EVALUATING AND COMPARING SUCCESS RATES FOR INPATIENT TREATMENT OF ALCOHOL ADDICTION IN THE CZECH REPUBLIC

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SUMMARY

Objectives: This systematic review seeks to present and compare data from studies evaluating the success of medium-term inpatient treatment of alcohol-dependent patients in the Czech Republic. Another aim was to identify the problems that make such comparisons difficult. No previous review comparing the efficiency of various therapeutic programmes has been published in the Czech Republic.

Methods: Bibliographia medica Čechoslovaca and PubMed were used to find studies published in professional medical journals since 1970 evaluating the abstinence of patients who voluntarily completed medium-term inpatient treatment of alcohol dependence.

Results: Medium-term inpatient treatment of alcohol addiction leads to one year of abstinence in 34% to 76% of patients. Such variance in value is largely caused by selection bias, differences in the definition of abstinence, and differences in data collection methods.

Conclusion: The comparison of studies presented many challenges. Further steps should be taken to help compare treatment programmes in the future, as the programmes provide different therapeutic interventions of different intensities and lengths to different patients. Adequate demographic and other pretreatment characteristics data collection, detailed descriptions of therapeutic interventions, and identification of effective components of the therapeutic programme could support further research in this area, optimize existing programmes, and increase the overall treatment efficiency.

Key words: alcoholism, alcohol dependence, treatment of alcohol addiction, addiction treatment effectiveness, inpatient addiction treatment

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INTRODUCTION

Harmful alcohol use far exceeds other mental disorders in the proportion of patients who do not receive adequate treatment. In the Czech Republic, this proportion (treatment gap) represents up to 93% of patients with problematic alcohol use (1).

Data from the Czech National Survey on Tobacco and Alcohol Use for 2020 showed that 19.8% of respondents reported frequent drinking, i.e., drinking daily or every other day. From the group of respondents, 8.1% met the criteria for risky drinking and 8.8% met the criteria for harmful drinking (2). Using data from 2016, Mlčoch et al. calculated the total societal cost of alcohol consumption at 56.57 billion CZK, which represents 1.2% of GDP (3).

The recorded history of Czech inpatient addiction treatment dates back to 1911 (4). However, the effectiveness of treatment programmes has not yet been evaluated in a randomized control study. The aim of our review was to compare the data from studies evaluating the success of inpatient treatment for alcohol dependent patients and to identify problems that make such comparisons difficult.

MATERIALS AND METHODS

The PubMed and Bibliographia medica Čechoslovaca databases were used to search for studies evaluating the effectiveness of inpatient addiction treatment in alcohol-dependent patients. In the Bibliographia medica Čechoslovaca database, "alcoholism" was used as the MeSH descriptor with the sub-keyword "therapy", which yielded 862 results as of July 2, 2022.

In the PubMed database, the keywords sought were "alcoholism" AND "czech republic" (27 results), "alcohol drinking" AND "czech republic" (69 results), "alcoholism" AND "czechoslovakia" (66 results), and "alcohol drinking" AND "czechoslovakia" (31 results).

Czech was set as the language in "additional filters" in PubMed, and the terms "alcoholism" (207 results) and "alcohol drinking" (54 results) were again used as MeSH descriptors.

We manually examined all the results found and selected studies published in professional medical journals since 1970 in which abstinence was observed in alcohol-dependent patients (meeting the criteria of F10.1 and F10.2 in ICD 10) who voluntarily completed inpatient addiction treatment in the

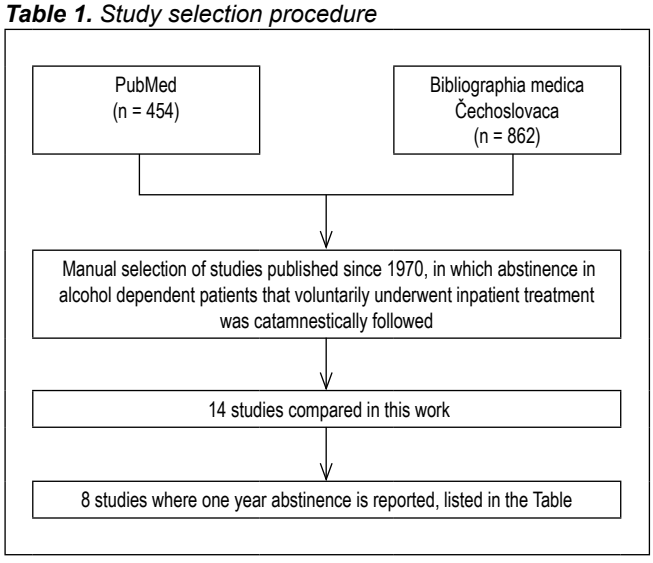
Czech Republic. We included studies that evaluated patients addicted to alcohol with dual diagnoses. We excluded studies in which the evaluated patients were addicted to several substances (other than the combination of tobacco and alcohol) at the same time. The effectiveness of the treatment was compared in the 14 studies selected. Of those, we selected studies with one year abstinence rates in the voluntarily hospitalized patients (Table 1). The definition of abstinence differed among studies; the exact definitions of abstinence found in individual studies are included in the final table. Follow-up after one year was chosen because it was the most common variable in the selected studies and it was thus possible to compare more results than for a comparison after three or five years. The reviewed studies also differed in whether they assessed abstinence in all patients who entered treatment or only in those who completed the treatment and in whether they related the resulting abstinence to all patients who entered or completed the treatment or only those about whom valid information was obtained (addiction clinic, questionnaires). We recalculated the percentages of abstainers so that an adequate comparison was possible.

RESULTS

We found no previous prospective randomized controlled study in which patients who underwent inpatient addiction treatment were compared to patients on a waiting list. We evaluated 14 studies that monitored abstinence in patients after completing inpatient addiction treatment, of those we selected only 8 studies for the final table, where the abstinence at one year is listed. Only Kubička and Skála (5) conducted a prospective randomized study comparing six-week and thirteen-week treatment programmes for male patients.

Štěpánek and Čapáková (6) included a total of 60 patients from six counselling centres of District Institutes of National Health in Brno-province. This study followed a subgroup of patients treated for the first time voluntarily (n = 15). Of those, seven patients (46.7%) abstained from alcohol after the treatment, but the small group size did not allow for further statistical processing. Due to the low number of voluntarily treated patients and the different methodology, this study was not included in the final table.

Table 1. *Study selection procedure*



Škopková (7) followed 583 male patients who underwent substance abuse treatment in Dobřany Psychiatric Hospital. Treatment lasted on average 12 weeks. The majority of patients in this study underwent treatment for the first time (72% of patients). In the group of voluntarily treated patients (64.2% of the total group), 42.5% of patients abstained from alcohol after one to two years of treatment. The abstinence reported here, unlike other studies, does not have a fixed length, but is defined as "abstinence after one to two years of treatment."

In the first part of their study, Kubička and Skála (5) followed 209 men accepted for a thirteen-week voluntary inpatient treatment at the anti-alcohol department for five years. Data were collected at one year, three years, and five years after discharge from treatment. In the first year, overall 37.3% of patients relapsed: 23.8% of those who completed the treatment and 59.5% of those who did not complete the treatment. In the second part of the study, six-week and thirteen-week treatment programmes for male patients were compared. A relapse in the first year was approximately the same for both programmes: 39.9% for the six-week programme and 40.1% for the thirteen-week programme. In the fifth year, of the patients with continuous abstinence, slightly more had the longer treatment (25.7%) than the shorter treatment (19.6%), but the difference was not statistically significant. Patients entering treatment were categorized using authors' own NPI prognostic index (5), which assessed social stability based on marital status, education, criminal history, and history of employment.

Drtil (8–10) presented the "Liberec 80" treatment system for addicts and its results. It is a "unified treatment system" with a combined inpatient and outpatient section. However, results were available only for patients who were admitted to twelve-month treatment with disulfiram. One-year abstinence ranged from 81% to 89%. The number of patients treated without disulfiram and their results were not reported and the methodology was not sufficiently described, so this is not included in the final table.

Mareček and Maťová (11) followed a group of 79 medical doctors who voluntarily started treatment for addiction in Apolinář Treatment Centre. After one year, 37 (51%) abstained from alcohol and 7 (10%) had violated their abstinence only once. Of the 37 abstainers, 85% met the principles of aftercare; of the 15 non-abstainers, only 20% fulfilled the principles of aftercare. The authors stated that the patients were addicted mainly to alcohol, but the exact numbers are not available, therefore, the results of this study are not included in the final table.

Šťastny et al. (12–14) carried out yearly follow-up monitoring of the effectiveness of alcohol addiction treatment at the Psychiatric Hospital in Brno-Černovice. Treatment was evaluated as effective when continuous abstinence was achieved throughout the monitored period, but also if abstinence was broken by a single alcoholic drink. In these studies, the authors found one-year abstinence of 39% (for 1982, n = 88), 39% (1983, n = 118), 50% (1984, n = 138), and 52% (1987). Only returned evaluable questionnaires from patients who completed the entire treatment were included in the final statistical processing. Demographic data was missing, as was the percentage of patients who were treated repeatedly.

Skála et al. (15) presented the results of substance abuse treatment (primarily alcohol addiction, though exact numbers

were not stated) in the Psychiatric Hospital in Červený Dvůr. The percentage of patients that did not complete treatment ranged from 37% to 43% and the response rate of the questionnaires ranged from 89 to 95%, depending on the monitored years. The authors found one-year abstinence rates among voluntarily treated patients who completed baseline treatment for three different monitoring periods to be 61%, 66% and 58%, but they did not state what percentage of patients were treated for alcohol dependence. Among patients who did not properly complete treatment, one-year abstinence was found to be between 20 and 25%. It is not stated what percentage of patients underwent treatment for addiction repeatedly, nor the sex or age representation.

Csémy et al. (16) evaluated the effectiveness of inpatient treatment in Apolinář Centre for 150 women treated for alcohol dependence. At the one-year follow-up visit, the response rate was 64.5% and the abstinence rate was 47%. The authors stated that the success of the treatment was influenced by the completion of the treatment programme and also by the active cooperation of the family and adequate treatment of psychiatric comorbidities (most often pharmacotherapy for depression).

Tibenská et al. (17) monitored the effectiveness of medium-term inpatient addiction treatment in the Nechanice Addictive Disease Treatment Centre. The group consisted of 309 patients and included all patients who completed at least two months of the programme. Alcohol dependent patients predominated (61.8%) and their results were separated.

Abstinent patients received follow-up care after the end of the treatment programme for six months, one year, and two years. At six months, significant differences were noted in abstinence between women (38.2%) and men (58.2%) addicted to alcohol. After one year, 42% of alcohol-dependent patients had been continuously abstinent.

Tibenská et al. (18) followed up catamnestic questioning from previous years. The study summarized the obtained data on the

Table 2. *Overview of data extracted from studies*

Voluntary addiction treatment	Number of patients and sex	Percentage of returned questionnaires (%)	Methodology of data collection	Length of treatment stay needed to be included in the study	Abstinence after 1 year stated in the study (%)	Abstinence after 1 year recalculated using number of patients who started treatment or completed treatment (%)	Abstinence after 1 year recalculated using number of patients for whom reliable data were available (%)	Definition of abstinence
Kubička et al., 1970–1971 (5)	209 Men only	96.7	Questionnaire from alcohol addiction outpatient clinics	Stay of at least a few days/ aftercare	62.7/76.2	60.6/73.7	62.7/76.2	Continuous abstinence without relapse
Kubička et al., 1971–1973 (5)	335 Men only	98.2	Questionnaire from alcohol addiction outpatient clinics	Stay of at least a few days	60.0	59.0	60.0	
Škopková 1973–1975 (7)	373 Men only	81.0	Questionnaire from alcohol addiction outpatient clinics and correspondence-administered patient questionnaire	Whole group including patients that did not complete treatment	43.0	43.0	52.5	Abstinence after 1 to 2 years after treatment
Skála et al., 1972–1976 (15)	Not stated	89.0	Questionnaire from alcohol addiction outpatient clinics	Completed whole treatment/not completed (37%)	61.0	54.3/42.0	61.0/47.0	Continuous abstinence without relapse
Skála et al., 1982–1986 (15)	758 Not stated	95.0	Questionnaire from alcohol addiction outpatient clinics	Completed whole treatment/not completed (43%)	66.0	63.0/45.0	66.0/47.0	
Skála et al., 1987–1989 (15)	371 Not stated	95.0	Questionnaire from alcohol addiction outpatient clinics	Completed whole treatment	58.0	55.0	58.0	
Šťastný et al., 1982 (12–14)	88 Not stated	88.0	Questionnaire from alcohol addiction outpatient clinics	Completed whole treatment	39.0	34.0	39.0	Abstinence including one time alcohol consumption followed by abstinence
Šťastný et al., 1983 (12–14)	118 Not stated		Questionnaire from alcohol addiction outpatient clinics	Completed whole treatment	39.0	34.0	39.0	
Šťastný et al., 1984 (12–14)	138 Not stated		Questionnaire from alcohol addiction outpatient clinics	Completed whole treatment	50.0	44.0	50.0	
Šťastný et al., 1987 (13, 14)	114 Not stated	86.5	Questionnaire from alcohol addiction outpatient clinics	Completed whole treatment	51.7 (37.7)*	44.0 (32.6)*	51.7 (37.7)*	
Tibenská et al., 2003–2006 (17)	143 Not stated	59.3 (of all patients)	Questionnaire administered by correspondence to collateral informants	At least 2 months of treatment	42.0	42.0	70.8**	Continuous abstinence without relapse
Csémy et al., 2006, 2008 (16)	74 Women only	64.5	From health documentation. complemented by collateral informants	Stay of at least 14 days	47.4	47.4	73.5	Continuous abstinence without relapse

*continuous abstinence without relapse is indicated in parentheses
**recalculated according to the return of all questionnaires, not only for patients dependent on alcohol

outcome of addiction treatment five years after discharge. This combined interview yielded information on 366 patients (78%); of these patients 224 (61.2%) were dependent on alcohol.

There were 109 alcohol-dependent patients who were continuously abstinent for the entire five-year period (29.8% of the entire monitored group). Another 13 alcohol-dependent patients (5.8% of the entire monitored group) abstained from alcohol with a short relapse (the cumulative duration of the relapse was shorter than one month).

DISCUSSION

In selected studies, inpatient treatment of alcohol addiction leads to one year of abstinence in 34% to 76% of patients. For comparison, foreign review by Miller et al. found that abstinence rates ranged from 17% to 35% at one year (19). In another review, Monahan and Finney analysed data of 27,407 patients drawn from 100 studies and found that abstinence rates ranged from 0 to 91% across treatment conditions and averaged 43% (20). Such variance in values is caused by many factors, the main ones affecting our results are discussed further.

Abstinence

Different definitions of abstinence complicate the comparison of the selected studies. Abstinence was defined either as "continuous abstinence without relapse after one year" (5, 15–17), or as "abstinence after a one- to two-year gap from treatment" (7), or as "abstinence including single consumption of alcoholic drinks followed by abstinence" (12–14).

Moreover, abstinence rates were calculated sometimes only in patients who completed the entire treatment programme (12–15) and sometimes also in patients who did not complete the treatment but remained in the programme for a specified period of time (5, 7, 15–17).

This leads to significant selection bias, as the patients that completed the whole treatment tend to be more motivated. If abstinence is monitored only in patients who have completed the entire programme, then the resulting abstinence is influenced by its length and difficulty. Less motivated patients with worse prognostic factors tend to leave the treatment prematurely; the programme is therefore completed by more motivated patients who, on average, have better prognostic indicators (5).

Social Context and Changes in Society Over Time

Some of the reviewed studies were conducted more than 30 years apart. We are thus comparing a different generation of patients in a different political system including social care and health care. The most significant changes in the field of addiction services occurred after the revolution in 1989, when the state network of AT counselling centres disintegrated (21). These centres maintained a database of alcohol-addicted patients, who were actively monitored. In case the patients did not voluntarily undergo treatment, compulsory treatment was ordered. In case the outpatient treatment was deemed not effective enough, inpatient treatment was ordered. Alcohol consumption also did not remain constant and has been gradually increasing since 1950 (22) (Table 3).

Table 3. *Alcohol consumption data by year*

Year	Consumption of 100% alcohol per inhabitant per year in liters
1950	4.1
1960	5.9
1970	8.0
1980	9.0
1990	8.9
2000	9.9
2005	10.2
2010	9.8
2015	9.8
2020	9.7

Source: Rojíček et al. (22)

Prognostic factors may not have the same value across studies. For example, more frequent job changes will most likely not have the same unfavourable prognostic significance today as they did at the time of the study by Kubička and Skála (5). Similarly, the response rate was higher in studies before 1989.

Data Collection after Completion of Inpatient Treatment

The methodology of follow-up care has a direct effect on the quality of data. Studies published before 1989 used a "questionnaire sent to AT counselling centres" for data collection (12–15) supplemented by a "questionnaire sent to AT counselling centres and the place of residence" (7). AT counselling centres represented mandatory follow-up care for patients that underwent inpatient treatment and the patients were actively monitored for a minimum of five years without relapse. Later studies used a "correspondence-administered questionnaire from collateral informants" (17) or drew from "medical documentation and supplemented the information with collateral informants" (16). Collateral informant was chosen by the patient, usually a close family member or a friend. Non-respondent patients were usually assessed as non-abstinent, which was not necessarily true.

Demographic and Other Pretreatment Characteristics Data

The compared studies had only limited demographic data and varied conditions for inclusion (or exclusion) in the study/treatment. Consequently, heterogeneous groups of patients that differed in the presence of risk and protective factors were compared. Similarly, pretreatment characteristics such as mental and physical health are not accounted for at all in the studies found. For example, the presence of psychiatric comorbidity (especially under-treated or untreated one) increases the risk of early relapse (14–17). In the studies found, both cohorts of men (5, 7) and cohorts of women (16) were followed, but there were also studies in which the male to female ratio was not stated (12–15, 17). Many studies lacked demographic data (12–15). The rest of the studies report at least the average age of the patients (7, 16, 17), the percentage of first-time treatment seekers (5, 7), and the percentage of patients without a high school diploma (7). In her study, Škopková (7) recalculated the abstinence found for some

specific groups and found the best results in voluntarily treated patients over 50 years of age and in patients under 30 years of age after the first treatment, where the stay was at least eleven weeks. The most consistent demographic data collection was in the study by Kubička and Skála (5), who used their NPI prognostic index and found 67% of annual abstinence in patients well socially stabilized and only 13% in patients who were socially unstable.

Therapeutic Programme of Inpatient Addiction Treatment

Therapeutic programmes in the Czech Republic are not and have not been uniform, and the currently offered treatment programmes differ significantly from each other in terms of structure, representation and emphasis on individual therapeutic interventions as well as the overall length of the programme. However, the therapeutic programmes included in this review are not sufficiently described and therefore it is not possible to compare these programmes with each other.

The only prospective randomized study cited here comparing two different programmes of medium-term inpatient treatment in the Czech Republic (six-week and thirteen-week) did not find a significant difference in one-year abstinence rates from the end of treatment, if both treated and incompletely treated patients were included.

Personalization of Inpatient Treatment Programmes

The results show that it is not possible to clearly determine which therapeutic interventions are directed at specific risks and needs and will benefit a particular client the most. We were also unable to determine the optimal length of therapy – which is a very important variable, as for some patients, the excessive length of the programme is a major obstacle to entering treatment.

Meticulous demographic and other pretreatment characteristics data collection, a uniform definition of abstinence, and similar methodology would make the comparison of the effectiveness of individual programmes easier. The results combined with the mapping of the therapeutic tools used would allow a better assessment of the effectiveness of individual therapeutic interventions. The information obtained could lead to a more personalized approach and to the elimination of therapeutic elements that may unnecessarily burden some patients. This would increase the motivation of patients to undergo inpatient addiction treatment and would reduce the number of untreated alcohol-dependent patients, thereby reducing the negative effects of alcohol on public health.

Aftercare and Its Influence

Aftercare also has a significant influence on the effect of treatment, including the ability to abstain or respond in a timely and adequate manner to relapse (17, 18). Continuity and quality of follow-up treatment can thus prevent relapse, but at the same time also contribute to its detection. Tibenská et al. (17) found that one year after substance abuse treatment, of patients who receive aftercare, 70.3% abstained compared to 47.7% of abstainers in the group without aftercare. However, effectiveness has also been proven in self-help groups, especially in the most widespread Alcoholics Anonymous (23).

CONCLUSION

Medium-term inpatient alcohol addiction treatment results in 34% to 60% of patients achieving one-year abstinence if unreturned questionnaires (or lack of information) are scored as relapse. The percentage of abstainers is higher if we evaluate only patients who returned the questionnaire (39 to 62%), or if we count only patients who properly completed the entire programme (34 to 76% abstain after one year). The variance in abstinence rates found confirms the difficulty of comparing individual studies.

Determining the success rate of various inpatient treatment programmes was complicated since definitions of abstinence varied. Successful treatment can be determined by abstinence, but also by a reduction in the frequency and intensity of alcohol use. Data on mitigating the negative consequences of alcohol use, such as societal costs (arrests, hospitalizations) and threats to public safety (driving under the influence, violent crimes), as well as data on improvements in health status, quality of life, and the ability to stop relapses in time are also crucial and are more properly reflected in the modern concept of harm reduction.

Considering the health and economic impacts, along with Czech lenient stance on alcohol consumption, it is vital to renew interest and establish a more comprehensive approach to methodology for alcohol addiction treatment research.

Conflicts of Interest

None declared

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