Cognitive schema factors in opioid substance abuser men with sexual dysfunction

Abstract

Background: Cognitive schemas are conceptualized as the nuclear construction of the cognitive system. Schemas are responsible for the meaning assigned to a specific event and for directing behavioural and emotional reactions to external or internal stimuli.

Aims: This study was aimed at cognitive schema factors in men receiving methadone maintenance treatment (MMT) with sexual dysfunction. These cognitive factors have been consistently associated with male sexual dysfunction.

Methods: We recruited 150 Iranian male patients from several centers of Methadone Maintenance Therapy (MMT) in Tehran, city of Iran. Patients underwent structured interviews that consisted of a semi-structured interview was administrated which included questions on socio-demographics, drug use details, and sexual behaviour. Besides our Questionnaire of Cognitive Schema Activation in Sexual Context (QCSASC), we also used The Sexual Self-Efficacy Scale-Erectile Functioning (SSES-E).

Results: As expected, the Cognitive Schema Activation in Sexual Context was positively correlated with Sexual Self-Efficacy-Erectile Functioning (SSES-E), (r = .772, p < .001); therefore people who have a greater negative schema activation described themselves as having lesser confidence in the erectile competence. Also most of the subscales on the QCSASC were positively associated with the Sexual Self-Efficacy-Erectile Functioning measured by this instrument. The results indicated that people with low scores in Sexual Self-Efficacy-Erectile Functioning (SSES-E) indicate lesser confidence in the man’s erectile competence and they reported higher scores on the measures of QCSASC, that reflecting greater negative schema activation.

Conclusion: Consistent cognitive pattern in persons experiencing sexual difficulties, characterized by core beliefs associated to a person’s lack of qualification, autonomy, and low self-esteem may constitute a momentous vulnerability element for the development of sexual difficulties. Therefore nuclear cognitive structures may play a main role in predisposing persons to sexual difficulties. These results have important therapeutic implications for couple therapy and sex therapy.

Keywords: cognitive schema factors, sexual self-efficacy-erectile functioning, methadone, psychopathological syndromes, opioid substance

Abbreviations: MMT, methadone maintenance treatment; QCSASC, questionnaire of cognitive schema activation in sexual context; SSES-E, sexual self-efficacy scale-erectile functioning; DSM-5

Introduction

Newly, researchers have emphasized the importance of cognitive-schema affective elements in person sexual reaction and have extended new theoretical approach and therapeutic techniques based on this perspective. Most empirical studies in this field have been focused on specific cognitive constructs such as cognitive distraction, efficacy expectancies, causal attributions or perfectionism. Despite the results supporting the importance of these cognitive variables on sexual reaction, there is a lack of combined work about the role of core cognitive structures. Specifically, the role of cognitive schemas in the onset and maintenance of sexual problems has received slight consideration by the scientists and specialists. Cognitive theory has led to an enhance understanding of the cognitive processes involved in a large spectrum of psychopathological situations and has been effectively used in the understanding and treatment of several disorders such as depression, anxiety, personality disorders, relationship disorders, substance abuse disorders.

The nuclear structures of the cognitive system are Cognitive schemas. Schemas are “structures for screening, coding and evaluating the stimuli on the basis of which, the individual is able to orient himself in relation to time and space and to classify and understand experiences in a meaningful way”. Therefore, schemas are responsible for the meaning assigned to a specific event and for guiding emotional and behavioural responses to external or internal stimuli. Schemas aid adaptive aims facilitating the interaction between the persons and their circumstances. Though, when the meaning assigned to a specific event is not sufficient, a dysfunctional emotional and behavioural reaction might happen. Persons may develop specific, defective cognitive constructions called cognitive vulnerabilities that predispose them to develop specific psychopathological syndromes. Thus, the diverse psychopathological syndromes may be characterized according to specific inadequate or...
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Maladaptive schemas. Depression is characterized by negative views about one’s self. In anxiety, the self is seen as inadequate and in anger and paranoid disorders as mistreated or abused by others. Beck theorized that there are two broad categories of negative schemas generally related to psychopathological situations. Helpless schemas are mainly related to the idea that oneself is personally helpless (powerless, weak, or vulnerable) or incompetent (a failure, inferior, or a loser), and unlovable schemas are specially related to the idea of not being loved by others (undesirable or unworthy). This conceptualization was also used by Beck, who developed taxonomy of 28 core beliefs (14 helpless and 14 unlovable beliefs). We think that this proposed list could represent the main “pathological” self-schemas and be an alternative to other validated. Most clinical evidence suggests that men interpret sexual dysfunction as a sign of personal weakness and incompetence, which is better accounted for by the helpless domain.

Starting from this point of view, our purpose was to test the psychometric characteristic that assesses self-schemas activated by an individual when facing sexual failure situations. We hypothesized that participants with higher levels of identification with the activation events (unsuccessful sexual events) would report significantly higher negative self-schemas. Moreover, this study was to assess the role of cognitive-emotional variables in sexual functioning in opioid users. It was hypothesized that sexual beliefs would stipulate the conditions for the activation of the cognitive schemas in specific sexually unsuccessful experiences. Once activated, these cognitive schemas would elicit a systemic structure composed of thoughts, emotions, and sexual responses. For example, someone who presents with the sexual belief would tend to activate negative self-schemas whenever an erection difficulty occurs. This negative self-schema, once activated, would elicit negative automatic thoughts and negative emotions (sadness, disillusion, etc.) impairing the sexual response. Recent findings seem to support this model.

Recently, researchers have been interested in the role played by cognitive factors on sexual functioning. Despite the growing body of data highlighting the importance of cognitive factors on sexual functioning, there are few researches on the role of cognitive schemas on male sexual. Di Bartolo & Barlow have highlighted the importance of schemas concerning sexuality, which are assumed to activate a set of thoughts, emotions, and behaviours during sexual activity. Di Bartolo & Barlow indicated that persons with sexual problems presented a more rigid, inflexible, and unrealistic set of sexual beliefs and performance expectations, facilitative of negative personal appraisals. These cognitive structures were proposed as vulnerability factors for sexual difficulties. Andersen & Cyranowski have suggested the concept of a sexual self-schema, conceptualized as cognitive generalizations about sexual aspects of the self that originate from early experience and contribute to the perceptions persons have about themselves as sexual beings. These cognitive structures are supposed to have an important role in determining sexual behaviour and to be involved in how individuals interpret sexual contexts and respond to them. Research concerning the influence of sexual self-schemas on sexual functioning does not present conclusive empirical support, although data showed that men with negative sexual self-schemas had lower arousal responses in sexual conditions. In an attempt to extend Beck’s theory to sexual dysfunctions, Nobre & Pinto-Gouveia have shown that men with sexual dysfunction endorsed more negative and personal meanings (incompetence schemas) than sexually healthy controls, when confronted with potential unsuccessful sexual conditions. Nobre-Pinto-Gouveia proposed that dysfunctional beliefs act as predisposing factors for the activation of negative cognitive schemas in specific negative sexual situations (e.g. a sporadic failure in erection). By definition, cognitive schemas are responsible for the way people interpret and assign meaning to experiences. Once activated by a specific negative sexual event, they orientate individual’s information processing to irrelevant task stimuli, generating negative thoughts (demand for performance, anticipation, and negative consequences of failure) and negative emotions (sadness, disillusion or fear), interfering with sexual arousal. A negative cycle could be established by the continuous interplay between negative thoughts and emotions, preventing the cognitive processing of erotic stimuli, and maintaining individual’s poor sexual functioning. Findings suggest the existence of specific cognitive schemas underlying sexual dysfunction and raise the question whether a more general cognitive organization could be proposed as a core vulnerability factor for sexual problems.

Despite the literature showing that schema can play a vulnerability role predisposing persons to different psychopathological syndromes, research on the impact of these dysfunctional schema on sexual difficulties are lacking. In this sense, the existence of an underlying cognitive organization predisposing persons to the development and maintenance of sexual problems is assumed, in a similar way to what has been demonstrated for the generality of emotional disorders. The main objective of this study was to explore the role of cognitive schemas on male sexual functioning as well as to investigate the way these nuclear cognitive structures discriminate men sexual problems. Therefore, men with sexual dysfunction were expected to present more defensiveness/shame, failure, and dependence/incompetence and when confronted with potential unsuccessful sexual situations; men with sexual difficulties were expected to activate significantly more negative schemas, particularly incompetence schemas, but also difference/loneliness and helpless schemas. Finally, we would like to highlight that in this study cognitive schema factors were hypothesized as a general vulnerability factor for the development and maintenance of sexual difficulties, acting as facilitators for the activation of specific cognitive schemas in response to negative sexual situations. In this study, dysfunctional cognitive schemas were hypothesized as a general cognitive vulnerability factor for the development and maintenance of sexual problems and toccatas facilitator factor for the activation of specific cognitive schemas during negative sexual events.

Materials and methods

Patients and Procedure Patients were recruited from outpatient attendees at a several centers of Methadone Maintenance Therapy (MMT) between Jun 2015 and February 2016 in Tehran and Isfahan, city of Iran. Male patients aged between 25 and 50 years, with a DSM-5 diagnosis of opiate dependence syndrome, who were dependent on heroin or were being prescribed methadone, were included in the study. Patients who were on methadone had to have been on it for at least 6 months. A sample size of 150 methadone users was aimed for, and all serial attendees at the clinic were interviewed until this number was reached.

Patients were excluded from the study if they had any of the following situations: comorbid alcohol dependence, chronic physical disorders such as diabetes mellitus, hypertension, chronic pain,
endocrine disorders and urologic disorders, rheumatoid arthritis. Participants were asked not to use antidepressants, neuroleptics, antipsychotics, sedatives, anxiolytics, and antiandrogens during the study because of the negative effects of these medications on sexual function and the possibility of interference with the study process and goals. Participants who were detected with comorbid drug and alcohol use, severe hypertension and stress, hormonal problems due to medical or surgical conditions such as testicular surgery, or who suffered from neurological, metabolic and problems diabetes were excluded because of the negative effects of these problems with the study procedure. The interviews were conducted in quiet, comfortable settings and each interview lasted about an hour. All eligible patients (on the basis of self-reports of drug use) were then subjected to a urinalysis for psychoactive substances to confirm their use of heroin, methadone, and to exclude concurrent use of other psychoactive substances. A final number of 150 patients participated in the study.

**Interview and administrate tools**

A semi-structured interview was administered which included questions on socio-demographics, drug use details, and sexual behaviour. Besides our Questionnaire of Cognitive Schema Activation in Sexual Context (QCSASC), we also used The Sexual Self-Efficacy Scale-Erectile Functioning (SSES-E). QCSASC; The QCSASC is a 28-item instrument that assesses cognitive schemas presented by the participants when facing sexual situations. The first part consisted of the presentation of four sexual situations related to the most common sexual dysfunctions: desire disorder, erectile disorder, premature ejaculation, and orgasmic difficulties in the male version and desire disorder, subjective arousal difficulties, orgasmic problems. These four situations are present in the questionnaire in the form of vignettes and were developed by a panel of sex therapists based on material from clinical cases. Participants are asked to indicate on the identified situations and emotions, they were asked to rate, on a 5-point Likert scale (1-5), the degree of concordance with 28 self-statements reproducing the core beliefs or self-schemas presented by Beck. Specific indexes for the five domains and for the total scale can be calculated through the sum of the schema items (higher scores indicate greater confidence in the man’s erectile competence).

**Helpless**

Domain represented by beliefs of being helpless and needy.

SSES-E, The Sexual Self-Efficacy Scale-Erectile Functioning (SSES-E) is a short self-report measure of the cognitive aspect of erectile functioning and adjustment in men. It evaluates a man’s attitudes about his sexual and erectile competence in a variety of conditions. The scale may be fulfilled by a man to obtain self-ratings or by his partner to obtain verification. Self-efficacy refers to confidence in the belief that one can perform a certain task or behave adequately in a given situation. Sexual self-efficacy is of great concern to most men and a topic of increasing interest with an aging population. The SSES-E yields a self-efficacy strength score obtained by summing the values in the Confidence column and dividing by 25 (the number of activities rated). Any activity not checked in the Can Do column is presumed to have a 0 confidence (i.e. strength) rating. Some are reluctant to use the 10-point interval, so any continuous number recorded may be used in the Confidence column. Higher scores indicate greater confidence in the man’s erectile competence.

**Results**

The study included 150 married males who were between 25-50 years old (mean: 35.48; SD=7.91). The majorities of participants were employed and had education levels of diploma (n=68; 45.3%) or bachelor (n=50; 33.3%). Participants were on methadone the dose was gradually increased. Results showed that the Age, Education, Employment, Methadone Treatment Duration were not associated with Sexual Dysfunction Prevalence (P>0.05) (Table 1).

**Table 1** General characteristics of the methadone and buprenorphine study patients.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean±SD</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-30</td>
<td>54</td>
<td>35.48±7.91</td>
<td>36%</td>
</tr>
<tr>
<td>31-40</td>
<td>55</td>
<td></td>
<td>36.66%</td>
</tr>
<tr>
<td>41-50</td>
<td>41</td>
<td></td>
<td>27.33%</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>101</td>
<td></td>
<td>67.30%</td>
</tr>
<tr>
<td>Non-Employed</td>
<td>49</td>
<td></td>
<td>32.70%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary School</td>
<td>34</td>
<td></td>
<td>22.66%</td>
</tr>
<tr>
<td>Diploma</td>
<td>58</td>
<td></td>
<td>38.66%</td>
</tr>
<tr>
<td>Bachelor</td>
<td>50</td>
<td></td>
<td>33.33%</td>
</tr>
<tr>
<td>Post Graduate</td>
<td>8</td>
<td></td>
<td>5.30%</td>
</tr>
<tr>
<td>Married</td>
<td>83</td>
<td></td>
<td>55.30%</td>
</tr>
<tr>
<td>Single</td>
<td>67</td>
<td></td>
<td>44.70%</td>
</tr>
<tr>
<td>History of Drug Use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of First Opioid Use</td>
<td>19.28±3.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration of Addiction</td>
<td>16.19±8.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration of Methadone Treatment (Month)</td>
<td>3.28±1.17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 show the Correlations between the Questionnaire of Cognitive Schema Activation in Sexual Context (QCSASC) and Sexual Self-Efficacy Scale-Erectile Functioning (SSES-E). As expected, the Cognitive Schema Activation in Sexual Context was...
positively correlated with Sexual Self-Efficacy-Erectile Functioning (SSES-E). (r=.772, p<.001). So it can be seen in Table 2 that people who have greater negative schema activation described themselves as having lesser confidence in the erectile competence.

Table 2 Correlations between the Questionnaire of Cognitive Schema Activation in Sexual Context (QCSASC) and Sexual Self-Efficacy Scale-Erectile Functioning (SSES-E).

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>r</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>QCSASC</td>
<td>150</td>
<td>0.772</td>
<td>0.000**</td>
</tr>
<tr>
<td>SSES-E</td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3, Correlations between the 5 Subscales of Questionnaire of Cognitive Schema Activation in Sexual Context (QCSASC) and Sexual Self-Efficacy Scale-Erectile Functioning (SSES-E). This table reveals that most of the subscales on the QCSASC were positively associated with the Sexual Self-Efficacy-Erectile Functioning measured by this instrument. The results indicated that people with low scores in Sexual Self-Efficacy-Erectile Functioning (SSES-E) indicate lesser confidence in the man’s erectile competence and they reported higher scores on the measures of QCSASC, that reflecting greater negative schema activation. As expected, the Undesirability/rejection subscale (r=.430, p<.001), the Incompetence subscale (r=.450, p<.001), the Self-deprecation subscale (r=.244, p<.001), the Difference/loneliness subscale (r=.255, p<.001) and the Helpless subscale were positively correlated (r=.501, p<.001) with Sexual Self-Efficacy-Erectile Functioning (SSES-E). Finally, it can be seen in Table 3 that people who have greater negative schema activation described themselves as having lesser confidence in erectile competence.

Table 3 Correlations between the Subscale s of Questionnaire of Cognitive Schema Activation in Sexual Context (QCSASC) and Sexual Self-Efficacy Scale-Erectile Functioning (SSES-E)

<table>
<thead>
<tr>
<th>Subscales of QCSASC &amp; SSES-E</th>
<th>N</th>
<th>r</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undesirability/Rejection &amp; SSES-E</td>
<td>150</td>
<td>0.43</td>
<td>0.000**</td>
</tr>
<tr>
<td>Incompetence &amp; SSES-E</td>
<td>150</td>
<td>0.45</td>
<td>0.000**</td>
</tr>
<tr>
<td>Self-Depreciation &amp; SSES-E</td>
<td>150</td>
<td>0.244</td>
<td>0.003**</td>
</tr>
<tr>
<td>Difference/Loneliness &amp; SSES-E</td>
<td>150</td>
<td>0.255</td>
<td>0.002**</td>
</tr>
<tr>
<td>Helpless &amp; SSES-E</td>
<td>150</td>
<td>0.501</td>
<td>0.000**</td>
</tr>
</tbody>
</table>

Discussion

This study was aimed at exploring the Cognitive Schema Factors in opioid substance abuser men with sexual dysfunction. Particularly to investigate how Opioid Substance abuser with sexual problems would differ on dysfunctional cognitive schemas these factors have been consistently associated with male sexual difficulties (such as low confidence in erectile competence).29,30 Additionally, some of these factors (Undesirability/rejection, Incompetence, Self-deprecation, Difference/loneliness and Helpless) are believed to intervene in this clinical condition by negatively affecting the cognitive appraisal of Sexual Self-Efficacy-Erectile Functioning. Findings from the current study showed that Opioid Substance abuser with Sexual Dysfunction showed significantly more dysfunctional sexual beliefs. Opioid Substance abuser reported more sexual conservatism (characterized by the idea that coitus is the central aspect of sexuality and masturbation or oral sex is unacceptable activities).31 These findings seem to corroborate the idea that a conventional cognitive style may impact how normal genital sensations are appraised. Such sensations may be erroneously related to a lack of morality or confused with a pathological condition.32

In this study, dysfunctional cognitive schemas were hypothesized as a general cognitive vulnerability factor for the development and maintenance of sexual problems and toccatas facilitator factor for the activation of specific cognitive schemas during negative sexual events. Results showed that sexual functioning was strongly and negatively associated to the impaired autonomy/performance domain. Particularly, dysfunctional cognitive schemas related to individual’s perceived inability to function in a worthy and independent way (dependence/incompetence dysfunctional cognitive schemas), along with perception of inadequacy and inferiority (failure dysfunctional cognitive schemas), were highly associated with poorer levels of sexual functioning. Results showed a constant cognitive pattern in persons experiencing sexual problems, characterized by core beliefs related to a person’s lack of competence and autonomy and low self-esteem, which may constitute a significant vulnerability factor for the development of sexual problems in opioid substance abuser men. Our findings also supported previous studies regarding psychological characteristics of men presenting with sexual difficulties.33 Results have recommended that cognitive processing plays a causal relation role in emotional space.34

Overall, our findings showed that, in opioid substance abuser men with sexual problems, Dysfunctional cognitive schemas are dysfunctional core beliefs deeply entrenched in person’s pattern of thinking about oneself and the world and, may be conceptualized as a global vulnerability factor for sexual problems.35 Dysfunctional cognitive schemas may action as facilitators for the activation of specific cognitive schema sin negative sexual situations, as suggested by the high associations observed between both cognitive dimensions.

Findings of this study indicate that the assessment of person’s core beliefs should be combined into assessment procedures in sex therapy. Also, individuals with sexual problems would benefit from cognitive techniques concentrate on restructuring maladaptive core beliefs and behaviour patterns involved in the maintenance of sexual problems. Results from this study should be interpreted with precaution and some limitations should be recognized. The cross-sectional design in our study and no control group were probably the main limitation of this study. Also, all constraints resulting from the use of self-report questionnaires for the assessment must be recognized. Additional limitation regards the heterogeneity of the clinical sample. Opioid substance abuser men with different sexual problems constituted the clinical sample and we may accept differences on their cognitive profile according to specific sexual dysfunctions. Moreover, the use of a non-representative community sample of the Iranian population compromises the generalization of the results. Lastly, studies using linear designs and differentiate clinical samples, along with various methodologies for the assessment of cognitive and schema structures, should be considered. With this study, we intended to draw attention to the significance of cognitive structures on sexual functioning in substance abuser men. Consequences reinforced the theory of a cognitive pattern in men with sexual problems, characterized by dysfunctional core beliefs regarding person’s inability to function and do successfully, acting as a facilitator of negative schemas activation during potential failed sexual conditions.

Acknowledgements

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Conflict of interest

The author declares no conflict of interest.

References

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