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Systematic Review of Psychological Treatments for Methamphetamine

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No previous systematic reviews on evidence-based psychological treatments for methamphetamine use disorders were found. The Transtheoretical Model (TTM) offers a broadly applicable framework for categorising types of psychological treatments based on the processes of change involved. The objective of this systematic review of psychological treatments for methamphetamine use disorders was to identify current treatments and the processes of change they rely on, following the categorisation provided by the Transtheoretical Model. The study method is a systematic review with narrative synthesis. The following psychological treatments had the best evidence for efficacy: Gay-Specific Cognitive Behavioral Therapy, Motivational Enhancement, Contingency Management and STAGE-12. The most common processes of change belonged to the consciousness-raising and self-reevaluation categories. The least frequently used processes of change belonged to the helping-relationship categories. The available evidence indicates that training therapists to form better therapeutic relationships (the "helping-relationship" process of change in the TTM) is efficacious, but it is rarely used as the basis of treating methamphetamine use disorders. Focusing more on the helping-relationship categories is a key approach for increasing the efficacy of treatments for methamphetamine use in real-world settings.

Keywords: *Systematic Review; Methamphetamine Use Disorder; Psychological Treatment; Transtheoretical Model; Process of Change*

Introduction

The crystalline form of methamphetamine, an addictive stimulant, is known as "ice" or "crystal." Methamphetamine use disorders pose a serious worldwide public health problem with major psychiatric (McKetin, McLaren, Lubman, & Hides, 2006; Lapworth, et al., 2009), cognitive (Moon, Do, Park, & Kim, 2007), as well as socioeconomic and legal consequences (Barman-Adhikari et al., 2016). Furthermore, a strong association exists between methamphetamine use and high-risk sexual behaviors, such as unprotected anal intercourse (UAI) and sex with multiple sexual partners among gay and bisexual men; and methamphetamine use accounts for increases in sexual compulsivity and HIV incidence (Bimbi et al., 2006; Halkitis, Parsons, & Stirratt, 2001; Halkitis, Shrem, & Martin, 2005; Hirshfield et al., 2004).

Petit, Karila, Chalmin and Lejoyeux (2012) reviewed the methamphetamine literature, focusing on clinical, epidemiological and pharmacological aspects, but paid limited attention to psychological treatments. Karila et al. (2010) focused on pharmacological approaches to treating methamphetamine dependence and concluded that while some pharmacological treatments have been promising, most studies have reported unsuccessful treatments, and "no substantial evidence for efficacious treatment has yet emerged" (p. 587) using pharmacological approaches.

Historically, the evolution of substance abuse treatment has followed the major paradigm in understanding drug abuse itself. This paradigm has shifted from a moral model considering drug abuse a result of moral failure, through a spiritual model viewing it as a lack of spiritual attachment, and a disease model viewing it as an illness, to a compensatory model, which views drug abuse as an individual's attempt to adjust to their life situation using maladaptive strategies. Contemporary strategies avoid stigmatising drug abusers and explain drug abuse in terms of interactions of biological, psychological, and sociocultural forces. Corresponding to the compensatory model, psychological interventions increasingly complement or replace biomedical ones (Brook, Pahl & Rubenstone, 2008).

A systematic review by Lee and Rawson (2008) focused specifically on cognitive and behavioural treatments for methamphetamine abuse and identified cognitive-behavioural therapy (CBT) and contingency management (CM) as promising approaches. However, this review did not include other types of psychological treatments and noted that treatments based on other theoretical orientations should be reviewed as well. However, no previous systematic reviews on the use of psychological treatments on methamphetamine abuse in general could be found.

Hence, the author conducted a systematic review of psychological treatments for methamphetamine abuse, to identify which approaches have evidence for efficacy, and what kinds of processes of change they rely on.

Methods

The systematic review included studies, which were accessed through two main types of sources: 1) The following journals accessed through the electronic database ScienceDirect, using the search term "methamphetamine psychological treatment": *Drug and Alcohol Dependence, Journal of Substance Abuse Treatment, Addictive Behaviours,* and *International Journal of Drug Policy*; any journals listed on Scopus, again using the search term "methamphetamine psychological treatment"; and any works listed on the Cochrane Library, using the search term "methamphetamine"; 2) Any evidence-based programs and practices listed on the National Registry of Evidence Based Programs and Practices (NREPP) of the Substance Abuse and Mental Health Services Administration (SAMHSA) of the United States, using the search term "methamphetamine treatment."

The systematic searching of these data sources yielded 42 works, including: 1) three articles focusing on factors and models of methamphetamine use; 2) 19 articles describing the development of psychosocial treatments and evaluating their effectiveness; 3) 16 care guidelines; 4) two articles presenting measurement tools; 5) one evaluation of the use of clinical practice guidelines; and 6) one article on treatment quality assurance. Thirteen of the most relevant works were chosen for further analysis.

To identify the components of psychological treatments that lead to cognitive, emotional and behaviour change among methamphetamine abusers, this systematic review drew on the Transtheoretical Model (TTM, Prochaska & Norcross, 2009). The creators of the TTM identified over 200 processes leading to change through reviewing over 50 studies on psychological and behavioural treatments for psychological problems, tobacco and alcohol addiction, and overeating among obese individuals (Prochaska & Norcross, 2009; Prochaska, Norcross & DiClemente, 1994). The TTM categorises these processes of change into 10 categories: 1) consciousness raising, 2) emotional arousal, 3) self-re-evaluation, 4) environmental evaluation, 5) social liberation, 6) self-liberation and commitment to change, 7) counter conditioning, 8) environmental stimulus control, 9) contingency management and 10) the helping relationship (Prochaska & Norcross, 2009). These categories were used for analysing the components of psychological treatments covered in this review.

The institutional review board at the Faculty of Social Sciences and Humanities at Mahidol University, Thailand, reviewed and approved the study.

Results

This review identified four effective specific treatment models, which are outlined in Table 1. Table 2 shows the categorisation of the processes of change (Prochaska & Norcross, 2009) that they rely on.

Discussion

The discussion below focuses on three themes: the types of treatment used, their quality, and the role of the therapeutic relationship in bringing about change.

1. Types of treatment

Many treatments included in the review did not focus only on changing drug use related behaviours but had broader aims. The seven treatments could be categorised into the following four subtypes. For details and references, see Tables 1 and 2.

Treatments directly aiming to change drug use behaviours. Two treatments were identified in this category: Motivational Enhancement and Gay-Specific Cognitive Behavioural Therapy.

Treatments emphasising full patient engagement. Treatments aimed at bringing about full patient engagement in the treatment program included STAGE-12.

Supplemental treatments to facilitate recovery. These treatments are aimed to supplement other treatment approaches among patients in the recovery phase. Treatments in this category include Contingency management.

2. Quality of treatment

This section focuses on review findings about fidelity/integrity. For treatment efficacy dimension, the details are in the work of Phukao (2013).

Treatment fidelity/integrity. The reviewed treatments with most attention to intervention fidelity and integrity were STAGE-12 and motivational enhancement. STAGE-12 provides step-by-step guidance on monitoring intervention integrity, with reference to theories that explain why certain treatment components are necessary for behaviour change. There are also two scales to monitor adherence to the treatment protocol: The Counselor Self-Rating Adherence Scale and the Adherence Scale for STAGE-12 Group Sessions (Baker, Daley, Donovan & Floyd, 2007).

Motivational enhancement also a manual titled *MIA-STEP* (NIDA-SAMHSA Blending Initiative, 2013), containing set of fidelity tools (questionnaires assessing implementation fidelity).

Other reviewed treatment models have a treatment manual available, outlining the various stages of the model, which can be used for ensuring treatment integrity, but these manuals do not cover the broader task of ensuring fidelity through systematic checks or assessments.

3. The therapeutic relationship

A key finding of the review was that one process of change identified in the TTM, namely the helping relationship, was made use of in treatment programs that were efficacious in changing methamphetamine use behaviours.

Only two treatment models (STAGE-12 and motivational enhancement) explicitly focus on developing the therapist's relationship building skills. G-CBT aims to build non-professional helping relationships by facilitating patients' ability to find friends or others who can provide them with psychological support.

Most articles documenting therapy models do not provide information on how therapists should build or benefit from a good therapeutic relationship. One reason for this might be that evaluation studies typically utilise highly trained therapists (e.g., clinical psychologists, master's degree level counsellors or psychiatric nurses), so their relationship-building abilities are assumed to be adequate to begin with. The efficacy of the model in actual use (beyond the evaluation study) may depend on the ability of those implementing it to build and maintain an effective therapeutic relationship. When therapists using such therapy models in real life have less training and limited relationship-building skills than the therapists in the evaluation study, implementation of a given model may face obstacles (Gold, Glynn, Mueser, 2006). Or, as Hubbard and Mulvey (2006) put it, when public health staff use Treatment Improvement Protocols (TIPs) in drug abuse treatment, they frequently experience problems related to the therapeutic relationship, because they have only been trained in techniques that work, but not in initiating and maintaining therapy relationships that work.

Due to such concerns, the American Psychological Association has produced guidelines about the elements of highly effective therapy relationships, which also include methods of adapting interventions to particular client characteristics (Norcross, 2001). These guidelines were created on the basis of an analysis of what elements of the therapeutic relationship help patients to function better in their everyday lives, communicate with others, have less distress and attain better treatment adherence. These guidelines can be used by public health staff to build, maintain and adjust their therapeutic relationships so as to be more efficacious.

Common desirable elements of therapy relationships include building a therapeutic alliance on the basis of partnership, therapist's empathy for the patient, consensus about the goals of treatment, ways of repairing alliance ruptures (when the therapist is aware that something they have done has upset the patient), therapist's awareness of visible and invisible negative reactions in the patient, and the management of countertransference (Norcross, 2001). Examples of therapy customisation for patient characteristics include taking into account the patient's reactance level, coping styles and stage of change (Norcross, 2001).

Only two treatment models included in this review had a clear focus on achieving a desirable therapeutic relationship. This focus is most clearly expressed in motivational enhancement, which emphasises that therapists should express empathy, avoid argumentation and roll with client's resistance (react to it indirectly rather than confront it directly). The spirit of motivational enhancement also includes the principles of eliciting discrepancies from clients, respecting their autonomy and building collaborative rather than hierarchical relations. In STAGE-12, a focus on the therapeutic relationship is evident in its specifications of desirable and undesirable therapist behaviours, which have an impact on the patient's expectations for clinical improvement, on the level of psychological support experienced by the patient, and on the therapeutic alliance in general.

Table 1 Identified treatment models

1. Motivational Enhancement (Miller, 1995)	2. Contingency Management (Petry & Stitzer, 2002)	3. Gay-Specific Cognitive Behavioural Therapy (G-CBT) (Shoptaw, Reback, Peck, Larkins et al., 2005; Shoptaw, Reback, Peck, Yang et al., 2005; Reback & Shoptaw, 2011)	4. STAGE-12 (Baker, Daley, Donovan & Floyd, 2007)
Stage 1: Expressing empathy for the patient with difficulties rooted in their behaviour, adhering to the principle of rolling with resistance. Stage 2: Helping patient to develop discrepancy between ideals and current situation. Stage 3: Facilitating self-efficacy and change talk in the patient Stage 4: Encouraging planning for behaviour change.	Planning for contingency management involves the following stages: 1. Identifying target behaviour 2. Choosing a population 3. Choosing incentives 4. Assess incentive magnitude 5. Assess frequency of incentive giving 6. Assess timing of incentive) 7. Assess duration of Intervention	24 sessions on: **Education:** - triggers, thoughts, cravings, withdrawal symptoms and drug use, - relapse management **Awareness-raising:** - crystal meth, its benefits and harms - other drug/alcohol use and their consequences - drug use triggers in daily life - wanted and unwanted, planned and unplanned sexual behaviours, partners and venues - connections between sex and being gay/bisexual and drug use - why gay/bisexual men use crystal meth - stigma against people living with HIV - social networks, alternative activities - recognising one's emotions and the significance of memories - recognising social withdrawal behaviours in oneself - problems meeting others and coping with them - divulging details about drug use or gay sexuality - expected positive consequences of treatment **Imagery work:** confiding to an imaginary trusted and compassionate person. **Skill building:** - building safe spaces for revealing personal details and leveraging social networks - analysing, preventing and managing relapse - goal setting and problem solving - meeting other people and building relationships - refusing crystal meth and unsafe sex	1. Taking a drug use case history, asking personal details, general information, and the benefits and shortcomings of drug use, which are then reflected back to the patient; 2. Educating the patient about the first 3 stages of the 12-step program and the principles of the 12 stages of rehabilitation; 3. Surveying the drug use related thoughts of the patient; repeating the slogans of the program and praying for tranquillity, as a strategy for bringing about behaviour change. 4. Identifying the discrepancy between the goals and behaviours of the patient. 5. Identifying individuals, places and objects that trigger drug use as well as individuals, places and objects that facilitate rehabilitation. 6. Encouraging the patient to fully commit to the STAGE 12 program. 7. Facilitating the patient to agree with the most important factor that will help the patient to abstain from drug use at this stage, that is, admitting that he or she is unable to control drug use and must receive help from the STAGE 12 program.

Table 2 Processes of change involved in each treatment modality, according to the TTM categorization

	1. Consciousness raising	2. Dramatic relief, catharsis, emotional arousal	3. Self-re-evaluation	4. Environmental re-evaluation	5. Social liberation	6. Self-liberation	7. Counter conditioning	8. Stimulus control	9. Reinforcement Management	10. Helping relationship: a) therapist dimension; b) patient dimension[1]	
										a)	b)
1. Motivational Enhancement therapy	✓	✓	✓	✓	-	✓	-	-	-	✓	
2. Contingency management	-	-	-	-	-	-	-	-	✓	-	-
3. G-CBT	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓
4. STAGE 12	✓		✓	✓						✓	✓
Total	**3**	**2**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**2**

[1] The therapist dimension refers to developing the therapist's skills in initiating and maintaining an effective helping relationship. The patient dimension refers to developing the patient's social and communication skills for accessing and maintaining social support.

Limitations

Some treatments may have further information available in proprietary materials. This review was limited to publicly available information.

While most studies focus on the treatment of methamphetamine use in general, there are some that focus on crystal methamphetamine use in particular, and some that focus on stimulant abuse more broadly. Some treatment models and their evaluation studies focus on specific populations (e.g., G-CBT), so their generalisability to the general population or other specific groups may be limited.

Further reviews might be able to identify the benefits and shortcomings of existing treatments in a more robust way using meta-analytic methodology.

Conclusion

This systematic review of psychological treatments for methamphetamine use disorders identified the following treatments as efficacious in changing behaviours related to methamphetamine use: 1) Motivational Interviewing, 2) Gay-Specific Cognitive Behavioural Therapy, and 3) Contingency management. In addition, the review indicated that STAGE-12 improves adherence to other treatments used in conjunction with it. The review indicated that in devising psychological treatments for methamphetamine abuse, more attention should be given to building skills for developing and maintaining a therapeutic relationship, rather than just developing specific therapeutic techniques of change.

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