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A Report on the Use of *In Vivo* Desensitization Combined with Biofeedback and Structured Metaphor/CBT Sessions

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This paper describes the clinical use of biofeedback and *in vivo* desensitization sessions as part of a treatment package for clients with pathological gambling disorders. This package is used to enhance the understanding of addiction and control of arousal in the presence of Video Gambling Machines (VGMs) or Pokie Machines for clients with problem gambling associated with these machines. Biofeedback was used to exacerbate the effectiveness of an *in vivo* desensitization for clients by presenting to clients measurements of their heart beat rate (HR) and blood pressure (BP) before and after a brief exposure to VGMs. This report includes data from five clients but is not is a case report not an evaluation. The possibilities of evaluating this package are discussed and it is suggested that this treatment package may be suitable for inclusion in a best practice research project evaluating the treatment of pathological gambling as it provides flexibility for clients and clinicians while offering researchers the consistency required for effective research.

Keywords: Problem gambling; Desensitization; Biofeedback; Treatment package.

Introduction

The treatment package described here is with minor client specific modification used with 80% of clients presenting at the Problem Gambling Foundation (PGF) service in Nelson New Zealand. The package consists of an assessment followed by a white board presentation of selected items from a menu of metaphors. From these metaphors a treatment plan is developed jointly with the client. For about half of clients this plan will include between one and three sessions that combine *in vivo* desensitization and biofeedback.

Metaphor

Metaphor is the substance of prefrontal cerebral activity, its function is to limit ways an idea can be conceived and so act as a constraint to the wandering mind. Clinicians use metaphors to act as bridges between theory and the client's specific understanding of their particular situation and metaphors capable of contributing to a clients' sense of control have a powerful therapeutic value. Empowering metaphors are particularly useful in the treatment of clients with pathological gambling addictions as these clients often present with de-powering internalized metaphors regarding gambling. These internalized metaphors amount to a view of themselves as "powerless and weak willed wasters entrapped by machines that are only mildly entertaining for normal people." Accepting this view of themselves, while destructive, is an attempt to make sense for clients of their experience of powerlessness as a result of their loss of control over gambling and their inability to understand how a non-substance addiction can exert such power over them.

An extensive literature exists on the clinical use of metaphor in psychological therapies (Sims, 2003), and metaphor is used in a variety of health areas to facilitate understanding and communication. For example, Fabri (2003) sees a metaphorical relationship between the challenges of blue water sailing and surgical training,

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Bujak (2003) reports on the use of metaphor to improve relationships between physicians and other hospital workers, Woolscroft and Phillips (2003) have described medicine as a performing art (a meta metaphor). Perhaps of more importance to psychotherapy is the fundament work of Brown (2003) who has analysed the explanations used in chemistry and argues that many of these models are metaphorical in nature. A similar analysis of psychological models would be likely to reveal that many of psychological models are in effect no more than metaphors. However a PubMed search carried out in February, 2004, showed no articles on the particular application of metaphor in the treatment of pathological gambling disorders.

The particular menu of metaphors used in this treatment package was developed over a period of six years from observations of the information given in sessions to clients and an evaluation of the nature and content of those metaphors that proved useful in this situation. The metaphors used in these sessions incorporate a basic explanation of the neurobiology of gambling, information about gambling triggers; the emotional cycles induced by gambling and include aspects of the model of change developed in Motivational Enhancement Therapy. These metaphors have been described in detail elsewhere (Townshend, 2004).

Bio-Feedback

Bio-feedback is a technique where physiological monitoring devices are used to furnish information to the client regarding an autonomic bodily function, such as heart rate or blood pressure, either in an attempt to gain some voluntary control over that function or as a mechanism for understanding other functions or behaviour. It has been used clinically to treat a variety of conditions, for example, hypertension (Sainani, 2003), improved control over bladder functions (Rogers, 1997), alcohol consumption (Sharp, Hurford, Allison, Sparks, & Cameron, 1997), epilepsy, (Ramaratnam, Baker, & Goldstein, 2003), and control over the transdermal delivery of medications (Hadgraft, 1996).

A single study has been published describing the use of biofeedback in research into gambling (Aftanas, Koshkarov, Pokrovskaja, & Mordvintsev, 1996). These authors used winning and loosing in a laboratory gambling game to operationalize positive and negative emotions in a study that examined the relationship between pre-stimulus and post-stimulus processes of alpha components. The objective was to assess the usefulness of these changes in discriminating among anxiety coping styles in students performing an affective task. In this sense the gambling was included only as a methodological device and neither gambling nor treatment were the focus of the study.

Method

Session Procedure

The following metaphor/*in vivo* desensitization/biofeedback treatment package is used with most clients presenting to the PGF service in Nelson. Clients not offered this treatment are those who are too distressed on presentation, those with acutely intrusive psychiatric disorders including a current Major Depressive Episode and clients with prominent personality disorders such as Narcissistic Personality Disorders or intellectual disability. It is anticipated that clients acutely affected by a variety of other disorders such as Psychotic disorders would also not be suitable for these sessions.

Metaphors are used with the rest of clients using this service and about half of clients use the *in vivo* desensitization/biofeedback sessions as part of their collaboratively developed treatment plan. Clients who do not use these sessions are predominantly clients who as a result of either the drama of the circumstances leading to their referral would find going back into a Pokie room on licensed premises too aversive or for whom theirs or their support persons personal metaphor for gambling would be incompatible with this approach. There may be other clients for whom going for a drive and "hanging out in a bar with the clinician" would be unsafe for a variety of other reasons. The decision to include an *in vivo* desensitization session is made jointly with the client and clinician.

In vivo desensitization sessions have been used by clients aged between 20 and 62 years and with equal numbers of men and women and only with clients who meet the DSMIV criteria for pathological gambling and for whom VGMs are the gamble of choice. Initially only clients who were on home detention sentences were offered the *in vivo* desensitization sessions as a result of fears that exposure to the VGMs might result in an increased desire to gamble and so be unproductive, however as a result of the positive feedback from clients these sessions are now offered to more clients.

An *in vivo* desensitization session begins with a catch up between client and clinician which and includes a discussion of any gambling activity, any thoughts of gambling, an emphasis of difference between this and previous gambling and a brief MSQ. The clinician then measures and records the client's heart rate (HR) and blood pressure (BP). These measurements were selected, as HR is likely to be a sensitive indicator of arousal with BP being a somewhat less sensitive indicator. Both measurements have the advantage of being familiar to clients, non-invasive, requiring little equipment and only a moderate level of expertise to collect. After measuring and recording the clients BP and HR the clinician and client then drive together to one of the

Table 1
Heart Rate and Blood Pressure Recordings for Five Randomly-Selected Clients Before and After Exposure to VGMs

	Session 1				Session 2			
	Before		After		Before		After	
Client	BP	HR	BP	HR	BP	HR	BP	HR
L	118/80	68	145/90	86	118/80	65	125/90	84
D	128/90	48	135/90	66	—	—	—	—
R	125/70	70	165/100	140	120/70	65	145/90	122
G	120/80	76	125/90	104	—	—	—	—
B	120/90	84	140/90	85	140/95	66	150/100	78

Note. This table shows a tendency for blood pressure and pulse to increase after VGM exposure and the amount of this increase tends to reduce with each *in vivo* desensitization session.

four, eighteen-machine venues within five minutes of the PGF office.

Some clients report a subjective awareness of arousal on entering the rooms but many don't and these reports do not seem to be correlated with recorded arousal as measured by BP and HR. The clinician and client then spend between five and ten minutes watching people play the machines and talking about how the machines work before returning to the office. Clients are asked not to smoke cigarettes during the journey and in the VGM venue. On returning to the office BP and HR are measured again and discussed with the client.

Results

This paper is not an evaluation of the treatment package but is intended to provide a description of the desensitization/biofeedback aspect of the package that has at the time of writing been used with approximately two hundred clients. The following findings are intended to provide clinicians with an indication of the kind of responses clients have to this treatment package and are taken from the case notes of five consecutive clients who have experienced this treatment. Given that only a small sample of results could be included in this case report a group of consecutive clients were used to avoid selecting clients for whom the package had been more or less successful. Randomness was achieved by going through client records alphabetically and selecting the first client for whom the package had been used and then using that clients record number selecting the next five clients who had experienced this treatment package.

Table 1 shows a record of recordings obtained from this sample of five clients. Of the results presented, client L, R and B completed two sessions, as planned, and client D completed one session before going on holiday and, on his return, felt so confident regarding his gambling that further sessions were not needed; finally, G had one session and was admitted (on a cancellation) into an inpatient treatment facility to deal with other addictions.

There are a number of possible explanations for the increases in BP and heart rate, for example, changes could be contributed to by the smoky environment in VGM venues, the clinicians driving might be anxiety provoking, or the activity involved in leaving the office may increase BP and HR. To obtain some indication of the importance of these effects the sequence of an *in vivo* desensitization session was reproduced with two AOD staff members. That is after a brief discussion in the office BP and HR were measured, then the counsellors were taken to a VGM venues and spent five to ten minutes in a VGM room similar to that used for *in vivo* desensitization sessions. On returning to the office BP and HR were measured again. Neither clinician

Table 2
Heart Rate and Blood Pressure Recordings for Two Clinicians Before and After Exposure to VGMs

	Before		After	
Clinician	BP	HR	BP	HR
B	130/90	54	120/80	54
E	140/90	72	130/90	72

Note. This table shows that, for both clinicians, HR remained the same, while diastolic and systolic pressures decreased after VGM exposure for one clinician and, for the other clinician, diastolic remained the same while the systolic pressure went down. These findings must be cautiously interpreted, as samples are small and the methodology is in no way rigorous; however, in each case for problem gamblers, both diastolic and systolic pressures tended to increase; HR tended to increase dramatically after exposure to the VGM environment, whereas, for the clinicians, there was no HR change and actually a reduction in BP.

acknowledged a problem with, or even regular use of VGMs. The results of these measures are shown in Table 2.

Perhaps the most significant finding from the *in vivo* desensitization/biofeedback sessions comes from the self-report from clients including clients who gambled in between sessions. Gambling between sessions is not uncommon and can be a factor in the treatment plans developed with clients. Some client reports were:

> L: "I gambled but I didn't get the buzz out of it that I usually get"
>
> R: "This really helped me so that when I went into a pokie place I didn't space out, I was able to just leave"
>
> B: "I feel confident now that I can go to a pub and not gamble"
>
> G. "I've never been in a pokie room without gambling before"
>
> D. "It felt really weird, I found myself looking at the people instead of the machines and felt I didn't belong there"

Clients reports in general indicate that the *in vivo*/desensitization/biofeedback sessions are helpful for making them aware of their powerful physiological reaction to VGM exposure and for increasing their sense of control over their reactions to the machines.

Discussion

Future Research

This paper has described a treatment package developed clinically and which needs to be evaluated by a well-resourced clinical trial. This package would be amenable to evaluation in a Randomized Controlled Clinical Trial (RCCT) despite being an inherently flexible treatment approach. RCCTs in general have been criticized for systematically striping the effective clinical interventions from the various treatments being evaluated in an attempt to achieve consistency of practice. However an RCCT that used this package as one treatment option would be strengthened by the flexibility of this treatment, as this package would allow many of the clinically effective components of treatment to remain in the evaluation. The menu approach incorporated into this package allows for both the consistency required by researchers and the flexibility required by clinicians to be factored into the evaluation (Seligman, 1995).

Conclusion

The *in vivo* desensitization/biofeedback component of a treatment package consisting of assessment, the presentation of items selected from a menu of metaphors, counselling and *in vivo* desensitization/biofeedback has been described. Clinically this package seems to have value in the treatment of clients with pathological gambling disorders however the effectiveness of the package needs to be evaluated in a future research programme.

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