in the Middle East the mean of total effect was 0.58 and significant. For Asia this was 0.90 and significant; for Europe 0.54. The mean of total effect gained by the combination of all of studies was 0.77 and significant.

Figure 1. The flow chart of the inclusion of the studies in systematic review and meta-analysis.

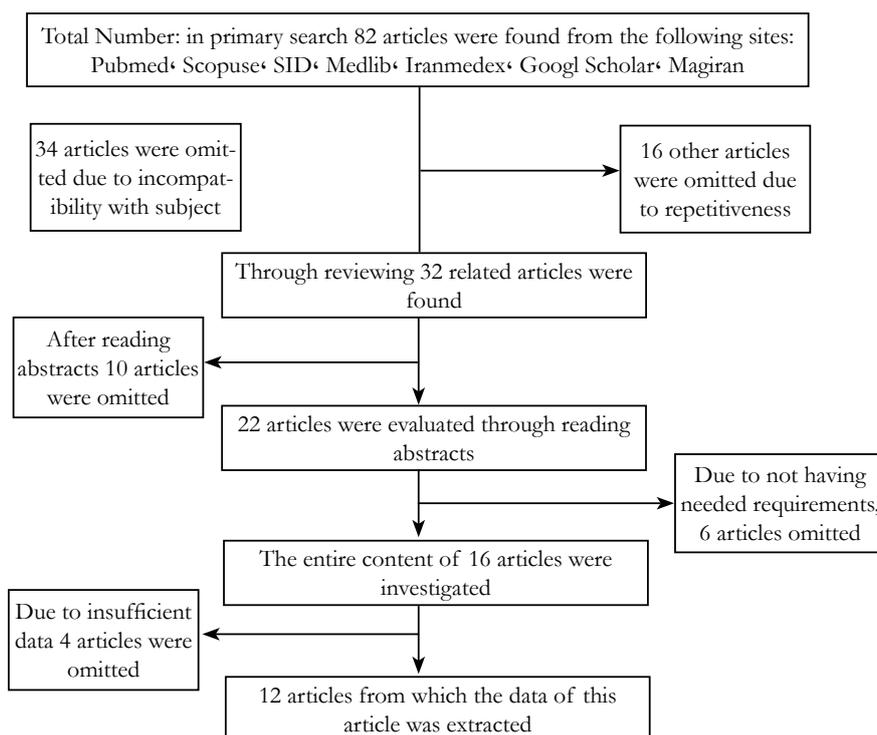


Table 1. The features of the articles assessed which are related to the effectiveness of methadone maintenance treatment on the addicted life quality.

ID	Author	Subject	Year. Study	Continent	Scale	Sample	Result
1	Rouhani.S	Quality of life, its early change and retention in MMT program in Iran: Evidence for policymakers and service providers	2010	Middle. East	EQ-5D	109	Methadone maintenance treatment has had a significant effect on the individual's life quality. This improvement in the end of the first month has been greater than that in the end of 6th month.
2	Chou.Y	Improvement of quality of life in methadone treatment patients in northern Taiwan: a follow-up study	2011	Asia	WHO QOL-BREF	285	Methadone maintenance treatment had a significant effect on mental and environmental health after 6 months, and after 12 months had a significant effect on social and physical aspects.
3	WooiHuon.A	Quality of life assessment of Opioid substance abusers on methadone maintenance therapy (MMT) in university Malaya Medical center	2005	Asia	WHO QOL-BREF	46	Methadone maintenance treatment was effective on 4 aspects of the addicted life quality. It was significantly effective on total life quality 3 months after treatment.
4	Bakhshani.NM	Quality of life in patients on methadone maintenance treatment: A three-month assessment	2010	Middle. East	WHO QOL-BREF	83	Methadone maintenance treatment was significantly effective on total life quality 3 months after treatment
5	Baharom.N	Improvement of quality of life following 6 months of methadone maintenance therapy in Malaysia	2009	Asia	WHO QOL-BREF	122	The results showed a significant improvement in 4 items of life quality after 6 months treatment. The greatest significance related to psychological aspect.
6	RaeseDehkordi.Z	The effects of methadone on depression, anxiety and quality of life in addicts	2010	Middle. East	WHO QOL-BREF	96	The quality of life before treatment was significantly different from that after treatment ($P < 0.001$), that is, after treatment, the quality of life increased.
7	ThiThanhHa.N	The effect of methadone maintenance treatment in improvement of quality of life for heroin users in HaiPhong, Vietnam	2009	Asia	WHO QOL-BREF	440	The treatment was effective on the lives of the addicted to heroin in HaiPhong city.
8	Lim Dwee.SH	Assessment effects of maintenance therapy on quality of life of opiate abusers	2012	Asia	WHO QOL-BREF	108	The results showed that Methadone maintenance treatment has been effective on mental, social, and environmental well-being. This effect was significant for mental and physical health.
9	Xiao.L	Quality of Life of Outpatients in Methadone Maintenance Treatment Clinics	2009	Asia	QOL-DA	176	The results showed that Methadone maintenance treatment has been effective on mental and physical health.
10	Padaiga.Z	Outpatient methadone maintenance treatment program- Quality of life and health of opioid-dependent persons in Lithuania	2010	Europe	WHO QOL-BREF	71	The results showed that after 6 months of methadone maintenance treatment, it was significant effective on physical health ($p = 0.004$), mental health ($p = 0.004$), and environmental health ($p = 0.48$), but the results were not significant for the social aspect.
11	Sohrabi.A	The effects of methadone maintenance treatment on quality of life in addicts	2009	Middle. East	WHO QOL-BREF	32	The results of the first phase of study showed that this treatment can play an important role in the improvement of the patients' life quality.
12	SalehMoghaddam. AR	Evaluation of Detoxified Addicts' Life Quality Participating in Narcotics Anonymous, Therapeutic Community and who Refer to Methadone Therapy Clinics in Mashhad, 2012	2012	Middle. East	SF-36	23	Participation in the meetings of 3 groups (unknown detoxified addicted group, treatment-based social group, under treatment by methadone) led to improved life quality. The comparison showed the scores obtained by the unknown addicted group on all 8 aspects were significantly higher than the other 2 groups.

To assess the relationship between the measure of effect and the year of conduction of the study meta-regression model was used, showing that the measure of effect did not have a significant relationship with the year of conduction, that is, it cannot be claimed that the studies performed during a specific period in the world show that effect of methadone on life quality either more or less than other periods (Figure 4).

Discussion and Conclusion

The aim of the present study was to systematically review 12 arti-

cles reported between 2007 and 2014. For the scale suggested by World Health Organization, 9 articles and for the scales of QOL-DL, EQ-5D, and SF-36 one article for each, were entered into meta-analysis. In total, the methadone maintenance treatment has been effective on the life quality of the addicted. These findings were in line with the researches implying the effectiveness of methadone maintenance treatment [13-19]. In addition, the results revealed that the value of standard effect per continent has been significant, that is, the different continents where the studies have been done, have been effective on the effectiveness of the treatment, but there was not any relationship between measure of effect, the year of study, volume of sample, and the qualities of

Table 2. Means and Standard Deviations of the articles assessed which are related to the effectiveness of methadone maintenance treatment on the addicted life quality.

ID	Sample	Quality	Experimental Mean Score Before treatment	Experimental Mean Score after treatment	Experimental SD Before treatment	Experimental SD after treatment	SMD (95%CI)
1	109	Quality	51.03	38.24	38.78	46.58	% 45(0.18-0.71)
2	285	physical health	58.53	60.13	15.51	14.68	0.11 (-0.06-0.27)
		Psychological	49.89	53.19	16.64	17.15	0.20 (0.03-0.36)
		Social relationships	54.71	55.77	18.13	17.05	0.06 (-0/10-0/22)
		Environment	52.92	55.42	16.97	16.2	0.15 (-0.10-0.32)
3	46	Physical health	11.96	14.22	2.14	2.1	1.07 (0.63-1.50)
		Psychological	11.39	13.67	2.22	2.38	0.99 (0.56-1.44)
		Social relationships	11.86	13.71	2.81	3.01	0.64(0.22-1.05)
		Environment	12.09	13.63	1.94	2.18	0.75(0.32-1.17)
4	83	physical health	75.15	86.21	10.72	12.85	0.93(0.63-1.26)
		Psychological	66.71	70.07	10.38	15.62	0.25(-0.05-0.56)
		Social relationships	24.81	38.7	8.13	9.44	1.85(1/23-1/93)
		Environment	86.79	93.2	13.58	22.81	0.34(0.03-0.65)
5	122	Physical health	51.54	65.01	15.81	11.83	0.96(0.70-1.23)
		Psychological	50.18	65.72	17.58	13.33	1.00(0.73-1.26)
		Social relationships	53.09	60.41	22.24	19.02	0.35(0.10-0.61)
		Environment	55.84	65.39	12.47	12.63	0.76(0.50-1.02)
6	96	Quality of life. Total	84.12	91.9	7.9	9.3	0.90(0.60-1.20)
7	440	Physical health	72.06	79.72	11.9	9.29	0.72(0.58-0.85)
		Psychological	58.38	71.66	14.3	9.98	1.08(0.94-1.22)
		Social relationships	51.93	55.87	13.5	12.2	0.31(0.17-0.44)
		Environment	57.54	65.41	9.46	8.33	0.88(0.74-1.02)
8	108	Physical health	14.41	14.44	2.34	2.2	0.01(-0.25-0.28)
		Psychological	14.3	14.96	2.14	2.54	0.28(0.07-0.49)
		Social relationships	13.44	14.3	2.77	2.22	0.34(0.07-0.61)
		Environment	14.3	14.96	2.32	2.24	0.29(0.02-0.56)
9	176	Quality of life. Total	51.92	75.99	10.893	8.635	245(217-273)
		physical health	56.17	76.94	14.286	12.26	1.56(1.32-1.80)
		Psychological	52.46	81.33	16.134	13.492	1.94(1.69-219)
		Social relationships	57.31	74.82	16.172	14.882	1.13(0.90-1.35)
		Environment	52.85	63.55	10.146	10.346	1.04(0.82-1.27)
		Drug dependence	45.65	92.92	14.893	8.78	3.87(3.51-4.22)
10	71	Satisfaction with li	47.06	66.5	13.335	12.7	1.49(1.26-1.73)
		physical health	1.71	2.1	0.5	0.52	0.76(0.2-1.11)
		Psychological	1.71	2.19	0.99	0.78	0.54(0.02-0.87)
		Social relationships	1.89	2.06	0.62	0.48	0.31(-0.02-0.64)
11	32	Environment	1.91	2.21	0.56	0.48	0.58(0.24-0.91)
		Quality of life. Total	66.9	78.1	13.8	13.7	0.81(0.30-1.33)
		Physical functioning	16.69	17.47	2.96	2.6	0.28(-0.30-0.86)
		Physical roles limit	12.98	14.56	5.83	4.51	0.30(0.28-0.88)
		Emotional roles lime	12.46	13.18	6.31	5.02	0.13(-0.45-0.70)
		Social functioning	11.63	14.23	6.55	5.19	0.44(-0.15-1.03)
		Bodily pain	11.52	15.1	4.81	4.09	0.80(0.20-1.40)
		mental health	11.43	13.13	4.98	4.01	0.38(-0.21-0.96)
12	23	vitality	10.86	12.77	4.54	4.31	0.43(-0.15-1.02)
		general health	9.78	11.34	5.5	4.07	0.32(-0.26-0/90)

the articles. Therefore, the aim of methadone maintenance treatment is to maintain the wellbeing of the patients widely [16].

Addiction to heroine is a chronic and regressive illness which is so hard to treat, but methadone maintenance treatment can, through increasing life expectancy and life quality, decrease the instability and damages in the addicted and help maintain the well being of the patients widely [16, 19]. Methadone maintenance treatment is one of those important key activities which are done to decrease the damages and reduce the probability of illegal injections to a

large extent. Moreover, the regular and long-term use of methadone prevents from drugs abuse and returning to them. Following the treatment by medicines, the patients' mental and physical state, his/her social performance will improve, and his /her return to work will increase [27].

One of the limitations of this research was its limitation to the number of the conducted researches on the effectiveness of methadone maintenance treatment on the addicted life quality. As meta-analysis requires a great deal of studies and researches on

Figure 2. The standardized measure of effect based on the instrument.

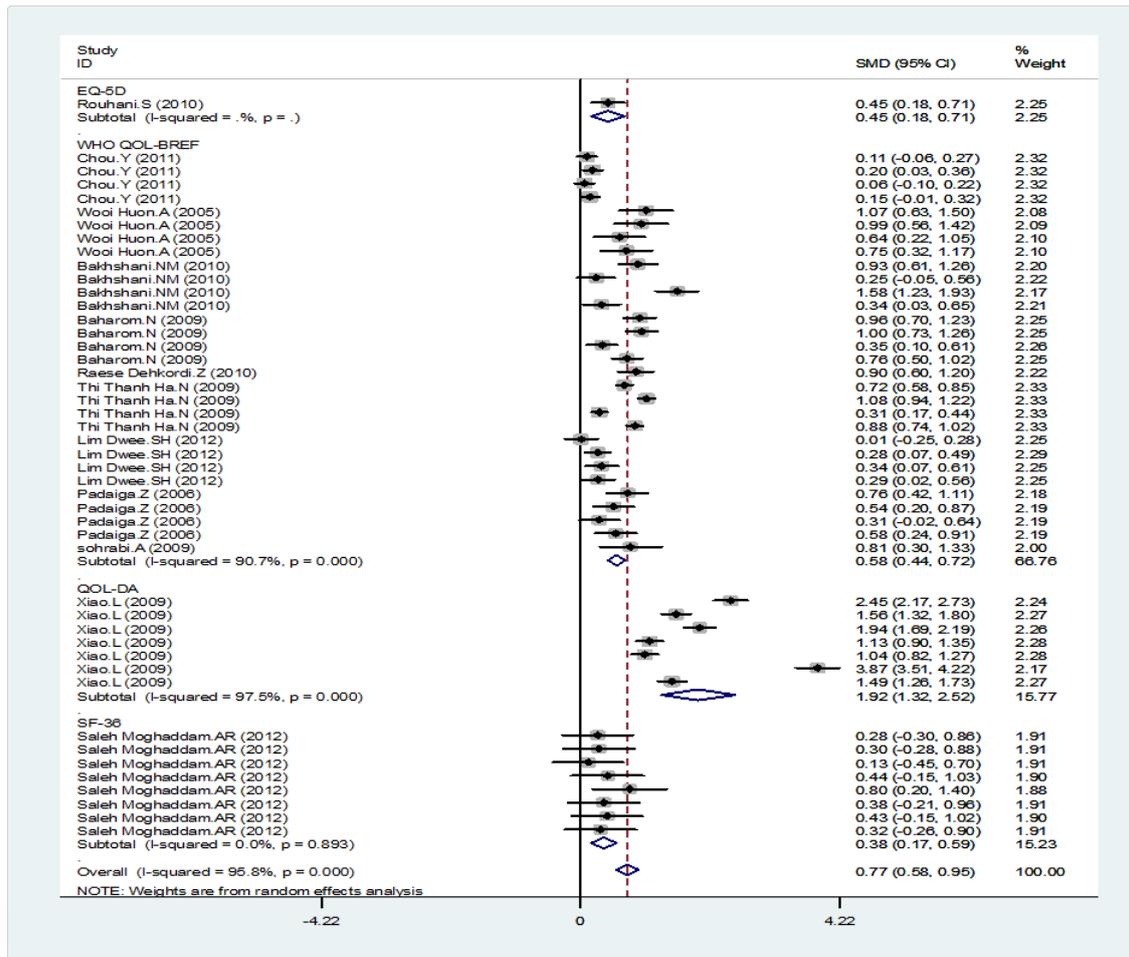


Figure 3. The mean of the standardized measure of effect based on the continent.

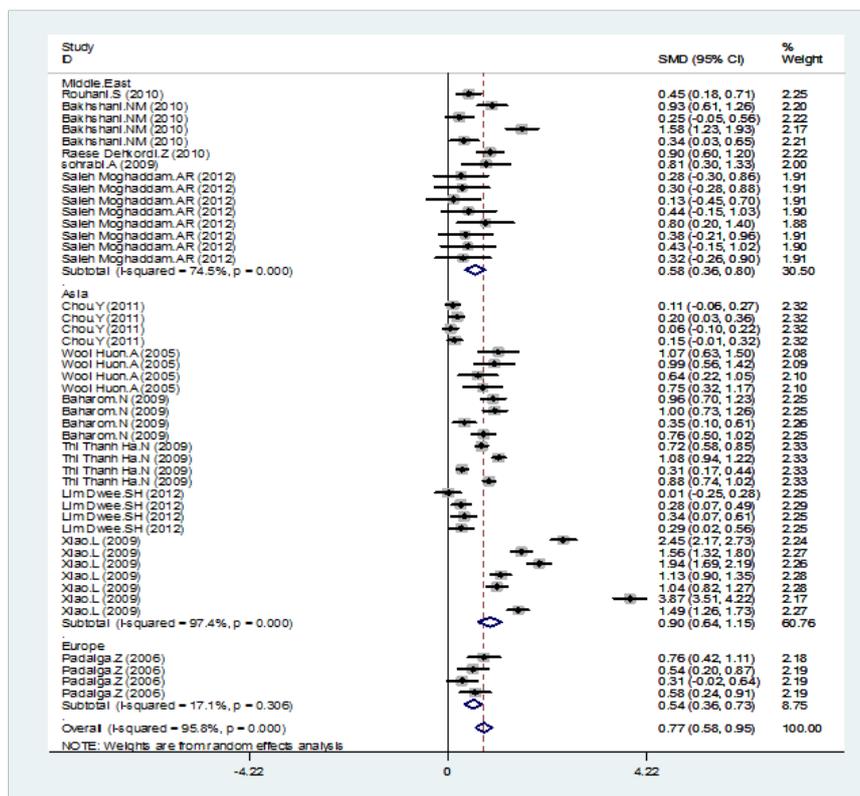
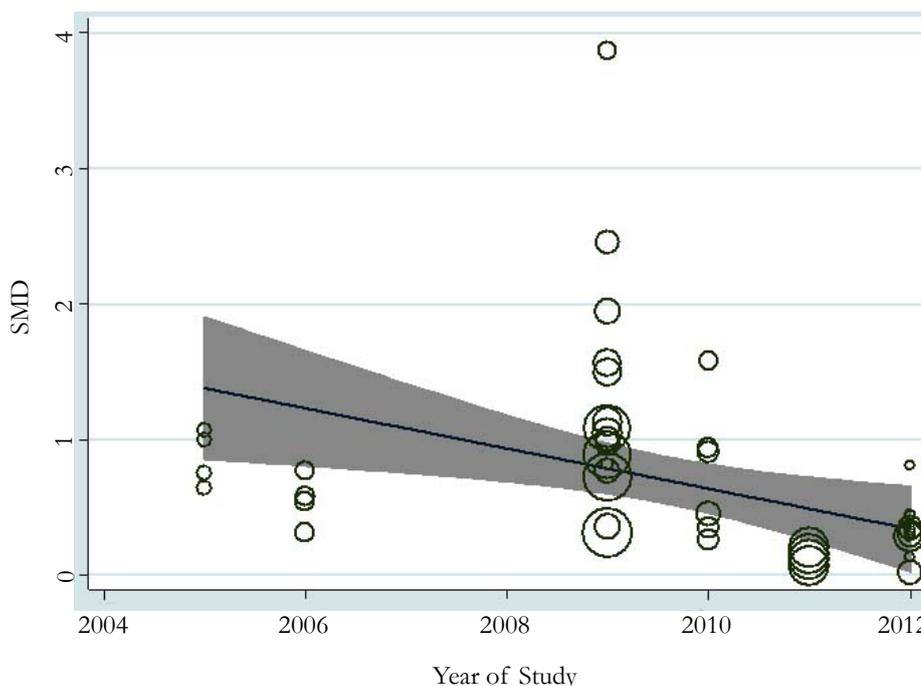


Figure 4. The relation between measure of effect and the year of study.



Meta-regression
 REML estimate of between-study variance
 % residual variation due to heterogeneity
 Proportion of between-study variance explained
 With Knapp-Hartung modification

Number of obs = 46
 tau2 = .4325
 I-squared_res = 95.15%
 Adj R-squared = 5.93%

_ES	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
Year_Study	-.0896333	.0466932	-1.92	0.061	-.1837372 .0044706
_cons	180.8786	93.82775	1.93	0.060	-8.218811 369.976

the subject to be studied, the repetitive subjects in this field should be welcomed in order to have more samples studied within the society to pave the way for more meta-analytic assured researches in the future and prepare the background for later research. The lack of meta-analytic studies in this field and their comparison with the present study, are among the limitations of this research.

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