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Quality of life, social functioning, family structure, and treatment history associated with crack cocaine use in youth from the general population

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Objective: To assess the relationship between crack cocaine use and dimensions of quality of life and social functioning in young adults.

Methods: This was a cross-sectional, population-based study involving 1,560 participants in Pelotas, Brazil. Crack cocaine use and abuse were investigated using the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) inventory. Outcomes of interest were quality of life, religiosity, and social functioning in terms of education, occupational status, family structure, and medical treatment history.

Results: Lifetime crack cocaine use was associated with poor quality of life, worse functioning, impaired academic performance, and lower religious involvement. A greater maternal presence and higher paternal absence were more also more pronounced in crack cocaine users, who were also more likely to seek psychological and psychiatric treatment than the general population.

Conclusion: Quality of life was severely impacted by crack cocaine use, especially in terms of general and physical health. Social functioning also differed between the general population and crack users, who had lower educational attainment and religious involvement. Maternal presence, paternal absence, and mental health-seeking behaviors were also more frequent among crack cocaine users, although these individuals reported lower rates of treatment satisfaction. Crack cocaine users also had significant social impairment, so that interventions involving family management and a greater focus on general health, quality of life, and functioning may make crucial contributions to the recovery of this group.

Keywords: Crack cocaine; substance use disorders; religion; quality of life; treatment

Introduction

Crack cocaine use has become an important public health concern in Brazil,[1] with a growing demand for outpatient and inpatient services in recent years.[2,3] Nevertheless, providing treatment to this population is complicated by low adherence, resulting from a profile characterized by impairment of social functioning and quality of life: crack cocaine users often face high unemployment rates, occupational problems, low education levels, and poorly structured, conflict-ridden families.[4]

Emotional support and a sense of belonging have both been found to have a positive effect on life satisfaction in drug users.[5] Conversely, low education levels and unemployment generally tend to be associated with poorer treatment outcomes and increased drug use.[6,7] Lower levels of social support may also predict relapse,[8]

while higher social support levels are associated with reduced substance use.[9]

In light of recent studies showing a relationship between quality of life and the outcome of drug dependence treatments,[10] research into this area has grown at an exponential rate. Even though only a few of these studies have focused on crack cocaine users,[11] those that do also report global impairment in quality of life in this population, with lower scores in all domains of the World Health Organization Quality of Life (WHOQOL)-bref as compared to individuals without substance use disorders.[12] The quality of life of active crack cocaine users, as well as that of patients with other substance use disorders, is inversely proportional to the frequency and severity of drug use,[13] In cocaine users, impairments in quality of life may appear as early as the initial phases of drug dependence.[14] One study states that the most important implication of quality of life in patients with substance disorders is its impact on the maintenance of abstinence.[5] In crack cocaine users, life satisfaction has been identified as a predictor of remission status for up to two years after the time of assessment.[15]

Investigating crack cocaine user access, adherence, and satisfaction with treatment is also relevant, since

health-care seeking behaviors are an important component of adaptive functioning. Crack cocaine use is a public health burden, and accounts for a growing proportion of hospitalizations, corresponding to 70% of admissions for cocaine-related problems.[2,7] Additionally, several studies have shown an inverse association between religious involvement and substance use,[5] as well as a relationship between religious participation, improved quality of life, and response to treatment in youth with substance-related disorders.[5,16] It is not surprising that spirituality and religion have been included as one of the domains of the WHOQOL.[17] Religious involvement has been hypothesized to reduce the impact of life stressors, and consequently, decrease their power as triggers of drug use.[16]

Research has also suggested that adherence to substance use treatment may be directly or indirectly affected by quality of life.[18] Additionally, social and relational variables may contribute to patient prognosis, since stable emotional bonds have been found to have beneficial therapeutic effects on drug user recovery and treatment. Like internal motivation, social support has also been found to be associated with improved mental health and reduced substance use.[18] Reviews on the treatment of crack cocaine use have found that quality of life, social support networks, and family structure may have a significant impact on treatment outcomes.[19]

Such findings underscore the need for multidimensional assessments of social functioning in substance dependence disorders, ranging from macro aspects such as relationships with social institutions and access to health care, to micro factors, which include perceived quality of life and social support. In spite of the social and economic costs associated with the ineffective treatment of crack cocaine use, surprisingly few population-based studies have investigated the impact of social functioning, occupational and educational aspects, religious involvement, parental structure and support, and medical treatment history on access to health care, adherence, and satisfaction with treatment in users of this substance. Given that inadequately treated mental illnesses are a major cause of incapacitation and poor quality of life,[20] population-based studies would be extremely useful to produce generalizable findings and to provide a more comprehensive assessment of the nature of the conditions studied, with less susceptibility to the biases inherent in clinical samples of treatment-seeking patients. Therefore, the present study aimed to estimate the lifetime prevalence of crack cocaine use and of factors associated with quality of life and social functioning (as defined by a social support network, parental structure, academic and occupational performance, and relationship with social institutions) in a population-based sample of young adults from the city of Pelotas, Brazil.

Method

Participants

This cross-sectional studied was performed on a population-based sample recruited using the following inclusion criteria: age between 18 and 24 years, sufficient cognitive ability to understand and answer the assessment instruments, and providing written informed consent for participation. Because of the study's naturalistic design, no exclusion criteria were applied. All participants lived in the metropolitan area of Pelotas, state of Rio Grande do Sul, Brazil. Pelotas is the third most populous city in the state, and a major regional hub. The city also has a long history of population studies. In countries such as Brazil, which struggle with social inequality, the comprehensive view produced by population-based studies is especially advantageous, since it provides insights into the long-term consequences of several conditions across different socioeconomic levels.[21] The present sample was recruited through random selection of 89 of the 448 census tracts in the city. The size of the sample was originally calculated for a study of risk factors for suicidal ideation in the age range of interest.[22] For the present secondary analysis, the number of participants was increased by 30% to account for losses and refusals to participate, as well as to help control for confounding factors.[22] The final sample included 1,560 participants. The study was approved by the Research Ethics Committee of the Universidade Católica de Pelotas, an institution associated with the Brazilian National Committee for Ethics in Research (CONEP).

Outcomes and instruments

This exploratory analysis assessed the impact of crack cocaine use on the following outcomes: quality of life, social functioning in terms of education, occupational status, family structure, and religiosity, and medical treatment history.

Lifetime psychoactive drug use was screened using the Brazilian Portuguese version of the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST),[23] which has been found to be psychometrically adequate for detecting cocaine use. Questions regarding crack use were added to the original instrument, as described in the literature.[24] Due to the low rates of crack cocaine abuse and dependence in the sample, lifetime crack use was selected as the variable of interest in this study.

Quality of life in the previous month was assessed using the Short Form 36 (SF-36), which covers the following domains: general health, role-physical, role-emotional, mental health, social functioning, vitality, physical functioning, and bodily pain.[25] Higher scores on the SF-36 are indicative of better self-perceived quality of life. Data regarding family structure, perceived support, religion, and history of psychological or psychiatric treatment were obtained using a behavior and health questionnaire designed by the researchers. Family structure, and religion were evaluated based on self-perception at the time of the assessment.

The history of psychotherapeutic treatment was evaluated using the following questions: Have you ever had a nervous breakdown?, Have you ever consulted a psychiatrist or psychologist?, Have you ever or are you currently receiving treatment from a psychiatrist or psychologist? Subjects who answered affirmatively were

asked to respond to the following questions based on their last treatment: Where did you receive treatment? (treatment was defined as at least two sessions over the course of a month; the following alternatives were provided to the patient: private clinic, hospital, psychosocial care center, outpatient clinic, or other), How did you obtain access to treatment? (options: public health system, health insurance, or private health care), How satisfied were you with your last treatment? (options: not satisfied, satisfied, very satisfied), Did you begin treatment, but abandoned it before completion?, If so, why did you abandon treatment? (options: long interval between sessions, dissatisfaction with treatment outcome, dissatisfaction with therapist, perceiving problem as resolved, other reasons), Have you ever been hospitalized for a nervous breakdown?, If so, how many times?

All participants completed a sociodemographic questionnaire containing a measure of socioeconomic status developed by the Brazilian Association of Research,[26] based on household material possessions and the education level of the head of the family. The results of this instrument were used to dichotomize participants into high (levels A, B or C) or low socioeconomic status groups (levels D and E).

Data analysis

Chi-square tests were used to compare categorical variables while multiple logistic regressions were employed to evaluate the association between independent variables and lifetime crack cocaine use. Three regression models were constructed. The first focused strictly on bivariate odds ratios (OR), the second was adjusted for gender and socioeconomic status (levels A, B or C vs. levels D or E), and the third controlled for lifetime cocaine use in addition to the two aforementioned variables. The three models were then compared in terms of their ability to control for confounding variables in spite of the small number of individuals with lifetime crack cocaine use in the sample. The models were tested using multiple linear regression analysis, so as to assess the impact of crack cocaine use on participant scores on SF-36 subscales.

Results

The demographic characteristics of participants are described in Table 1. The prevalence of lifetime crack use in the sample was 2.51% (95%CI 1.79-3.41), with men being more likely to have a history of crack use than women. Mean age was 21.11 years for crack cocaine users vs. 20.49 years for those without a history of crack cocaine use. Of 39 individuals with a history of crack cocaine use, 28 (71.8%) made occasional use of the drug, while 11 (28.2%) were dependent on the substance. The lifetime prevalence rates of tobacco, alcohol, and cannabis use were 44.7, 81.5, and 18.2% respectively.[27] Data regarding religious involvement is also displayed in Table 1.

Crack cocaine use was also found to be associated with low education levels (p < 0.001). The analysis of residuals showed that among subjects with a history of crack cocaine use, 85.2% had primary education and 14.8%reached secondary education. Of non-users, 41.2% of subjects had primary education, while 53.6% had reached primary education. The remaining subjects had some higher education.

Results regarding family structure, perceived parental support, and history of medical treatment can be found in Table 2. Crack cocaine users had lower quality of life scores than the general population, corresponding to poorer general, physical, emotional and mental health, as well as greater bodily pain. Even after adjusting for lifetime cocaine use, a history of crack use was found to have a significant impact on role-physical and general health scores (Table 3).

Previous psychiatric treatment was also more frequent among crack cocaine users than the general population (44 vs. 26%; chi-square = 6.11; p = 0.014). These results remained significant even after adjusting for the effect of lifetime cocaine use. Upon further inquiry, 62.5% of crack cocaine users reported having sought help in clinics and private practices while 12.5% attended hospitals. In contrast, the prevalence of treatment seeking in the general population was 2%. Subjects with a history of crack cocaine use were also more likely to seek hospital care for nervous breakdowns (5.1%) than participants in the general population (2.4%).

A total 12.5% of crack cocaine users as compared to 7% of individuals in the general population reported attending psychosocial care centers (CAPS).

Treatment was funded by government health insurance (the Brazilian Unified Health System) in 33.3% of crack cocaine users, while 22.2% had private insurance and 33.3% paid for their own medical expenses. Regarding

Table 1 Sociodemographic data of young adults with and without a history of crack use

Sociodemographic variables	Crack use (n=39), %	No crack use (n=1,516), %	OR (95%CI)	p-value
Male	82.1	42.5	6.17 (2.71-14.07)	< 0.001
Caucasian	59.0	73.9	1.97 (1.03-3.78)	0.04
Attended school in the past 12 months	53.3	79.5	0.30 (0.14-0.65)	0.002
Worked in the past 12 months	69.2	66.0	1.16 (0.58-2.30)	0.677
Religious involvement	41.0	62.6	0.42 (0.22-0.79)	0.008
Socioeconomic levels A+B	25.6	37.7	1	*
Socioeconomic level C	41.0	48.5	1.25 (0.56-2.77)	0.590
Socioeconomic levels D+E	33.4	13.8	3.56 (1.54-8.24)	0.003

95%CI = 95% confidence interval; OR = odds ratio.
* Socioeconomic level used as reference.

Table 2 Family structure, support network, and medical treatment in youth with and without a history of crack cocaine use

Variables	Bivariate				Multivariate-crack*		Multivariate-crack/cocaine[†]	
	Crack use, %	No crack use, %	OR (95%CI)	p-value	OR (95%CI)	p-value	OR (95%CI)	p-value
Family structure								
Living with father	23.1	44.3	0.38 (0.18-0.80)	0.011	0.38 (0.18-0.83)	0.015	0.46 (0.20-1.05)	0.066
Living with mother	74.4	62.6	1.73 (0.84-3.58)	0.138	1.93 (0.90-4.15)	0.090	2.43 (1.05-5.64)	0.038
Living with partner	69.2	72.0	1.14 (0.57-2.27)	0.708				
Feels supported in life	92.3	96.6	0.43 (0.13-1.43)	0.167	0.44 (0.12-1.54)	0.198	0.48 (0.10-2.22)	0.345
Feels supported by mother	94.4	91.4	1.59 (0.38-6.71)	0.525	1.94 (0.45-8.35)	0.373	3.60 (0.78-16.76)	0.102
Feels supported by father	60.6	72.7	0.58 (0.28-1.17)	0.577	0.64 (0.31-1.34)	0.241	0.85 (0.38-1.93)	0.698
Treatment								
Treated by psychologist/ psychiatrist	43.6	25.9	2.21 (1.16-4.20)	0.016	2.66 (1.38-5.14)	< 0.001	1.94 (0.93-4.07)	0.080
Failure to complete treatment	55.6	45.0	1.53 (0.40-5.84)	0.538				

95%CI = 95% confidence interval; OR = odds ratio.
* Multivariate crack: controlled for the effects of gender and socioeconomic status.
[†] Multivariate crack cocaine: controlled for the effect of sex, socioeconomic status, and cocaine use.

satisfaction with treatment, 11.1% of patients were very satisfied, 44.4% were satisfied, 33.3% were slightly satisfied, and 11.1% were dissatisfied with treatment. Failure to complete treatment was reported by 55.6% of crack cocaine users. However, while this proportion may appear to be high, it was not significantly different from that found among non-users (45%) (Table 2). Analyses of treatment abandonment revealed that 60% of the crack cocaine users who interrupted their treatments did so because treatment was not satisfactory, while 40% felt that their problem had been resolved.

Discussion

Our findings revealed a strong association between lifetime crack cocaine use and poor quality of life in terms of general and physical health. This relationship remained significant even after controlling for the use of inhaled cocaine. Regarding treatment, almost half of the substance users reported seeking health care, and of those many were not satisfied with the treatment received.

Some aspects of social functioning also differed between users and non-users of crack cocaine, with the former reporting a family structure characterized by greater maternal presence and paternal absence in the home, as well as low adherence to religious practices and impaired academic performance rates. An interesting finding was that only half the individuals with lifetime crack use had studied in the 12 months preceding the present investigation. Studies have found that low education levels and academic difficulties are common among young adult substance users.[28,29] It is possible that the elevated truancy rates observed in crack cocaine users may not be exclusively caused by the substance use itself, but also by its repercussions on academic performance.[29] The presence of prior psychosocial and neuropsychological risk factors, which could affect the ability to meet social and emotional demands,[30] may also be associated with academic difficulties and make substance use more attractive to adolescents. Crack cocaine use was more frequent among participants with primary education, while most individuals without a history of drug use reported at least incomplete secondary

Table 3 Quality of life of youth in the general population and youth with a history of crack use

Variables	Bivariate				Multivariate-crack*		Multivariate-crack/cocaine[†]	
Quality of life	Crack use, mean	No crack use, mean	F	p-value	β (95%CI)	p-value	β (95%CI)	p-value
Physical functioning	89.6	92.4	1.779	0.183	-4.49 (-8.47 to -0.51)	0.027	-2.43 (-6.86 to 1.99)	0.281
Role-physical	69.9	86.1	13.312	< 0.001	-15.46 (-24.25 to -6.68)	0.001	-10.79 (-20.56 to -1.02)	0.030
General health	66.1	77.3	12.371	< 0.001	-12.76 (-19.02 to -6.49)	< 0.001	-8.80 (-15.76 to -1.83)	0.013
Vitality	63.1	60.4	0.813	0.367	-0.72 (-6.44 to 4.99)	0.804	4.57 (-1.77 to 10.90)	0.158
Role-emotional	68.4	79.5	4.047	0.044	-12.57 (-23.4 to -1.75)	0.023	-2.81 (-14.82 to 9.20)	0.646
Mental health	66.4	74.2	5.59	0.018	-10.49 (-16.83 to -4.15)	0.001	-4.18 (-11.21 to 2.85)	0.243
Social functioning	78.5	83.9	2.221	0.136	-7.27 (-14.35 to -0.18)	0.044	1.97 (-5.85 to 9.79)	0.621
Bodily pain	65.3	75.2	8.383	0.004	-11.30 (-18.03 to -4.57)	0.001	-4.13 (-11.58 to 3.32)	0.277

95%CI = 95% confidence interval; β = standardized coefficient.
* Multivariate crack: controlled for the effects of gender and socioeconomic status.
[†] Multivariate crack/cocaine: controlled for the effect of sex, socioeconomic status, and cocaine use.

education. Education levels differed significantly between groups, corroborating previous findings showing that approximately 40% of crack cocaine users do not finish primary education[31] and tend to drop out between the 4th and 8th grade. Unlike users of other drugs, very few individuals with a history of crack cocaine use reach or finish higher education.[32]

Employment rates were similar in both groups. These data are in agreement with the findings reported by a nationwide study in Brazil,[32] according to which 65% of crack cocaine users were employed at the time of the survey. However, according to the literature, most users of crack cocaine are informally or self-employed, or have odd jobs. Prostitution is also common in this population.[7,32] It is possible that the employment results in the present study refer to informal and temporary work interspersed with periods of unemployment, since this topic was only investigated by open questions regarding work in exchange for money or other goods.

Subjects with a history of crack use also had a significantly poorer quality of life than non-uses, obtaining lower scores on the general, mental, physical, and emotional health domains, as well as on the bodily pain subscale of the SF-36. A history of crack cocaine was significantly associated with worse physical and general health in this study, even when controlling for socio-economic status and lifetime cocaine use. The literature has shown that crack cocaine use may impact several organ systems, leading to impairments in general and physical health, as well as to significant discomfort.[33] In previous studies, adverse clinical outcomes were three times more frequent among crack users than cocaine users, and tend to be more closely associated with impairment in emotional well-being, reduced functioning, and more severe drug use.[34] Nevertheless, asserting the direction of causality in this case is difficult, because low quality of life may also be one of the motivations that lead to hospital admissions in crack cocaine users. Quality of life and crack cocaine use may be linked through different pathways, including the possibility of residual confounding from unmeasured variables.

Crack cocaine has also been found to have a significant impact on mental health, especially in chronic users of the drug.[33,35] However, in many cases, emotional difficulties associated with childhood trauma[30] and parental negligence, both of which are frequently reported by crack cocaine users, may precede the onset of substance use disorders and be aggravated by them. Especially in these situations, self-perceived social support from significant others and family members may play an important role in the maintenance of emotional health.[5]

The analysis of the family structure of individuals with a history of crack use revealed high rates of paternal absence from the home. This has been found to be an important risk factor for crack cocaine use. Mothers appear to be more present in the homes of crack users than in those of individuals in the general population. These findings remained significant even after controlling for socioeconomic status and lifetime cocaine use, suggesting that this family configuration may be especially common among crack users. However, self-perceived general emotional support, as well as maternal and paternal support, were similar between users and non-users of crack cocaine.

Family structure has been found to have significant functional consequences for cocaine users.[36] A psycho-dynamic explanation for the repercussions of a father who is perceived as supportive but is actually absent from the home addresses the failure of the paternal figure as a source of limits and rules, facilitating addictive beha-viors[37,38] by exposing children to a supportive but negligent and reckless caregiver. According to this hypothesis, the fathers of drug users are likely to be permissive or indifferent to their children's drug use.[39] Permissive attitudes and a perceived incapacity to control one's own children are predisposing factors to the onset and maintenance of drug use.[40]

A complementary explanation for these results is that, in contrast to the absent father, mothers, in an attempt to compensate the frustrations and limitations of reality, may have difficulty setting limits for their children, tending toward toxic levels of overprotection and impairing the development of self-control and responsibility in their children. On a symbolic level, the contrast between a nearly absent father figure and intense mother-child fusion may have significant repercussions for the child's subjectivation process and identity construction.[41] This process results in families with diffuse boundaries, intergenerational fusion, and unclear hierarchical relation-ships, in which child individuation and autonomy may represent a threat to family homeostasis.[36]

Although these hypotheses are based on well-accepted psychodynamic theories, care must be taken to ensure that the present findings are not misinterpreted. Since our study did not involve longitudinal assessments, causal relationships cannot be definitely determined, and it is possible that family vulnerability may actually be a result of substance use. In any case, family structure and support systems must still be carefully studied. Addition-ally, it should be noted that parental influence is not directly associated with cohabitation, and that the quality of family relationships is not necessarily higher among those who share the same home.[42] As such, the in-depth study of family structure and relationships and of the impact of substance use on these factors is crucial for the development of more comprehensive and effective treat-ment strategies.

Our findings regarding participant sociocultural infor-mation are in agreement with those of other studies reporting that drug use during adolescence is often associated with school delay, low socioeconomic status, and permissive parenting.[28,43]

The present study also assessed the association between substance use and another social institution that is intricately linked with quality of life and emotional stress: religion.[5] Crack users reported lower religiosity than the remainder of the population (59 vs. 37.4% reported having no religious beliefs). Religion may play a protective role against substance use in adolescents with low socioeconomic status, in addition to being a primary preventive factor for non-users, and a secondary or

tertiary preventive factor for users, due to its influence on the discontinuation of drug use and contributions to the stability of family structures.[39]

One hypothesis for these findings is that religious beliefs may act as a coping mechanism for subjects and their families, and that religious principles may help guide and control behavior in addition to providing emotional support, serving as a source of comfort in times of adversity. Therefore, religious affiliation and activities may function as protective and preventive mechanisms against drug use, and contribute to recovery and social reinsertion by providing social support and instilling prosocial religious values,[5,39] resulting in greater resilience to stress and increased coping abilities.[5] Although we do not aim to compare and contrast religious involvement to the use of psychoactive substances, both behaviors may be viewed as ancient and universal social practices which reveal the frailty of the human condition. It is possible that religion may provide a sufficiently strong sense of belonging and personal worth to decrease the reliance on drug use to attenuate feelings of emotional and social vulnerability.

Treatment

Subjects with a history of crack cocaine use place considerable demands on the health care system, possibly due to the consequences of the use of this substance on quality of life, impaired general, physical, mental, and emotional health, and social functioning. Regarding access to treatment, the present study found that individuals with a history of crack cocaine use were more likely to have received psychological and psychiatric treatment than the general population. A significant portion of these patients also sought treatment in hospitals and CAPS.

Crack and cocaine-related problems account for up to 80% of the demand for outpatient substance abuse treatment.[3] Crack cocaine use has also been found to account for up to 77% of psychiatric hospitalizations, and for 70% of the admissions of patients with cocaine-related problems,[2] at least in the state of São Paulo, which, like the states in the South of Brazil, has high rates of crack cocaine use.[1]

Nevertheless, some crack cocaine users do not seem satisfied with the treatments received. Only a small percentage of patients claimed to be very satisfied with the medical care received, and a high percentage of crack cocaine users failed to complete treatment, many of whom justified their non-adherence by their dissatisfaction with the treatment itself. Studies have shown that help-seeking crack cocaine users have more severe patterns of drug use than non-help-seeking patients, and that the former may have poorer social functioning and be more likely to interrupt treatment than the latter.[3] This occurs because treatment adherence, satisfaction, and outcomes are associated with general social determinants, and are therefore susceptible to the influence of quality of life, well-being, mental health, social support, and family structure.[18] This observation leads to a delicate issue which should be

considered in treatment planning initiatives: the families of crack cocaine users are generally described as dysfunctional (72.9%) in terms of their structure and relationship dynamics; however, family structure plays an important role in patient recovery and treatment outcomes.[19]

This psychosocial vulnerability may explain, in part, the increased use of health services by this population, which may require complex treatments by multidisciplinary teams with backgrounds in different areas of health care.[2] The unmet needs of crack cocaine users draw attention to dysfunctions in the health sector, and reveal a pronounced lack of comprehensive, integrated, and multidisciplinary services. Treatments for this population should involve family management and social reinsertion, and be tailored to the specific needs of these subjects, encompassing, for instance, psychiatric care for mental health disorders.

This is especially necessary since the treatment of comorbid conditions is essential for recovery from substance use disorders, and psychiatric treatments as well as comorbidity with other mental or substance-use disorders have a significant impact on treatment adherence and abstinence.[44] Psychiatric comorbidities were especially prevalent in the present sample.[27]

Given the low prevalence of crack cocaine use in the general population, we focused on subjects with lifetime crack cocaine use rather than on current dependence. Although this may constitute a limitation of our study, it allowed for a more conservative assessment of the extended impact of factors associated with crack cocaine use, beyond the visible impairments associated with dependence on the substance. Our study also had a low statistical power to estimate the prevalence of crack use, since it was difficult to find individuals who only used this substance. The fact that cocaine use is very commonly associated with that of crack cocaine may have impacted our ability to identify variables and comorbidities that were exclusively associated with crack use. However, the co-occurrence of crack and cocaine use in our naturalistic sample made it more representative of populations of substance users. Nevertheless, in an attempt to distinguish between the effects of the use of each substance, a conservative statistical model was used to control for cocaine use in the sample. Another limitation of the present study was our inability to evaluate crack cocaine users with comorbid psychiatric disorders as a distinct group, since this would result in an even smaller sample size.

An additional limitation of this study was that data were collected in the homes of participants. This automatically restricted our sample to subjects with a somewhat stable living condition or who had some sort of relationship with their families, which may have been a source of bias. However, a previous study reported that 90% of crack users admitted to a clinic in the city of Porto Alegre owned a home.[7] These findings differ from those reported in early studies of this population,[4] which were representative of the first wave of crack cocaine users. Unlike the subjects of earlier investigations, the crack cocaine users described in the present study were younger, tended to

have an earlier onset of substance use and more often lived at home. Recent data have revealed that most crack cocaine users, especially those who reside in non-capital cities, tend to live with their families.[32]

In conclusion, subjects with a history of crack use display impairments in several dimensions of quality of life and social functioning, such as mental, emotional, and physical health, as well as in their nuclear family structure and social productivity in terms of educational attainment and relationship with social and health institutions.

Lifetime crack use had a significant impact on quality of life, especially on general and physical health. The influence of substance use on emotional health was also an important finding of our study. The family structure of individuals with lifetime crack use has peculiarities that differentiate it from the general population even when controlling for cocaine use, and is characterized by greater maternal presence combined with higher paternal absence from the home. It is possible that the lack of paternal presence at home may reflect, more than physical absence itself, an absence of some symbolic parental functions, whose association with experimental crack use may, in turn, be indicative of weaker limits and boundaries, leading, first and foremost, to difficulties in self-regulation, and culminating in impairments in several areas of social functioning. Crack cocaine users also had higher truancy rates than non-users and were less likely to be religious, suggesting that spiritual beliefs may provide moral values and emotional support, offering comfort in times of stress and adversities.

Help seeking, especially from the health care system, is an aspect of social functioning with a clear impact on quality of life. Subjects with a history of crack cocaine use were more likely to seek psychological and psychiatric treatment; however, in spite of their high frequency of health care utilization, these individuals tended to be dissatisfied with the care received, which may have justified, in part, the significant treatment abandonment rates observed in the sample.

These data speak to the importance of developing treatment programs with a focus on increasing adherence rates and securing access to health care for non-treatment seeking users, as well as of greater investment in the reinsertion of these individuals in all areas of social life. Crack cocaine users report comprehensive social impairment, so that family management and a greater focus on general health, quality of life, and functioning may be crucial for the recovery of crack cocaine users.

Disclosure

The authors report no conflicts of interest.

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