

# Detecting Changes in Quality of Life and Psychiatric Symptomatology Following an In-patient Detoxification Programme for Alcohol-dependent Individuals: the Use of WHOQOL-100

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**Abstract.** *The present study examines quality of life (QoL) and psychiatric symptomatology prior to and upon completion of a 5-week in-patient detoxification programme with the aim to identify any changes produced following clinical intervention. A group of 46 alcohol-dependent individuals, who were consecutively admitted for detoxification in the Psychiatric Hospital of the University of Athens, were clinically-assessed at admission and just before discharge with DSM-IV, CIDI-WHO and with the Hamilton Depression and Anxiety Scales (HDRS, HARS) and the Global Assessment Scale (GAS) for depression, anxiety and overall functioning, respectively. In addition, the patients were invited to complete the World Health Organization Quality of Life WHOQOL-100 instrument. Differences between admission and discharge scores were examined using related sample t-tests. Correlations between the WHOQOL-100 scores and clinically-assessed symptomatology measures were performed. Regression analysis was conducted to investigate the correlation of clinical and socio-demographic variables with patient overall QoL. The results indicate that QoL scores increased at discharge in 16 out of the 24 WHOQOL-100 facets. In addition, patient-assessed status of health was significantly improved. Improvement was also observed in the symptomatology scales rated by the clinician, providing evidence for lower levels of depression, anxiety and a higher level of functioning. Moderate correlations were found between WHOQOL-100 domains and psychiatric symptomatology scales. Significant WHOQOL-100 gains at discharge and clinically-assessed improvement in the HDRS, HARS and GAS, provide evidence of the WHOQOL-*

*100 instrument's sensitivity to changes in clinical condition. The WHOQOL-100 measurement may be suitable for detecting QoL deficits or therapeutic gains in alcohol-dependent patients and may prove useful to mental health professionals for treatment planning.*

Alcohol abuse/dependence is a serious clinical condition, signifying a major impairment in the dependent individual's quality of life (QoL) in conjunction with the severity of alcohol misuse (1). As indicated by accumulated research evidence and clinical observation, alcohol dependence is characterised by a high degree of deterioration in physical health, psychological well-being and social life (2-4). It is noteworthy that systematic heavy alcohol consumption can induce multiple psychopathological symptoms, including depression, psychosis, social phobia or anxiety, while a higher incidence of suicide is observed (5, 6). As expected, these psychopathological conditions may produce deterioration in the psychological, cognitive, social and occupational functioning of dependent individuals, areas that define QoL.

Deterioration of different aspects of QoL is intrinsically intertwined with ill-mental health. The presence of mental illness can be directly produced by alcohol use. On the other hand, it can be part of a pre-existing or parallel psychopathology referring also as comorbidity, thereby having a confounding effect on the dependent individual's diagnosis and clinical picture (7). In any case, the detrimental effects of alcohol consumption are usually observable in several aspects of everyday life, including sleep, mobility, energy, somatic pain, interpersonal and social relations, areas that are frequently reported by alcohol-dependent patients to relate to QoL deterioration (8). The relationship between these QoL determinants and relapse and remission, is an intriguing issue that deserves to be examined in alcoholic populations (9). Furthermore, factors such as patient characteristics or clinical variables like symptomatology and comorbidity, are also important to be examined in relation to QoL and treatment outcomes (10). Other factors such as loneliness

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have also been identified to interact with alcohol abuse, implicating an effect on QoL (11).

The complexity of alcohol abuse/dependence requires specialised health services and interventions at different levels, aiming at the control of consumption, but also including the improvement of health and everyday functioning and the development of positive mental health skills (12). Regarding detoxification, it is important to consider this procedure's pre-therapeutic value, as an opportunity for raising the dependent individual's awareness about the necessity of long-term therapy and psychosocial and environmental support (13-15). It seems necessary for alcohol-dependent individuals to recognize the complexity of their problems and to realize the professional help they need against relapse (16). In addition to rehabilitation, counselling, family support, self-help groups and medication, psychotherapy has been suggested as particularly beneficial in the long course of illness and treatment, but also as a following step of a successful detoxification procedure, in order to support the patient through the phases of withdrawal and the dangers of relapse (2, 17).

To date, there is sufficient evidence that alcohol-dependent individuals experience a serious reduction in QoL related to alcohol consumption. However, there is a limited amount of systematic research on alcohol dependence treatment outcomes, including data on adherence to treatment and in-patient or out-patient detoxification procedures (18, 19). Concerning relevant medical studies, few were able to provide QoL profiles of alcohol abuse/dependent patient populations (20). It is, thus, suggested that QoL measurements with the use of standardised and culturally valid instruments, can become a useful addition of routine assessments in medical or psychosocial interventions for alcohol-dependent individuals.

Taking these observations into consideration, self-reported QoL and clinically-evaluated psychiatric morbidity were investigated in alcohol-dependent individuals, prior to and upon discharge from a 5-week in-patient detoxification programme. The sensitivity of the World Health Organization Quality of Life instrument WHOQOL-100, was examined in detecting expected clinical changes. Remission of psychiatric symptomatology was expected to be brought about in the context of this in-patient detoxification programme.

## Patients and Methods

**Subjects.** Forty-six subjects (37 males and 9 females) fulfilling DSM-IV diagnostic criteria for alcohol abuse/dependence (primary alcoholism) (1), were admitted consecutively for detoxification in a specialised in-patient alcohol addiction unit in the University of Athens, Department of Psychiatry, Eginition Hospital and were evaluated for inclusion in the study.

All subjects were volunteers in the detoxification programme and for the study's protocol. They had been informed of their rights

to refuse or discontinue participation at will and without prejudice. Informed consent was obtained from each participant and detailed information on the objectives of the study and the research therapeutic protocol was provided.

Ethical permission for the study was obtained in accordance with the ethical standards of the relevant committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 1983.

All participants fulfilled the following criteria: a) absence of serious physical illness such as cancer, autoimmune disease etc; b) absence of another drug abuse; c) age above 22; d) absence of another pre- or co-existing major psychiatric disorder on the DSM-IV axis I.

The mere presence of affective symptoms was not considered to be an exclusion criterion. However, subjects with alcohol abuse/dependence who fulfilled the DSM-IV diagnosis of a depressive disorder were excluded from the study only in those cases where a major depressive episode had been recorded prior to the onset of alcohol abuse. When the depressive episode was present concurrently with a period of alcohol abuse, these subjects were not excluded.

**Alcohol consumption.** Participants were assessed for the pattern of alcohol abuse through the World Health Organization-WHO Schedule on Alcohol Abuse/Dependence (3). Alcohol consumption, one month prior to admission, was in excess of 120 g/per day ( $330.68 \pm 158.16$ ). Biochemical examinations revealed that all participants manifested a degree of liver dysfunction on admission, which recovered during the course of the detoxification program.

**Mental health.** Participants were diagnosed by the Schedules for Clinical Assessment in Neuropsychiatry and were assessed through the World Health Organization (WHO)-Composite International Diagnostic Interview (CIDI) (21), the section on alcohol consumption, which assesses the pattern of alcohol abuse, the potential major life problems related to alcohol consumption and the occurrence of withdrawal symptoms in the past. A structured questionnaire similar to the one proposed by WHO (22) was also used to assess the pattern of alcohol use, which included items related to lifetime, past year and past month frequency and quantity of alcohol use. Sociodemographic data including age, gender, education, marital, socioeconomic and occupational status, together with previous psychiatric history were also recorded. Participants were further assessed by psychiatrists, using the 15-item Hamilton Anxiety Rating Scale (HARS) and the 24-item Hamilton Depression Rating Scale (HDRS) (23, 24). Overall functioning was assessed through the Global Assessment Scale (GAS) at the time-points of assessment described below (25, 26).

**Quality of life.** Self-assessed QoL was measured with the World Health Organization quality of life WHOQOL-100 questionnaire (27). This assessment system was developed following an extensive collaborative and interactive work across 15 culturally and linguistically different field-centers with the aim to produce a generic and inclusive QoL instrument for cross-cultural and international use. The WHOQOL-100 questionnaire was specifically designed to include aspects of QoL applicable to a wide range of healthy and non-healthy populations and thus has been applied and tested extensively in a number of studies worldwide (28). It is a self-report instrument consisting of 100 items organized in 24 thematic

facets or factors, which load onto 6 thematic domains. In addition, a facet referring to overall QoL/health is included. The answers to all the facets are rated on a Likert scale from 1-5, with the higher values reflecting higher levels of QoL. For healthy populations, the mean values for each of the 6 domains are identified as follows: a) physical health ( $70.4 \pm 14.8$ ); b) psychological well-being ( $67.1 \pm 13.0$ ); c) level of independence ( $79.4 \pm 14.3$ ); d) social relationships ( $67.7 \pm 14.3$ ); e) environment ( $63.1 \pm 14.9$ ) and f) spiritual/religious/personal beliefs ( $60.8 \pm 23.5$ ); for the overall QoL/health domain the values are ( $67.9 \pm 17.9$ ) (29). The language version used in this study was produced according to the WHO protocol and was field-tested providing satisfactory psychometric properties with Greek patient and healthy populations (30, 31). For the Greek healthy population, the respective domain-values are: physical health ( $70 \pm 14$ ); psychological well-being ( $66 \pm 11$ ); level of independence ( $73 \pm 14$ ); social relationships ( $62 \pm 14$ ); environment ( $57 \pm 11$ ), spiritual/religious/personal beliefs ( $73 \pm 16$ ) and overall QoL/health domain ( $70 \pm 15$ ).

**Overall health.** Subjective health status was measured by the General Health Questionnaire (GHQ-28) (32). The instrument examines four areas of health in the following sub-scales: a) somatic symptoms, b) anxiety and insomnia, c) social dysfunction and d) severe depression. The version used for this study has demonstrated satisfactory psychometric properties in Greek populations. (33). The questions were rated on a Likert scale of 0-1-2-3.

**Timing of assessment.** The assessment at baseline (T0) was conducted during the 4th or 5th day following the patient's admission to the hospital's alcohol addiction unit. The second assessment (T1) was conducted 5 weeks later, upon termination of the detoxification programme and during the last day before discharge.

**Detoxification programme.** Upon admission, alcohol detoxification was initiated over a period of 7 to 10 days. The detoxification procedures included vitamin replacement (vitamins of B complex, vitamin C, vitamin E) and oral administration of diazepam (10-40 mg daily in divided doses), with gradual tapering off over the course of a week. Thereafter, participants followed a standard programme, lasting 5 weeks. The programme involved a specialised abstinence therapeutic method, whereby special care was given to the patient's physical health, family and interpersonal problems. Throughout the detoxification period, participating patients were engaged in therapeutic activities including physical exercise, group meetings, individual psychotherapeutic interviews (twice a week) and family counselling (at least once a week). Upon completion of this detoxification procedure, patients were referred to a specialised out-patient unit for individual psychotherapy (cognitive-behavioural approach), once or twice a week for two years (13, 14, 15). All participants successfully completed the 5-week programme.

**Statistical analysis.** Data were analyzed using SPSS 10.0 software (34). Differences in mean scores between admission and discharge were examined using a related-samples *t*-test. Statistical significance was concluded at the level  $p < 0.05$ . Spearman correlation coefficients were obtained for examining relationships between self-reported WHOQOL-100 domains and clinically-assessed psychiatric morbidity. Linear regression analysis was performed with the patient's overall QoL/health as the dependent

Table I. Mean scores  $\pm$ SD of measurements of anxiety, depression and overall functioning. Related samples *t*-test demonstrating differences between admission and discharge assessments (T0-T1).

Scale	T0	T1	z	p
	M $\pm$ SD	M $\pm$ SD		
HARS	35.58 $\pm$ 10.97	6.00 $\pm$ 6.95	11.51	0.00*
HDRS	40.74 $\pm$ 7.13	5.31 $\pm$ 6.70	18.68	0.00*
GAS	45.45 $\pm$ 5.64	85.13 $\pm$ 8.85	-20.55	0.00*

\* $p < 0.05$ ; N=46.

HARS=Hamilton Anxiety Rating Scale; HDRS=Hamilton Depression Rating Scale; GAS=Global Assessment Scale.

variable and measures of depression, anxiety, level of functioning and socio-demographic data as independent variables.

## Results

**Descriptive statistics.** The sample consisted of 46 participants, all of whom were clinically assessed by trained psychiatrists and were also administered a battery of self-report questionnaires. The majority of participants (N=37) were men, with a mean age of 47 years  $\pm$  10 years. The average years of education for the cohort were 10.4. Half of the patients (50%) were married; 57% of the participants were employed, 30% unemployed and 13% were retired.

**HDRS, HARS, GAS scales (Baseline T0).** On admission to the detoxification programme, the HDRS values were indicative of severe depressive symptomatology (normal range  $< 7$ , severe depression  $> 23$ ). High levels of anxiety were recorded on HARS (normal range  $< 8$ , severe anxiety  $> 20$ ). Measurements obtained using GAS, were indicative of serious impairment of social and occupational functioning for the entire sample (normal range  $> 70$ , severe problem  $< 50$ ) (Table I).

**HDRS, HARS, GAS scales (Discharge T1).** Upon completion of the detoxification protocol, HDRS, and HARS values had decreased, while GAS values had increased and fell within the normal range. These results indicate recovery from anxiety and depressive symptoms and return to a normal level of functioning in everyday life while in the in-patient unit (Table I).

**QoL and health measurement (T0 and T1).** On admission to the detoxification programme, the WHOQOL-100 values were observed to be considerably lower than the values seen in general populations, presented earlier. Upon discharge, with the second administration of the QoL instrument, participants elicited statistically higher scores for all

Table II. Mean scores ±SD of the WHOQOL-100 thematic domains. Related samples *t*-test demonstrating differences between admission and discharge assessments (T0-T1).

WHOQOL-100 Domains	T0	T1	z	p
	M±SD	M±SD		
Physical health	41.44±15.45	57.52±7.32	3.94	0.00*
Psychological well-being	52.59±12.93	65.11±6.05	4.35	0.00*
Level of independence	45.10±16.09	68.79±8.68	4.88	0.00*
Social relationships	50.68±16.21	64.40±14.45	4.22	0.00*
Environment	61.40±12.53	58.00±20.57	0.42	NS
Spiritual-personal beliefs	53.38±23.64	70.00±10.91	3.71	0.00*
Overall quality of life	35.08±19.34	63.21±13.79	4.68	0.00*

\**p*<0.05; N=46.

WHOQOL-100 domains with the exception of the environmental domain. Differences between the two assessments were examined with the application of a related-samples *t*-test (Table II).

Further *t*-test analysis was performed for differences between baseline and discharge scores in the 24 thematic facets of the WHOQOL-100 instrument. Significant differences were identified in 16 out of the 24 facets. Higher mean values were reported at discharge, illustrating facet or dimension-specific QoL gains. The most significant differences were reported in the areas of positive feelings, energy and fatigue, and perceived ability for work (Table III).

Measurements conducted using the General Health Questionnaire (GHQ-28) indicated also improvement in the participants' perceived health status. Seventy five percent of the subjects presented psychiatric morbidity at baseline, in accordance with the recommended cut-off points of the instrument (35), compared to only 3% at discharge. The application of a related-samples *t*-test showed a significant improvement in all four sub-scales of health, demonstrating a decrease of physical symptoms, anxiety and insomnia, social dysfunction and depression (Table IV).

Upon investigating the association between clinically-assessed morbidity (depression with HDRS, anxiety with HARS and functioning with GAS) and patient-assessed quality of life with the WHOQOL-100 domains, a number of moderate correlations were obtained with the use of Spearman correlation coefficients. The significant correlations obtained were as follows: a) at baseline, a moderately negative correlation was detected between anxiety and the WHOQOL-100 psychological well-being domain ( $r=-0.335$ ,  $p<0.05$ ), indicating an expected relationship between increased anxiety and decreased psychological well-being upon admission; b) upon discharge, a moderately negative correlation was identified between depression and the WHOQOL-100 environmental domain

Table III. Mean scores ±SD of the WHOQOL-100 thematic facets. Related samples *t*-test demonstrating differences between admission and discharge assessments (T0-T1).

WHOQOL-100 Domain-Facets	T0	T1	z	p
	M±SD	M±SD		
<b>I. Physical health</b>				
Pain and physical discomfort	64.70±30.45	85.71±15.58	3.66	0.00*
Energy and fatigue	43.92±23.55	78.27±3.78	4.93	0.00*
Sleep and rest	45.10±32.45	80.00±0.68	4.05	0.00*
<b>II. Psychological well-being</b>				
Positive feelings	30.91±16.27	65.89±13.67	5.02	0.00*
Thinking, learning, memory	51.18±24.82	77.14±2.49	4.79	0.00*
Self-esteem	49.94±24.94	71.07±11.75	3.87	0.00*
Body image and appearance	70.78±24.16	83.04±11.40	2.39	0.02*
Negative feelings	39.86±0.16	71.61±8.59	4.73	0.00*
<b>III. Level of independence</b>				
Mobility	63.18±30.11	91.07±14.32	3.98	0.00*
Activities of daily living	44.59±23.25	77.32±13.98	4.69	0.01*
Dependence on medication	70.61±27.31	68.39±15.97	0.05	0.96
Work capacity	43.24±27.26	75.18±16.64	4.81	0.00*
<b>IV. Social relationships</b>				
Personal relationships	57.09±20.26	70.89±4.69	3.71	0.00*
Social support	48.65±22.59	61.61±19.95	3.45	0.00*
Sexual activity	46.28±21.72	60.71±19.68	3.16	0.00*
<b>V. Environment</b>				
Physical safety and security	72.07±18.93	63.93±21.60	1.59	0.11
Home environment	65.20±22.12	60.71±21.89	0.44	0.66
Financial resources	49.83±26.54	52.14±25.94	0.33	0.74
Health care: accessibility/quality	58.51±8.91	55.93±25.10	0.24	0.81
Opportunities for information/skills	56.25±14.13	50.42±19.82	1.19	0.24
Participation in recreation/leisure	48.99±3.59	61.43±18.22	2.31	0.02*
Physical environment (pollution, etc.)	69.26±18.18	56.07±28.30	1.86	0.06
Transportation	70.61±24.20	62.14±32.62	0.79	0.43
<b>VI. Spiritual-personal beliefs</b>				
Spiritual-personal beliefs	53.38±23.64	70.00±10.91	3.71	0.00*

\**p*<0.05; N=46.

( $r=-0.345$ ,  $p<0.05$ ), indicating that lower levels of depression at discharge may correlate to the patient's feeling greater satisfaction with environmental aspects such as

Table IV. Mean scores  $\pm$ SD for the GHQ-28 health domains. Related samples *t*-test showing differences between admission and discharge assessments (T0-T1).

GHQ-28 Health Sub-scales	T0	T1	<i>z</i>	<i>p</i>
	M $\pm$ SD	M $\pm$ SD		
I. Physical symptoms	10.42 $\pm$ 0.24	1.58 $\pm$ 1.79	4.95	0.00*
II. Anxiety and insomnia	10.19 $\pm$ 4.76	3.00 $\pm$ 2.55	4.87	0.00*
III. Social dysfunction	11.58 $\pm$ 4.14	4.16 $\pm$ 2.83	4.82	0.00*
IV. Serious depression	5.97 $\pm$ 5.86	0.79 $\pm$ 1.41	4.35	0.00*

\**p*<0.05; N=46.

his/her neighborhood, home, accessibility to health services, transportation *etc.*; c) a moderate negative correlation was identified at discharge between anxiety and the WHOQOL-100 level of independence domain ( $r=-0.334$ ,  $p<0.05$ ), providing evidence that higher levels of anxiety immediately prior to leaving the clinic, may correlate to the patient perceiving his/her independence level as more restricted and d) at discharge, the patient's functioning on GAS showed a significant correlation with the WHOQOL-100 psychological well-being domain ( $r=0.400$ ,  $p<0.05$ ), indicating a positive relationship between clinically-assessed improvement of overall functioning and patient-assessed improvement of psychological well-being.

Further in the analysis, a regression procedure was performed with the WHOQOL-100 overall QoL/health domain as the dependent variable and the values of: depression, anxiety and functioning on admission and at discharge (T0, T1), quantity of alcohol consumption, level of education, age, gender and work status as independent (predictors) variables. A relationship was observed at baseline between the overall QoL/health domain and the level of anxiety ( $p=0.029$ ), that is a change of one point in the anxiety scale measurement provided a decrease of 1.231 (beta=-1.231) in the quality of life variable (Table V). This finding may be considered as evidence of an important relationship between higher levels of anxiety and lower levels of overall QoL/health immediately preceding the detoxification programme.

## Discussion

In this study, alcohol-dependent patients were assessed upon admission to a specialised in-patient unit for alcohol detoxification and were found to have a number of physical, mental and social deficits linked to alcohol consumption. It was found that the participants were experiencing a major deterioration of their overall QoL/health status including their physical and psychological well-being, spirituality, level

Table V. Regression analysis: clinical and socio-demographic variables as predictors of overall quality of life.

Predictor variables	Unstandardised coefficients		Standardised coefficients		
	B	Std.Error	Beta	<i>t</i>	<i>p</i>
(Constant)	3.722	102.665		0.036	0.971
HDRS-T0	0.992	0.636	0.392	1.559	0.135
HDRS-T1	-0.192	1.376	-0.072	-0.139	0.891
HARS-T0	-1.231	0.523	-0.697	-2.352	0.029*
HARS-T1	-0.447	1.361	-0.178	-0.328	0.746
GAS-T0	1.071	1.113	0.313	0.962	0.347
GAS-T1	-0.297	0.653	-0.142	-0.455	0.654
Quantity	3.918E-02	0.026	0.340	1.532	0.141
Education	1.221	2.998	0.087	0.407	0.688
Age	0.413	0.497	0.214	0.831	0.416
Gender	7.602	11.140	0.148	0.682	0.503
Work status	-4.315	5.490	-0.183	-0.786	0.441

Dependent variable: Overall QoL/health. Independent variables: HDRS=Hamilton Depression Rating Scale; HARS=Hamilton Anxiety Rating Scale; GAS=Global Assessment Scale. Quantity of alcohol consumption; socio-demographic data. \**p*<0.05.

of independence and social relationships. This observation was based on the considerably lower WHOQOL-100 domain means and overall QoL/health when contrasted to the higher means of healthy, populations presented earlier. In the WHOQOL-100 health-related facets, the patients reported lower levels of energy and sleep disturbances, results that are consistent with previous findings on alcohol populations (36). Furthermore, the participants indicated having significantly lower levels of positive feelings and self-esteem along with higher levels of negative feelings. They also reported experiencing several day-to-day restrictions that reduced their level of independence, especially with regard to performance of daily activities and the ability to sustain work. Furthermore, lack of social support, dissatisfaction with personal and sexual relationships and serious restrictions in financial resources and recreational opportunities were identified.

The above QoL deficits observed in the WHOQOL-100 facets and domains are important indicators for developing a QoL-matrix of possible interventions and therapeutic actions, which could address several of these issues, *i.e.* strengthening patient physical health and skills for independence, enhancing psychological well-being and self respect and motivation, developing adaptation strategies to deal with stress and psychosocial problems and introducing positive mental health and life problem-solving skills.

The participants of this study were reassessed upon the completion of the 5-week specialised programme for inpatient detoxification. In this event, the patients reported

positive changes in 16 out of the 24 WHOQOL-100 facets. With the exception of the environmental domain, the remaining WHOQOL-100 domains showed improvement with detoxification. Specifically, the most statistically significant domain-improvement was observed in the patients' evaluation of their overall quality of life, health status and level of independence. Furthermore, 16 facets were reported to show significant improvement. Particularly, it was observed that patients reported a higher level of positive feelings, better cognitive functioning and an increase of energy, as well as a more positive self-evaluation of their ability to sustain work. It should be noted that the WHOQOL-100 environmental domain demonstrated no significant changes, which was somewhat expected, since this domain addresses issues which are relatively stable in nature, *e.g.* the quality of home and neighbourhood environment. Thus, changes were not expected to take place within the short period elapsed between the two assessments. It would be interesting and useful to examine this domain with environmentally, socio-demographically and culturally different population groups.

Results similar to those of the WHOQOL-100 were obtained from the analysis of the GHQ-28 questionnaire. The four GHQ-28 health-related sub-scales indicated that the patients showed significant improvement upon the completion of the in-patient detoxification programme. The most statistically significant differences were observed for physical symptoms, while the next factor was that of anxiety/insomnia. It should be mentioned that in another study with Greek populations, which investigated the validity and reliability of the WHOQOL-100 tool, high correlations were found between the WHOQOL-100 domains and the validated GHQ-28 health-related sub-scales in healthy and non-healthy participants (31). Thus, the findings of the present study showing the positive change of alcoholics in the validated GHQ-28 instrument, provide further support for the capacity of the WHOQOL-100 instrument to detect expected therapeutic changes.

Intriguing evidence on the correlation between clinically-assessed psychiatric morbidity and patient-assessed QoL was also provided. The performed assessments obtained with the application of the HDRS, HARS and GAS scales, demonstrated that anxiety and depression-like symptoms were significantly decreased at discharge, a finding in accordance with results from other studies (13, 37, 38). Thus, the patients' improvement of symptomatology, assessed by the ratings of trained psychiatrists in the above scales, corresponds with the patient-assessed gains in QoL. The correspondence between self-reported WHOQOL-100 domain and facet gains and psychiatrically evaluated improvement as an external criterion, further strengthens the capacity of WHOQOL-100 to identify expected therapeutic changes.

Concerning the possible effects of psychiatric morbidity on QoL, the results of the regression analysis indicated that only the patient's level of anxiety on admission had an effect on his/her current evaluation of overall QoL/health. Other clinical or socio-demographic factors were not found to have an effect.

Furthermore, the results of correlations indicated that certain WHOQOL-100 domains may have some correlation to morbidity. Particularly, anxiety was found to be correlated to the patient's psychological well being, implying that lower levels of clinically-assessed anxiety may correspond to the patient perceiving and reporting a more positive psychological well-being. It is important to mention that the WHOQOL-100 psychological domain, specifically the facet of positive feelings, is a very important indicator of an individual's overall QoL. In Britain, it is considered that "happiness and contentment" are central to the conceptualisation of QoL. Indeed, some researchers see them as synonymous (39).

While the issue of interaction between therapeutic change and different factors such as morbidity, patient-related characteristics and environmental correlates is beyond the scope of this study, the present correlational results provide some first evidence concerning a possible relationship between remission of clinical symptomatology and patient-evaluated QoL domains. Specifically, anxiety may be particularly relevant to how patients assess their improvement of independence, – as shown by the significant correlation between these two factors in the study – indicating that a higher level of anxiety may colour the patients' self-assessment of their level of independence in a negative way. It could also be suggested that the patients' negative self-assessment of independence could reflect their worries about leaving the safe environment of the clinic, bringing about feelings of self-doubt regarding their abilities to face everyday responsibilities in the outside world.

Regarding depression, a relationship was found between the patients' negative evaluations of their environment and their clinically-assessed level of depression at discharge. Thus, the more depressed patients seem to perceive more problems in reference to safety, quality of neighborhood and home, accessibility to services, financial resources, recreation, transportation and other environmental aspects. It could be suggested however, that a patient's negative perception of his/her environment may not facilitate improvement of his/her mood and mental state and may actually hinder the motivation to continue medical and/or psychotherapeutic treatment.

It is noteworthy that following the detoxification procedure, the improvement of patient-assessed psychological well-being corresponds to the psychiatrically-assessed improvement of patient's overall level of functioning. This is consistent with other findings as it has been suggested that in

alcohol dependence, the patient's functioning rather than abuse or the pattern of alcohol consumption may have a considerable impact on QoL (40).

Thus, it could be argued that clinical improvement, as shown by the decrease of depression, anxiety and the enhancement of functioning observed with the completion of the detoxification programme, may also signify QoL gains and in particular an improvement in the patients' psychological well-being. This may constitute a substantial pre-therapeutic gain, strengthening the dependent individual's motivation to continue abstinence after detoxification through the high-risk period of the first year and undergo out-patient treatment and an appropriate form of psychotherapy.

Unfortunately, QoL measurements are not regularly included in substance abuse treatment, although the need to include them in clinical practice has been suggested for a number of reasons, including the evaluation of out- or in-patient treatment outcomes or the examination of changes with abstinence and heavy drinking (41, 42). The findings of this study suggest that the use of standardised QoL measures could prove beneficial in identifying deficits in QoL prior to detoxification or treatment. The significant relationship observed in the regression analysis between anxiety and quality of life, may indicate the need to provide more specific and tailored psychotherapeutic treatment interventions to this category of patients, in order to strengthen their adaptive strategies to deal with stress and psychosocial problems.

Last, another issue to be taken into consideration is the fact that alcohol-dependent patients in comparison to alcohol abusers make use of more costly health resources and report a more deteriorated QoL (43). Prevention of relapse and appropriate use of mental health services are important aims that involve treatment efforts which go beyond controlling drinking and include interventions for promoting QoL, physical health and psychological functioning, strengthening positive health skills and encouraging patient empowerment.

In conclusion, the results of this study indicate that QoL tools such as the WHOQOL-100 may be valuable for detecting QoL deficits linked to alcohol consumption, and identifying gains in various QoL domains following detoxification procedures. The study was limited concerning the examination of gender differences, given the smaller number of women in the sample. It would also be beneficial to extend the study with a follow-up measurement of 3 or 6 months following discharge from the detoxification programme. The authors recommend the use of QoL measurements in the routine health care of individuals with alcohol abuse problems. Further examination into prior to and post-treatment procedures would be fruitful for the detection of long-term effects of various interventions on QoL,

including different types of detoxification procedures. The WHOQOL-100 shows sensitivity in clinical changes and may constitute an important indicator of treatment effectiveness in alcohol abuse-dependence and in intervention studies.

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