



ORIGINAL ARTICLE

The effectiveness of a brief motivational nursing intervention to reduce psychoactive substance consumption in entertainment-sector workers: A transversal, observation, and semi-experimental study

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ABSTRACT: *Checking whether changes in the perception of the quality of life related to health, after the nursing intervention, influence these patients' motivation to change. This was a two-staged study undertaken in entertainment-sector workers in Spain: the first part was transversal and observational, and the second was semi-experimental. First part undertook in 284 entertainment-sector workers, selected by non-probabilistic sampling, while second part undertook in 50 entertainment-business workers, selected by consecutive sampling from those who consumed substances. A short group-based motivational intervention session was implemented by nursing staff, and a before and after evaluation was completed. The EuroQol-5D and Test for the Evaluation of the Quality of Life in Addicts to Psychoactive Substances (TECVASP) were used. The patients' motivation to change was evaluated through the Stages of Change Readiness and Treatment Eagerness Scale. The results analysis showed that the nursing intervention reduced the participants' perceptions of their health-related quality of life ($t = 4.23$; $P = 0.00009$) and of their quality of life in addicts to psychoactive substances ($t = 3.38$; $P = 0.00140$). There was an increase in the motivation of 6 workers (12%) to seek treatment of their addiction ($\chi^2 = 13.02$; $P = 0.0091$). The post-test contemplation stage score was predicted ($F = 6.56$; $P = 0.003$; $R = 0.46$) with post-test TECVASP score and pre-post difference in TECVASP score. By reducing the patients' perception of their quality of life, this brief nursing intervention facilitated a favourable increase in the motivation for change among these workers and was effective in 12% of cases.*

KEY WORDS: *alcohol, cannabis, cocaine, entertainment workers, nursing interventions classification.*

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INTRODUCTION

On 8 November 1995, Spanish Law 31/1995 on the Prevention of Occupational Hazards (LPRL; Ley de Prevención de Riesgos Laborales) (INSHT 1995) was published to help guarantee safety in the workplace. Despite this, 607 fatal accidents occurred at work in Spain in 2016 (Ministerio de Empleo y Seguridad Social 2016), with alcohol and drugs causing 45% of these incidents (Fernández Domínguez 2015). The main reason for such high consumption may be the pursuit of pleasure itself, because these substances release dopamine in the nucleus accumbens and so they produce artificial rewards and create a need for the user's continued consumption (Noël *et al.* 2013). Nevertheless, the daily work of recovery, without underestimating the neural mechanisms associated with desire, compulsion, and self-control, is a human process that is most effectively pursued in the idiom of purposeful action, meaning, choice, and consequence (Satel & Lilienfeld 2014).

Entertainment-sector workers are responsible for assembling and mounting all the facilities required for events (including stages, sound towers, lights, video screens, backdrops, and bars). These workers are one of the groups with the highest worldwide consumption of psychoactive substances (Addiction 2017; UNODC 2015) (e.g. consumption in France is 22%, 17% in Spain, and 16% in the Netherlands) (Addiction 2017).

The internal motivation of people to abandon the use of an addictive substance can be influenced by various factors such as interventions by health professionals, the person's desire to change, their belief that they can change, the number of reasons to change, their perception of the relationship between substance use and their problems, and the person's commitment to change (Ziedonis *et al.* 2005). One type of intervention carried out by health professionals is group therapy – a therapeutic tool widely used in the treatment of addictions (Arco Tirado *et al.* 2005; Banderas Rodríguez *et al.* 2010; Estopiñán *et al.* 2009; Monras *et al.* 2000; Vonk & Thyer 1999). The group helps individuals to accept and understand their disease, gives patients tools to become autonomous, prepares them for situations where they may risk relapse, increases their motivation to stay abstinent, decreases the tendency towards denial of their problems, and responds to the need for social adaptation. Therapy enhances patients' self-reliance, helping them to recognize risky situations and to implement alternative ways of thinking so that they can avoid consumption (Estopiñán *et al.* 2009).

One of the functions of nurses during their daily clinical practice is to identify their patients' needs using the North American Nursing Diagnosis Association (NANDA) taxonomy. Once these deficiencies are detected, they set some realistic and desirable objectives based on the Nursing Outcomes Classification (NOC), and then, they design specific intervention programmes to respond to these needs based on the Nursing Interventions Classification (NIC). Mental health nurses must plan these interventions to allow their patients to recognize the causes or situations that negatively affect their mental health and to teach them different ways to cope with these influences (Caminero Luna & Castelo Sardina 2012).

Given both the high levels of substance consumption among entertainment-sector workers and that nurses must identify and treat this consumption, we designed a brief motivational intervention programme for these workers with the goal of improving their motivation to stop using psychoactive substances (in this case, alcohol, cannabis, and cocaine) and to adjust their perception of risk and of their quality of life to match reality (Arco Tirado *et al.* 2005; Vonk & Thyer 1999). The objectives of this study were to: (i) evaluate the consumption of substances by entertainment-business workers from a nursing perspective using the NANDA criteria; (ii) demonstrate the effectiveness of a brief motivational nursing intervention using the NIC; and (iii) using the NOC, check whether changes in these patients' perception of their health-related quality of life after this nursing intervention influenced their motivation to change.

METHODS

This was a two-staged study: the first part was transversal and observational, and the second was semi-experimental.

Transversal observational phase

A total of 284 entertainment-sector workers, selected by non-probabilistic sampling, participated in this phase. The inclusion criteria for participation were as follows: (i) age between 18 and 65 years; (ii) working conditions that fulfilled the LPRL; and (iii) acceptance of the informed consent to participation. Using two self-completed questionnaires, the Alcohol Use Disorders Identification Test (AUDIT) (Babor *et al.* 2009) and CAGE-AID (an acronym of the keywords used: 'cut-down-annoyed-guilty-eye-opener'; Adapted to Include Drugs) (Brown & Rounds 1995), we explored the prevalence of

substance use. The Evaluation of Quality of Life in Psychoactive Substance Addicts Test (TECVASP) (Lozano Rojas *et al.* 2007, 2015) was used to measure the health-related quality of life (HRQoL) specifically in patients addicted to psychoactive substances.

Semi-experimental phase

A total of 50 entertainment-business workers who met the inclusion criteria described above were included consecutively in this phase. In addition, these workers also had to give their specific written informed consent for the intervention undertaken in the second phase. For the interventions, these participants were distributed into groups of 10. This phase had a pre–post design (Salamanca 2013; Salinero 2004), with the aim of verifying if our brief motivational nursing intervention influenced the participants' perceptions of their HRQoL and their motivation to change. For this purpose, the EuroQol-5D (EQ-5D; version 3L), (Pradas Velasco *et al.* 2009; Van Reenen & Oppe 2015) and TECVASP (Lozano Rojas *et al.* 2007, 2015) generic and specific questionnaires were administered before and after the intervention to measure the HRQoL, and motivation to change was evaluated using The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES 8D) (Miller & Tonigan 1996) personal drug-use questionnaire, which records the main stages of change proposed by Prochaska and DiClemente (Lois Ibañez & Álvarez García 2010; Prochaska & DiClemente 1982; Rubio *et al.* 2015).

Based on NANDA diagnosis (NANDA International 2015) recommendations, entertainment-sector workers were asked to record their perceptions and the meaning of their substance-use problem in a diary. The intervention was subsequently designed based on brief motivational psychoeducational therapy (BMPT) (Haro *et al.* 2006) it lasted an average of 90 min and followed the following structure: (i) brainstorming the concepts of health, lifestyle, and substance-use prevention; (ii) analysis of a work accident at an international rock group concert, which was used to generate (iii), a debate on consumer habits (30 min); (iv) discussion of the substance types and classifications known by the participants; (v) Prochaska and DiClemente's stages of change and (vi), the consequences of drug use (50 min); and finally, (vii) a true/false quiz used to discuss myths and beliefs about drugs (10 min). The appointments with the participants were made when they finished their work shifts so that the intervention would not interrupt their working days, and a total of 7

intervention groups were organized between May and October 2016 in different autonomous communities (regional governmental areas) in Spain.

Data analysis

Statistical analysis of the data was performed using IBM SPSS Statistics (version 19.0) (Armonk, New York, U.S.A.) and Microsoft Excel software. A descriptive analysis was carried out to characterize the study population, and the prevalence of consumption of each substance was estimated according to the participant's job position and their working conditions. In workers who consumed at least one psychoactive substance, we evaluated their perception of their own risk due to their consumption.

To compare pre–post differences in quantitative dependent variables (EQ-5D, TECVASP and Socrates 8D scores), Student's *t*-test for related samples was used. To compare pre–post proportion of participants in each motivational stage, chi-squared was used. Linear regression was performed to predict contemplation score by perception of HRQoL using stepwise method. *F* probability ≤ 0.05 was used to be included, and *F* probability ≥ 0.10 was used to be excluded of the model. In all our statistical analyses, *P*-values of 0.05 or less were considered significant.

Ethical–legal aspects

This study was approved by the Ethical and Scientific Committee at the Provincial Hospital of Castellón. The SOCRATES questionnaire is open access and we obtained permission for the use of the EQ-5D and TECVASP questionnaires from the EuroQol Research Foundation and the survey's creators, respectively. To guarantee the confidentiality of the study's participants, their identities were dissociated from their data, access to the database is restricted, and the information is stored in an encrypted form.

RESULTS

Sociodemographic and labour characteristics

Of the 284 individuals studied, 82.3% were male ($N = 234$) and their mean age was 31.8 years ($SD = 8.2$ years); 49% ($N = 139$) of the sample had received baccalaureate or vocational training, while 26% ($N = 75$) had received only a basic (or no) education. The majority of the study participants lived with their families (74%, $N = 210$). Table 1 shows data regarding the work

TABLE 1: Sociodemographic characteristics of the entertainment-sector workers included in the study (N = 284)

	%	N
Job position		
Office	23.2	66
Stage	53.5	152
Driver	7.4	21
Other	15.8	45
Reason for job choice		
To study/earn an income	23.6	67
Regular work	25.4	72
Unemployed	18.7	53
Enjoy this type of work	29.6	84
Other	2.8	8
Contractual relationship		
Unknown/No response	14.1	40
No contract	7.7	22
Temporary <6 months	22.5	64
Temporary 6–12 months	4.2	12
Temporary >12 months	4.9	14
Work or service	34.9	99
Permanent	11.6	33
Night work		
Unknown/No response	10.2	29
Always	6.0	17
Frequent	22.9	65
Quite often	13.7	39
Occasionally	28.2	80
Never	19.0	54
Rotating shift work		
Unknown/No response	12.3	35
Always	10.6	30
Frequent	20.8	59
Quite often	14.4	41
Occasionally	21.8	62
Never	20.1	57
Perception of work-related hazards		
Unknown/No response	10.6	30
Extreme	2.5	7
High	13.0	37
Average	31.7	90
Low	29.6	84
None	12.7	36

conditions of the individuals included in the study. Of note, 45.8% worked shifts and 42.6% worked at night.

Diagnosis and characteristics of substance use

Based on an ad hoc questionnaire and the observation and interview of the participating subjects, 6 NANDA diagnoses were identified. These diagnoses were 00099 (ineffective health maintenance), 00188 (tendency to adopt behaviours that are risky for health), 00063 (dysfunctional family processes), 00229 (risk of being ineffective in relationships), 00146 (anxiety), and

00177 (stress overload) (NANDA International 2015), with the common factor among all these being substance abuse.

Of the entertainment-sector workers surveyed, 99% reported having consumed, at any time in their lives, one or more of the following: alcohol, cannabis, cocaine, amphetamines, inhalants, hypnotosedatives, hallucinogens, or opiates. The most commonly used substances were alcohol (94.72%) and cannabis (83.45%). Substance consumption was highest in participants aged between 21 and 39 years. The average daily consumption was 5.54 standard drinks units (SDUs) of alcohol, 3.08 grams of cannabis, and 1.32 grams of cocaine; 66% of the workers surveyed were polyconsumers, with alcohol and cannabis being the most frequent combination. The other characteristics of substance use among these participants are shown in Table 2.

We calculated whether there was a statistically significant difference in the consumption of substances according to sex, working conditions, or education (Table 2). Women consumed alcohol more often than men, while men consumed cocaine more frequently than women; we did not find any differences in the consumption of cannabis. Most shift workers who also worked at night consumed at least one of the substances studied, and this percentage was significantly higher than for workers with better labour conditions. No significant differences were found in consumption according to education.

Analysis of the nursing outcomes classification results after performing the brief motivational nursing intervention using the nursing interventions classification

According to the EQ-5D, after the 50 participants received the brief motivational nursing intervention, their average health perception score reduced from 7.99 to 6.50 points (Table 3). Thus, the patient-perceived HRQoL usually corresponded to diagnosis code 11111 (without apparent health problems; 60%, N = 30), but after the intervention this reduced (36%, N = 18), and several health states were newly perceived by the participants. The results obtained with the TECVASP questionnaires were similar: the initial mean score was 89.16 which reduced to 83.48 after participating in the intervention (Table 3).

According to the SOCRATES 8D questionnaire, before the intervention almost all of the participating workers were in the pre-contemplative stage of change (88%, N = 44); in other words, they all obtained a

TABLE 2: Characteristics of consumer habits among entertainment-business workers (N = 284)

Item	Type	%		N	
Weekly consumption over the past 3 months	Alcohol	33.8%		96	
	Cannabis	8.9%		25	
	Cocaine	3.2%		9	
Daily consumption over the past 3 months	Alcohol	36.6%		104	
	Cannabis	35.2%		100	
	Cocaine	1.8%		5	
Reasons for consumption	Pleasure	70.1%		199	
	Personal problems	12.3%		35	
	Social reasons	10.2%		29	
	Perform better	8.1%		23	
	Boredom	7.7%		22	
	Disease	2.8%		8	
	Work problems	2.5%		7	
Perception of risk regarding consumption		Low	Medium		High
	Alcohol	62.9% (N = 168)	33.6% (N = 91)		4.4% (N = 12)
	Cannabis	65.6% (N = 70)	26.6% (N = 69)		7.7% (N = 20)
	Cocaine	73.9% (N = 167)	11.9% (N = 27)		14.2% (N = 32)
Attempts to reduce consumption	No, never	Alcohol	Cannabis	Cocaine	
		77.9% (N = 208)	66.7% (N = 158)	75.7% (N = 103)	
	Yes, in last 3 months	12.0% (N = 32)	13.1% (N = 31)	8.1% (N = 11)	
	Yes, over 3 months ago	8.2% (N = 22)	17.7% (N = 42)	11.8% (N = 16)	
	No longer consumes	1.9% (N = 5)	2.5% (N = 6)	4.4% (N = 6)	
Consumption according to sex		♂	♀	d	P
	Alcohol	93.4% (N = 219)	100% (N = 50)	-5.908	<0.001
	Cannabis	83.3% (N = 195)	86% (N = 43)	-2.333	0.313
Consumption according to working conditions		Does not consume	Does consume	d	P
	Rotating shift work	28.75% (N = 35)	71.25% (N = 86)	-6.623	<0.001
	Night shifts	27.02% (N = 35)	72.98% (N = 95)	-7.402	<0.001
Consumption according to education		Higher education	Baccalaureate or vocational training	No education or basic education	
	Alcohol	25% (N = 65)	50% (N = 131)	26% (N = 68)	
	Cannabis	25% (N = 53)	50% (N = 118)	26% (N = 63)	
	Cocaine	16% (N = 22)	55% (N = 75)	29% (N = 40)	

P, probability of significance; d, Effect Size by Cohen's d.

TABLE 3: Pre-test versus post-test HRQoL questionnaire scores and comparisons in entertainment-sector workers (N = 50)

	PRE-TEST Mean (SD)	POST-TEST Mean (SD)	t	P	CI (95%) MD	d
EQ-5D	7.98 (1.70)	6.50 (2.30)	4.23	<0.001	0.78–2.18	0.731
TECVASP	89.16 (8.28)	83.48 (13.02)	3.38	<0.001	2.31–9.05	0.520

t = Student's t-test score; CI, confidence interval; MD, mean difference; d = effect size by Cohen's d.

score of 32 or less in the 'recognition of the problem' section and/or a score of 14 or less in the 'ambivalence' section. Table 4 shows the evolution of the scores and the percentage of subjects in each motivational phase pre- and post-testing, as well as comparisons of their means and percentages. At the end of the intervention, the stage of 6 workers (12%) had evolved: 2 from pre-

contemplation to contemplation, 2 from pre-contemplation to action, and 2 from contemplation to action.

Finally, a predictive model was obtained by stepwise linear regression for the post-test contemplation dependent-variable score ($F = 6.56$; $P = 0.003$; $R = 0.46$; standard error estimate = 6.41) which included the TECVASP post-test score ($t = 3.53$; $P = 0.001$;

TABLE 4: Scores and percentage of subjects in each motivational phase before and after the intervention, according to the Socrates 8D questionnaire

	PRE-TEST Mean (SD)	POST-TEST Mean (SD)	<i>t</i>	<i>P</i>	CI (95%) MD	d
Pre-contemplation	8.48 (3.95)	10.12 (4.57)	2.49	0.015	−6.08/−2.07	0.64
Contemplation	13.06 (5.50)	17.14 (7.11)	4.08	<0.001	−2.95/−0.32	0.38
Action	16.76 (6.94)	18.74 (7.91)	1.67	0.100	−4.35/0.39	0.26
	% (n)	% (n)	χ^2	<i>P</i>	V	<i>P</i>
Pre-contemplation	88% (44)	84% (42)	13.02	0.009	0.51	0.001
Contemplation	12% (6)	8% (4)				
Action	0% (0)	8% (4)				

t = Student's *t*-test score; χ^2 = chi-squared test; CI, confidence interval; MD, mean difference; d = effect size by Cohen's d, V = effect size by Cramer's V.

$\beta = -0.73$; 95% CI [−0.62, −0.17]) and the difference between the pre-test and post-test TECVASP scores ($t = 2.26$; $P = 0.028$; $\beta = 0.46$; 95% CI [0.03, 0.53]). In initial, model was included TECVASP and EQ-5D post-test scores and the differences between the pre-test and post-test TECVASP and EQ-5D scores. The model was created in two steps, and the excluded variables were post-test EQ-5D score and the difference between the pre-test and post-test EQ-5D scores.

DISCUSSION

Using Majory Gordon's NANDA (Gordon 1976), nursing staff diagnosed self-perception and its relationship to substance abuse in a sample of 284 entertainment-business workers; of these, 94.7% reported having consumed at least one substance at some time in their lives. Our sample had a similar general worker-consumer profile: most participants were male, about 30 years old, had received little or no education, and were living with a member of their nuclear or parental-home family (Flórez García & Recio 2012). The predominance of men in these studies also correlates with specific studies on this working environment, both in Spain (Navarro Botella 2006; Navarro *et al.* 2005) and in Europe (EMCDDA 2015).

Almost half the participants surveyed worked at night in rotating shifts (some days in the morning and others at night), worked longer than the working day limits established by law, and felt that they often had to work beyond their physical limits. The prevalence of poor working conditions in entertainment-sector workers was superior (>30%) when compared to general working population in Spain (INSHT 2011). Employees in this field who worked rotating shifts and/or did night

work tended to have poorer physical health than personnel who did not work this way and had worse physical and mental health than the average general population (Chulvi 2009).

The body is biologically primed to be active during the day, but shift work alters the basic sleep–wake circadian rhythm. When the internal body clock is altered by shift work, the risk of coronary heart disease increases by 40%, even when the effect of other factors such as certain life habits is eliminated (Chulvi 2009). When these conditions are improved by increasing people's autonomy to choose their schedule, up to 40% reported an improvement in their working environment and in their social and family life (Hakola *et al.* 2007).

In addition to showing that entertainment-sector workers have very poor working conditions, our results indicate that these conditions are related to higher substance consumption levels. The European Foundation for the Improvement of Living and Working conditions (Eurofound 2012) observed that under these types of labour conditions, workers consume more cannabis, cocaine, and alcohol. This agrees with our results in which more than 70% of the workers in our sample who consumed substances also work shifts and/or do night work.

Regarding substance consumption among workers in the entertainment sector, an average of 5.28 SDUs per day were consumed – the equivalent of 52.8 grams of alcohol a day (Llopis Llácer *et al.* 2000). Considering the WHO's recommendations (World Health Organization 2000) that no more than 20 grams of alcohol be consumed per day for women, or 40 grams a day for men (Anderson *et al.* 2008), the entertainment-sector labour population shows harmful levels of consumption (Ochoa & Madoz 2008; Magnavita *et al.* 2008;

Rodríguez Santos *et al.* n.d.; Ministerio de Sanidad 2015; EMCDDA 2015). Alcohol was the most consumed substance in the 3 months prior to the study, 92% consumed it monthly, and of note, more than 60% did so daily; it should also be noted that more than 74% used cannabis and around 28% used cocaine monthly. This prevalence of consumption is higher than in the general population in Spain (Ministerio de Sanidad, S.S. e I 2015) where the average alcohol consumption in the month prior is 25%, for cannabis it is 6.6%, and for cocaine it is 1%; in Europe (EMCDDA 2015) annual consumption is 5.7% and 1% for cannabis and cocaine, respectively. The consumption detected in our study is also higher than among the general working population in our area, where the incidence of consumption was lower (for alcohol it was 8.9%; for cannabis, 4.5%; and for cocaine, 3.7%) (Navarro *et al.* 2005).

This study confirmed our main hypothesis that a brief motivational nursing intervention would diminish the perception of the HRQoL in entertainment-sector workers who consume psychoactive substances, which in turn would increase their motivation to change. Thus, the scores on the EQ-5D questionnaire used to generically measure HRQoL (Pradas Velasco *et al.* 2009), decreased by 1.49 points after our intervention. Similarly, the average score after the intervention decreased from 7.4 to 6.5 points on the specific TECVASP HRQoL survey (Ministerio de Trabajo e Inmigración 2010). Evaluation of quality of life has also been shown to be useful in other areas such as in primary care, especially when the patients' perceptions are incorporated as an objective NOC to evaluate health outcomes (Madrigal de Torres *et al.* n.d.).

The perception of HRQoL is also the variable that best determines changes in the motivational stages of patients who use substances. Thus, we demonstrated that a brief motivational nursing intervention lowered patients' perceptions of their HRQoL to match reality, which encouraged pre-contemplating-stage patients to move into the contemplation phase (Alonso-Castillo *et al.* 2008; Bóveda Fontán *et al.* 2013; Ministerio de Sanidad, S.S. e I 2015). The WHO states that for an intervention to be beneficial, at least one in 10 individuals must benefit from it; in other words, the efficiency must be at least 10%. In our case, 6 of the 50 cases benefited from our intervention, and so the efficiency was 12% – one more individual than the minimum threshold set by the WHO.

In addition, our linear regression analysis results also indicated that the intervention affected the

participants, most of whom showed a positive motivational change. These linear regressions showed an inverse linear relationship so that the scores were lower for workers who were in a pre-contemplative stage before the intervention and higher for their perception of HRQoL. The less pre-contemplative a worker was, the better their perception of their HRQoL. As workers' awareness of their problems increased and so their stages of receptiveness to change altered, their self-assessed motivation for change score increased and their HRQoL score decreased.

Finally, we would like to emphasize that this study is limited by the non-probabilistic sampling of convenience that we used, which means that care must be exercised before generalizing the results. Another limitation is the study's semi-experimental design meaning that it is impossible to compare these results to groups of substance-consuming workers who did not receive a nursing intervention. This single arm study provides weak evidence for the effect of the intervention, and hence, the results should be taken with caution.

CONCLUSIONS

We found that the prevalence of alcohol, cannabis, and cocaine consumption in the entertainment sector is higher than that of other labour sectors and in the general population. There are gender differences in the pattern of consumption, with cocaine consumption being significantly higher in men than in women. The perception of HRQoL among entertainment workers decreased after our brief nursing intervention, both when measured with the EQ-5D and the TECVASP questionnaires. In addition, by modifying the perception of the study's participants, this intervention facilitated a favourable change in their Prochaska and DiClemente stages of motivation for change. Although all the changes in these phases were positive, it should be noted that 4 workers went from a state of pre-contemplation to one of contemplation, and so the best results were obtained in the recognition phase of patient's health problems.

RELEVANCE FOR CLINICAL PRACTICE

What is already known about the topic?

- Entertainment-business workers in Spain present a high prevalence of alcohol, cannabis, and cocaine consumption.

- Perception of quality of life related to health is related to individuals' motivation to seek treatment for substance use.

What this paper adds

- The very poor working conditions of entertainment-sector workers are related to their higher consumption of substances.
- A brief, motivational nursing group intervention reduced these individuals' perceptions of their health-related quality of life.
- In turn, this increased these patients' motivation to change and seek treatment for their substance consumption problem.

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