Effect of motivational interviewing on quality of life in patients with epilepsy

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ABSTRACT

Objective: In this study, the effect of motivational interviewing on quality of life was evaluated in patients with epilepsy.
Methods: Fifty-six patients with epilepsy in a clinical trial were randomly assigned to intervention and control groups. Motivational interviewing during 5 sessions was applied for the intervention group, and the control group received health-care services. Quality-of-life questionnaire in epilepsy (QOLIE-89) was applied as pre- and posttest for both groups. Before and two months after intervention, both groups were assessed. Data were analyzed by independent t-test, Chi-square test, and paired t-test.
Results: The data analysis showed that mean score of the QOLIE-89 was 38.94 ± 8.55 and 70.90 ± 7.99 in the intervention group before and after the intervention, respectfully, and 44.59 ± 12.27 and 36.52 ± 7.16 in the control group sequentially. The intervention group showed a significant score increase in their quality of life ($p < 0.001$), whereas the control group had a score decrease ($p < 0.001$).
Conclusion: Motivational interviewing approach could be used as an effective intervention method for improving patients' quality of life.
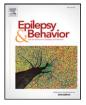
1. Introduction

Because of unpredictable seizures, patients with epilepsy experience economic, social, physical, and psychological consequences in all life dimensions [1,2]. Global prevalence of epilepsy has been estimated from 0.5% to 0.9% [3]. An Iranian study showed an estimated 1.8% epilepsy prevalence in the rural and urban areas of Iran. Some studies from Iran, Africa [4], the United States [5], and the United Kingdom [6] have shown that patients with epilepsy experience social stigma and are labeled as psychotic, insane, and demonic. Numerous worldwide studies have reported misunderstanding and negative attitudes in the general public [4]. People with epilepsy are doubly vulnerable to the pervasive stigma in most societies. The studies in Ethiopia, Iran, Vietnam, Zambia, China, and USA, as well as several European and Middle Eastern countries, have found that stigma related to epilepsy is a major concern in the world [5]. The research in Europe showed that fifty-one percent reported feeling stigmatized, with 18% reporting feeling highly stigmatized [6], and in another study, 17% reported feeling highly stigmatized [4]. But felt stigma is greater in developing countries than in developed countries. The study of Forsgren reported that felt stigma in Iran is

greater than in Sweden [7]. Moreover, negative public attitude toward epilepsy has led to unemployment, demotion, disruption in family life, and social discrimination [8]. Therefore, patients with epilepsy often experience low quality of life because they feel insecure and live in the fear of having a seizure in public [9]. Psychosocial factors and mental health issues associated with epilepsy include feeling hopeless due to prolonged or ineffective treatment, slow improvement, and continued sense of embarrassment [10,11].

Quality of life is a multifactorial entity, defined by patients, since they objectively and subjectively evaluate their disease and treatment outcomes based on their daily functions and social relationships [12]. Epilepsy is not only a clinical diagnosis, but also a social stigma [13]. These patients are susceptible to social isolation and low self-esteem [14]. The study of Baker et al. in some of the Middle Eastern countries showed quality-of-life scores of patients with epilepsy at 46% in Qatar, 43% in Kuwait, 43% in Jordan, 42% in Bahrain, 41% in Lebanon, 38% in Iran, and 25% in Syria using the SF-36 questionnaire [15].

Studies have demonstrated that long-term adherence to multidrug medical treatment can be difficult, especially when multiple drugs at various doses produce side effects [16]. Antiseizure medicine nonadherence leads to a decrease in seizure control which may result in injury and an increase in office visits, trips to the emergency room, and need for hospitalization [17]. However, patients with better

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adherence to medical management are more likely to experience satisfactory outcomes. Adherence to treatment helps to decrease the feeling of being stigmatized and ultimately helps to improve the quality of life in patients with epilepsy [17]. The positive effects of lifestyle modification represent an important aspect of disease management for patients with epilepsy [18]. Interventional studies aiming to enhance the quality of life for patients with epilepsy have used cognitive behavioral group therapy [12], education based on Precede–Proceed model [19], and muscle relaxation [20]. Also, patient education programs which help improve adherence to treatment [21] are designed to support, protect, and enhance competencies for self-care and self-efficacy [22]. Others have used motivational interviewing to modify behavior and improve patients' quality of life [23].

Motivational interviewing is a current and effective method for motivating patients to engage in a behavior modification process [24]. Studies on effective motivational interviewing for marital discourse [25], adherence to asthma treatment [26], and fear of a hypoglycemic crisis among diabetic patients [27] have demonstrated significant improvement in patients' quality of life. Motivational interviewing is an intervention approach not only to promote patients' quality of life, but also to reduce psychological, social, and even physical effects of the disease to a greater extent.

We were unable to find published studies of motivational interviewing on the quality of life of patients with epilepsy. Therefore, considering the low quality of life in patients with epilepsy, the present study aimed to determine the effect of motivational interviewing on quality of life in patients with epilepsy.

2. Material and methods

2.1. Design and sample

The present randomized clinical trial study using convenience sampling was conducted on patients diagnosed with epilepsy from Nour and Kashani Hospitals in Isfahan, Iran. Eligible subjects were those who had been referred to the epilepsy clinic, met the inclusion and exclusion criteria, and provided informed consent. The inclusion criteria were age of 18 years and above, willingness to participate, epilepsy diagnosis for at least 1 year, patients with primary generalized tonic-clonic epilepsy and uncontrolled seizures that were diagnosed by a neurologist, no other chronic illness, and not being enrolled in any other research. The exclusion criteria included being an immigrant, missing more than one intervention session, and having recent tragic life events (influencing the quality of life such as loss of life, divorce, etc.). The convenience samples were randomly and equally assigned to an intervention (28 patients) group or a control (28 patients) group by simple random assignment. Using the list of names and drawing lots, the first person was placed in the experimental group, and the second in the control group. This process was continued to the end.

2.2. Data collection

A demographic survey questionnaire and the Quality of Life in Epilepsy-89 (QOLIE-89) were used to collect data. The QOLIE-89 is a self-report questionnaire with 89 specific items about personal life experiences. This instrument consists of 17 multidimensional subscale items, which covers subjects related to health such as emotional well-being, overall quality of life, role limitations due to emotional problems, social support, health perception, energy/fatigue, seizure worry, medication effects, health discouragement, work/driving/social function, attention/concentration, language, memory, physical function, pain, role limitation due to physical problems, and social isolation. The participants also responded to an item asking about changes in health over the preceding year, and two items were added after field testing to ask about the overall health and satisfaction with sexual relations [28].

Validity and reliability of this questionnaire were previously confirmed in Iran by Ebrahimi et al. in a study of 75 patients with epilepsy. Instrument reliability for internal consistency (Cronbach's alpha) ranged between 0.78 and 0.92. The overall score had internal consistency reliability of 0.97 and test–retest reliability of 0.88. To calculate the scores, numerical values were assigned and coded for each question and converted to a score from 0 to 100. High scores indicate a better quality of life. Total score for QOLIE-89 was obtained with weighted mean of scale scores [29]. The demographic questionnaire identified each participant's age, gender, education, job, marital status, and disease duration. Data were gathered and coded by a nursing student not part of the researchers' team. Data were gathered and coded by a nursing student who was blind to allocation of patients to study groups. Therefore, researchers who analyzed the data were also blind to study group assignment.

2.3. Procedure

A detailed research protocol was described to all the participants, and they were informed about being randomly assigned to the intervention or control groups. An informed written consent was obtained from all the participants, and they were assured that the information would be kept confidential and they could be excluded from the study at any time. Before group assignment, general information for all the patients in each group was recorded, and all the patients filled out QOLIE-89 questionnaires.

After they were presented with a detailed description of the research protocol, patients randomized to motivational interviewing participated in 5 sessions each separated by 4 days. Sessions took place in the epilepsy clinic [30]. The researcher who conducted the motivational interview had a nursing background and was experienced in motivational interviewing. The nurse, who delivered the intervention, had previously completed a course and workshop for "Intensive Training in Motivational Interviewing (MI)". The control group received standard health-care services. A clinical psychologist observed and evaluated motivational interviewing sessions to comment on improvement, if needed.

The structure of the motivational interviewing sessions was extracted from the book "Motivational Interviewing Group Intervention" for each session [31]. Motivational interview is a referral-oriented method, a strategy for fortification and enhancement of internal motivation for changing through exploration, identification, and overcoming doubts and dualism. This method helps explore and solve the duality and doubt of individuals. The conceptual model of motivational interview is based on concepts of stages of change by Prochaska and DiClemente, hygienic beliefs, Roger's maintenance theory, Janis and Mann's parallelism of decision-making, Brehm's balancing theory, Bem's self-perception theory, and Rokeach's value theory. The basis of this method is the participation of the clients (patients), motivating their desires, and respecting their independence. Four fundamental processes in motivational interviewing are Engaging (the relational foundation), Focusing (guiding client to a target behavior that is important to them), Evoking: (drawing out client's intrinsic motivation (reasons/importance for change) and their own ideas for change), and Planning (the bridge to change). This method was based on the effective fundamental and technical principles supported in the literature by different techniques such as open-ended questions, reflective listening, and verification, as well as summarizing and concluding through multiple change-oriented sessions in order to modify health behaviors among the participants [30,31].

Some aspects of the group intervention such as being hopeful for overcoming the issue, decreasing social isolation, helping others in solving their problems, and learning that others may have to grapple with the same issue just like them can lead to a change in behavior. Working or practicing with a peer group and receiving feedback make this experience different than individual therapy and help change behavior. Both

groups completed the QOLIE-89 questionnaire before and 2 months after the start of their participation in the study [32]. For ethical reasons, patients who had been randomized to the control group were offered motivational interviewing after they completed their participation in the study.

2.4. Data analysis

Means and standard deviations were used to assess quantitative variables, and frequency and percentage was applied for the qualitative variables. Distributions of pre- and post-QOL were normal ass assessed by the Kolmogorov–Smirnov test. Independent sample t-test was used to compare demographic quantitative data and identify QOL score changes between the two groups. Chi-square test was used to compare the qualitative variables. Paired t-test evaluated the effects of motivational interviewing on QOL scores in each group before and after the intervention.

3. Results

From among the initial 56 patients with epilepsy, 47 completed the study (23 in the intervention group and 24 in the control group) (flow chart of participants). The majority of the participants were single, unemployed, and had primary education (Table 1).

The intervention and control groups showed no significant differences in terms of age, gender, duration of disease, age at onset of seizure, marital status, job, education, and side effects of drugs ($p < 0.05$). The independent sample test revealed a trend but not a statistically significant difference in general quality-of-life score between the control and intervention groups ($p = 0.06$).

After the motivational interviewing intervention, paired sample test comparing pre- to post-intervention for the intervention group showed a significant increase in all QOL subscales, particularly for emotional well-being, social function, seizure concern, role limitations due to emotional and physical problems, medication effects, and social isolation subscales ($p < 0.001$).

The mean score of total QOL for the intervention group increased from 38.94 to 70.90 when compared with earlier scores ($p < 0.001$). Scores of subscales such as energy/fatigue, medication effect, seizure, worry, health discouragement, work/driving/social function, and social

support increased significantly more than other subscales in the intervention group after intervention ($p < 0.05$) (Table 2).

The mean scores of total QOL in the control group showed a significant drop from 44.59 pre-intervention to 36.52 post-intervention ($p < 0.05$). All subscales of QOL in the control group revealed a score drop, except for the subscale for energy/fatigue which increased from 42.70 to 128.50 post-intervention ($p < 0.001$). The subscales health discouragement, memory, physical function, role limitation—emotional, and attention/concentration had significantly dropped more than other subscales ($p < .05$). There were no significant differences in other subscale scores including health perception, pain, seizure, worry medication effects, social support, and change in health and sexual relations from pre- to post-intervention in the control group (Table 3).

Comparing the control and intervention groups in changes from pre- to post-intervention revealed a total QOL score increase for the intervention group ($p < 0.001$, 35.95 ± 8.74) and a total QOL score decrease in the control group ($p > 0.001$, 8.07 ± 8.91). Also, all QOL subscale scores significantly rose in the intervention group compared with the control group, including energy/fatigue ($p < 0.001$). Changes in the subscale for sexual satisfaction were nonsignificant in both groups ($p = 0.188$) (Table 4).

4. Discussion

Motivational interviewing helps convert negative thoughts and perceptions into positive ones and offers alternative ways to improve personal views on QOL. In this study, we investigated the effect of motivational interviewing on the QOL in patients with epilepsy, and we found significant improvement in QOL associated with motivational interviewing. Similar to other studies, improvement was observed in every QOL subscale, except for sexual relations. Similarly, Simpson et al. showed that addition of motivational interviewing to exposure therapy in patients with obsessive–compulsive disorder increased QOL in different functional dimensions [33].

Role limitation improved for the subjects in the active intervention group as they engaged in training and reduced self-imposed restrictions on daily activities, independent functions, and performing their daily activities without the help of others. They reported better communication with family and friends, increased social activities, spending more leisure time, and seeking new friendships. In the published studies, motivational interviewing has effectively helped patients accept their disease and improve their daily functions [12]. Participants in the present study showed improvement in their physical functions such as playing volleyball, walking, taking a bath, and shopping. Reducing self-imposed restrictions decreased dependence on others, and in most cases, participants opted to make this change.

Patients with epilepsy may feel unsafe, uncomfortable, anxious, and disappointed, which can cause problems for them in relation to their peers and reduce their social relations, which is a problem for many persons with epilepsy. Social isolation in this study, similar to others, was significantly reduced through direct face-to-face communication, which allowed individuals to confront important issues and influenced them to examine their way of living and being with themselves and others [30]. Because motivational interviewing emphasizes positive thoughts and behaviors and offers techniques to overcome disadvantages through alternative solutions, the present participants were able to find suitable strategies to reduce social isolation, conceal the disease when appropriate, and improve their coping skills [34].

Medication effects were better understood, and this resulted in increased adherence to the treatment. Participants in this study, similar to those from developing countries and remote global regions, were able to reduce their concerns about physical and psychological drug side effects and achieve a healthier attitude toward epilepsy. Adherence to long-term treatment has been a major barrier for effective drug treatment among patients with epilepsy [35]. Multiple studies have reported successful use of motivational interviewing for patients with cystic

Table 1
Baseline characteristics of the participants.

Characteristics	Intervention group n = 23	Control group n = 24	p value[b]
Age (year)	29.08 ± 8.06[a]	32.75 ± 10.89	.199
Gender n (%)			
Female	10 (43.5)	12 (50)	.438
Male	13 (56.5)	12 (50)	
Marital status n (%)			
Single	17 (73.9)	16 (66.7)	.412
Married	6 (26.1)	8 (33.3)	
Job n (%)			
Unemployed	19 (82.6)	21 (87.5)	.745
Employed	3 (13.0)	0 (0)	
Others	1 (4.3)	3 (12.5)	
Education status n (%)			
No education	3 (13.0)	2 (8.3)	–
Primary school	14 (47.8)	9 (29.2)	
Middle school	8 (17.3)	14 (29.2)	
College	1 (4.3)	1 (4.2)	
Duration of disease	18.17 ± 12.74	15.20 ± 8.89	.358
Age at onset of seizure	11.82 ± 9.23	15.70 ± 11.67	.214
Drugs side effects n (%)			
Yes	14 (60.9)	14 (58.3)	.548
No	9 (39.1)	10 (41.7)	

[a] Mean ± SD.
[b] p values are based on Chi-square test or the independent sample t-test.

Table 2
Mean and SD subscales of quality of life and changes in the intervention group before and after intervention.

Subscale QOL	Before intervention	After intervention	p	Deviation
Health perception	33.87 ± 10.45	70.83 ± 11.65	<.001	36.95 ± 13.89
Overall quality of life	36.84 ± 11.38	69.89 ± 12.64	<.001	33.04 ± 16.00
Physical function	49.13 ± 24.15	78.26 ± 13.28	<.001	29.13 ± 22.64
Role limitation—emotional	26.73 ± 17.68	65.65 ± 16.18	<.001	38.91 ± 17.31
Pain	53.26 ± 17.36	80.97 ± 18.02	<.001	27.71 ± 22.28
Work/driving/social function	26.73 ± 9.51	69.66 ± 11.23	<.001	42.88 ± 8.67
Energy/fatigue	28.53 ± 12.04	233/69 ± 38.14	<.001	205.16 ± 36.76
Emotional well-being	30.21 ± 11.82	66.30 ± 11.20	<.001	36.08 ± 16.85
Attention/concentration	37.96 ± 9.92	70.04 ± 12.67	.001	32.08 ± 13.75
Health discouragement	27.71 ± 19.20	75.00 ± 17.67	.001	47.28 ± 27.68
Seizure worry	17.53 ± 15.23	68.99 ± 10.07	<.001	51.45 ± 17.94
Memory	44.68 ± 14.55	73.25 ± 11.68	<.001	28.56 ± 18.89
Language	50.21 ± 17.67	71.73 ± 18.06	<.001	21.52 ± 20.26
Medication effects	14.49 ± 14.22	68.96 ± 18.64	<.001	54.47 ± 20.82
Social support	27.98 ± 13.30	70.10 ± 13.58	<.001	42.11 ± 17.79
Social isolation	46.95 ± 16.90	81.30 ± 15.16	<.001	34.34 ± 22.12
Role limitation—physical	32.60 ± 21.57	71.30 ± 20.06	<.001	38.69 ± 21.59
Change in health	45.65 ± 27.85	71.73 ± 20.37	<.001	26.08 ± 35.73
Sexual relations	55.00 ± 32.59	87.50 ± 17.67	<.001	12.50 ± 17.67
Overall health	39.57 ± 16.64	68.26 ± 13.02	<.001	28/69 ± 23.41
Total score	38.94 ± 8.55	70.90 ± 7.99	<.001	35.95 ± 8.74

fibrosis [36], schizophrenia, and substance abuse [37] and for improving adherence to treatment and enhanced self-management. Other studies have reported enhanced self-efficacy and self-management among patients with epilepsy [30,38]. Improved adherence to drug treatment through motivation occurs when patients are ready to commit and accept medical treatment to control their disease. Motivation is an essential component of effective medical management once patients have identified their individual needs [39]. Channon et al. used patients' mean blood sugar levels and found significant improvement among the patients enrolled in an motivational interviewing program in comparison with the control group. Even after 2 years, the difference in these two groups continued to accelerate positively, not only in blood sugar level, but also in QOL [40].

Table 3
Mean and SD subscales of quality of life and changes in the control group before and after intervention.

Subscale QOL	Before intervention	After intervention	p	Deviation
Health perception	37.67 ± 12.09	34.72 ± 11.03	.281	2.95 ± 13.08
Overall quality of life	47.29 ± 12.26	37.39 ± 10.77	.001	9.89 ± 13.17
Physical function	63.69 ± 10.57	52.39 ± 13.30	.002	11.30 ± 15.24
Role limitation—emotional	36.66 ± 22.77	25.83 ± 14.71	.012	10.83 ± 19.54
Pain	61.97 ± 24.58	60.93 ± 23.69	.845	1.04 ± 25.78
Work/driving/social function	33.36 ± 16.69	25.69 ± 11.81	.001	7.67 ± 9.86
Energy/fatigue	42.70 ± 13.24	128.50 ± 50.71	<.001	85.79 ± 45.54
Emotional well-being	41.45 ± 15.21	31.66 ± 13.56	.001	9.79 ± 12.80
Attention/concentration	50.00 ± 17.18	39.46 ± 10.19	.002	10.53 ± 14.39
Health discouragement	47.91 ± 21.06	21.87 ± 20.93	.001	26.04 ± 27.31
Seizure worry	24.65 ± 21.78	24.92 ± 10.19	.941	.274 ± 17.84
Memory	59.77 ± 20.25	48.08 ± 12.71	.001	11.68 ± 15.13
Language	59.37 ± 18.07	51.33 ± 19.24	.007	8.04 ± 13.34
Medication effects	26.15 ± 22.13	18.03 ± 16.49	.08	8.11 ± 21.74
Social support	36.45 ± 13.62	39.32 ± 15.47	.336	2.86 ± 14.27
Social isolation	45.41 ± 15.03	38.54 ± 16.36	.066	6.87 ± 17.41
Role limitation—physical	37.91 ± 20.84	29.58 ± 16.80	.05	8.33 ± 19.92
Change in health	53.13 ± 18.52	47.91 ± 19.38	.170	5.20 ± 18.02
Sexual relations	55.00 ± 15.81	50.00 ± 16.66	.343	5.00 ± 15.81
Overall health	44.17 ± 11.76	37.08 ± 10.82	.016	7.08 ± 13.34
Total score	44.59 ± 12.27	36.52 ± 7.16	<.001	8.07 ± 8.91

Table 4
Comparing subscales of quality of life before and after intervention.

Subscale QOL	Group	p[a]	Deviation	p[b]
Health perception	Intervention	<.001	36.95 ± 13.89	<.001
	Control	.281	2.95 ± 13.08	
Overall quality of life	Intervention	<.001	33.04 ± 16.00	<.001
	Control	.001	9.89 ± 13.17	
Physical function	Intervention	<.001	29.13 ± 22.64	<.001
	Control	.002	11.30 ± 15.24	
Role limitation—emotional	Intervention	<.001	38.91 ± 17.31	<.001
	Control	.012	10.83 ± 19.54	
Pain	Intervention	<.001	27.71 ± 22.28	<.001
	Control	.845	1.04 ± 25.78	
Work/driving/social function	Intervention	<.001	42.88 ± 8.67	<.001
	Control	.001	7.67 ± 9.86	
Energy/fatigue	Intervention	<.001	205.16 ± 36.76	<.001
	Control	<.001	85.79 ± 45.54	
Emotional well-being	Intervention	<.001	36.08 ± 16.85	<.001
	Control	.001	9.79 ± 12.80	
Attention/concentration	Intervention	.001	32.08 ± 13.75	<.001
	Control	.002	10.53 ± 14.39	
Health discouragement	Intervention	.001	47.28 ± 27.68	<.001
	Control	.001	26.04 ± 27.31	
Seizure worry	Intervention	<.001	51.45 ± 17.94	<.001
	Control	.941	.274 ± 17.84	
Memory	Intervention	<.001	28.56 ± 18.89	<.001
	Control	.001	11.68 ± 15.13	
Language	Intervention	<.001	21.52 ± 20.26	<.001
	Control	.07	8.04 ± 13.34	
Medication effects	Intervention	<.001	54.47 ± 20.82	<.001
	Control	.08	8.11 ± 21.74	
Social support	Intervention	<.001	42.11 ± 17.79	<.001
	Control	.336	2.86 ± 14.27	
Social isolation	Intervention	<.001	34.34 ± 22.12	<.001
	Control	.066	6.87 ± 17.41	
Role limitation—physical	Intervention	<.001	38.69 ± 21.59	<.001
	Control	.06	8.33 ± 19.92	
Change in health	Intervention	<.001	26.08 ± 35.73	<.001
	Control	.170	5.20 ± 18.02	
Sexual relations	Intervention	<.001	12.50 ± 17.67	.188
	Control	.343	5.00 ± 15.81	
Overall health	Intervention	<.001	28/69 ± 23.41	<.001
	Control	.016	7.08 ± 13.34	
Total score	Intervention	<.001	35.95 ± 8.74	<.001
	Control	<.001	8.07 ± 8.91	

[a] p values are based on paired t-test.
[b] p values are based on t-test.

The subscale of seizure worry (fear of seizure in front of others, feeling of embarrassment, and fear of injury) was improved through training. The patients learned about early identifications of seizure provoking factors and how to take control of them. Changes in the sexual relation subscale were nonsignificant and suggest the possibility that cultural prohibition may have influenced patients' responses to these questions.

In this study, patients' responses to motivational interviewing and their certain needs to change were investigated. As a result, increased self-belief and confidence were found to be essential for the desire to change. Consultation is one of the strategies used to decrease negative attitudes, and several studies have reported that a comprehensive plan by a health-care team can successfully help patients manage chronic illnesses such as epilepsy by addressing physical, mental, cognitive, spiritual, and social needs [41]. Results of this study also indicated the need for the creation of motivation in the patients and attention to all of the dimensions for promoting their QOL.

5. Conclusion

We conclude that motivational interviewing can improve QOL and its subscales in patients with epilepsy. Motivating changes in behavior and lifestyle is very challenging, especially when faced with resistance. Therefore, it is significant that motivational interviewing was found to improve health status, attitude about epilepsy, motivation for life and treatment, and self-management. This approach can help patients make voluntary decisions and change. Motivational interviewing is a useful strategy to help patients with chronic conditions in terms of accepting and changing their behavior and QOL. Study limitations included failure to measure participants' QOL long-term. Therefore, future studies should evaluate whether the short-term changes in QOL seen with motivational interviewing persist long-term.

Acknowledgments

Conflict of interest

The authors have no conflicts of interest to declare.

Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.yebeh.2015.10.012.

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