Short-term outcomes in patients attending a primary care–based addiction shared care program

Meldon Kahan MD CCFP FRCPC Lynn Wilson MD CCFP FCFP Deana Midmer MEd EdD Alice Ordean MD CCFP MHSc HeeYung Lim

ABSTRACT

OBJECTIVE To evaluate patient outcomes in an addiction shared care program that is managed by family physicians working in a primary care setting.

DESIGN Prospective cohort study.

SETTING The addiction shared care program at St Joseph's Health Centre in Toronto, Ont, which is staffed by a nurse clinician, an addiction therapist, a clinical fellow, and 6 family physicians in an academic family medicine unit.

PARTICIPANTS Participants included patients who attended at least one session in the program. The patients were self-referred or referred by family doctors, government agencies, or the emergency department.

INTERVENTIONS The service provided brief counseling interventions, outpatient medical detoxification, pharmacotherapy, and follow-up, and there was communication with the referring family physicians.

MAIN OUTCOME MEASURES Changes in self-reported substance use were measured through interviews at intake and at 3 to 4 months after the initial office visit.

RESULTS The study was conducted between January 2005 and April 2006. Out of 204 patients who gave consent to participate at baseline, we interviewed 71 patients about 4 months later. Among 33 problem drinkers, the mean number of standard drinks consumed per week declined from 32.9 at baseline to 9.6 at follow-up ($P<.0005$). Of the 29 problem opioid users, 6 were started on methadone treatment and 13 had decreased their opioid consumption from a mean morphine equivalent of 168.38 mg to 70.85 mg daily ($P=.001$). There was also a significant decline in the problematic use of benzodiazepines ($P=.004$) and other drugs ($P=.005$), but there was no significant decline in the problematic use of cannabis or cocaine. Twenty-two patients (31%) participated in Alcoholics Anonymous or formal addiction treatment.

CONCLUSION Shared care is a promising new strategy for delivering addiction intervention. Further evaluation is warranted, with more complete follow-up and objective outcome measures.

EDITOR'S KEY POINTS

- Shared care programs can help primary care physicians manage chronically ill patients through ongoing education, communication, and clinical support.
- This study measured changes in self-reported substance use in patients referred to an addiction shared care program run by family physicians who work in a primary care setting. The program had high attendance rates and substantial reductions in the use of alcohol, opioids, and other substances among patients.
- A shared care program has many advantages over traditional addiction treatment. Also, it could enhance primary care physicians' involvement in addiction treatment, thereby greatly expanding patients' access to treatment.

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Issues à court terme chez des patients inscrits dans un programme de soins partagés pour toxicomanie dans un contexte de soins primaires

Meldon Kahan MD CCFP FRCPC **Lynn Wilson** MD CCFP FCFP **Deana Midmer** MEd EdD **Alice Ordean** MD CCFP MHSc **HeeYung Lim**

RÉSUMÉ

OBJECTIF Évaluer les issues de patients inscrits dans un programme de soins partagés pour toxicomanes géré par des médecins de famille travaillant en contexte de soins primaires.

TYPE D'ÉTUDE Étude de cohorte prospective.

CONTEXTE Le programme de soins partagés pour toxicomanes du *St Joseph Health Centre* de Toronto, Ontario, qui comprend une infirmière clinicienne, un thérapeute de toxicomanie, un moniteur clinique et 6 médecins de famille d'une unité universitaire de médecine familiale.

PARTICIPANTS Les patients qui ont participé à au moins une séance du programme. Ils étaient venus d'eux-mêmes ou étaient dirigés par des médecins de famille, des agences gouvernementales ou des services d'urgence.

INTERVENTIONS Un counseling bref, une désintoxication en externe, des médicaments et un suivi, en plus d'une communication avec le médecin de famille traitant.

PRINCIPAUX PARAMÈTRES À L'ÉTUDE Changements de consommation de substances allégués par les patients, tel que mesurés par des entrevues à l'entrée dans le programme et 3 à 4 mois après la première visite.

RÉSULTATS La période de l'étude s'étendait de janvier 2005 à avril 2006. Sur 204 patients qui ont initialement accepté de participer, 71 ont été interviewés environ 4 mois plus tard. Chez les buveurs excessifs, le nombre moyen de consommations standard par semaine a diminué, passant de 32,9 au départ à 9,6 au suivi ($P<,0005$). Parmi les consommateurs d'opiacés problématiques, 6 ont débuté un traitement à la méthadone et 13 ont réduit leur consommation quotidienne d'équivalent de morphine, qui est passée de 168,38 mg à 70,85 mg ($P<,001$). On notait aussi une diminution significative de l'usage problématique de benzodiazépines ($P<,004$) et d'autres drogues ($P<,005$), mais aucune diminution significative de l'usage problématique de cannabis ou de cocaïne. Vingt-deux patients (31 %) ont participé au traitement formel de la toxicomanie des Alcooliques Anonymes.

CONCLUSION Les soins partagés constituent une stratégie d'intervention intéressante contre la toxicomanie. Une évaluation plus poussée avec suivi plus complet et des mesures d'issues plus objectives est souhaitable.

POINTS DE REPÈRE DU RÉDACTEUR

- Les programmes de soins partagés peuvent aider le médecin de première ligne à traiter les malades chroniques en assurant une éducation, une communication et un support clinique soutenus.
- Cette étude mesurait les changements de consommation de drogues allégués par les patients inscrits dans un programme de soins partagés pour toxicomanes géré par des médecins de famille travaillant en contexte de soins primaires. Le programme avait un taux élevé d'assiduité, et une réduction importante de la consommation d'alcool, d'opiacés et d'autres substances.
- Un programme de soins partagés présente plusieurs avantages par rapport au traitement traditionnel de la toxicomanie. Il pourrait également promouvoir la participation des médecins de première ligne au traitement de la toxicomanie, favorisant ainsi un meilleur accès au traitement.

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Substance abuse is a considerable cause of morbidity, mortality, and health care utilization.[1,2] Controlled trials have demonstrated that physician advice reduces alcohol consumption among problem drinkers.[3-8] When combined with pharmacotherapy, physician advice is also effective for alcohol-dependent patients[9-11] and opioid-dependent patients.[12,13] Yet physicians receive little training in treatment of addictions and lack the clinical skills necessary to identify and intervene effectively with substance users.[14-16]

In shared care programs, a specialty service helps primary care physicians manage chronically ill patients through ongoing education, communication, and clinical support. Shared care programs differ from traditional specialty practices in that they provide more than a one-off consultation yet do not assume long-term care of the patient. Mental health shared care programs have been shown to improve outcomes for depression.[17,18] Primary care practitioners express high levels of satisfaction with such programs,[19] and they are able to reach far greater numbers of patients than traditional consultation services.[20]

Literature on shared care for treatment of addictions is limited but promising. Primary care physicians express a desire for more training and support in treatment of addictions.[21] Various components of shared care programs have been found to be effective, including training initiatives, access to a therapist, and regular telephone support.[22-25] However, to our knowledge, there is no published research on the effectiveness of an addiction shared care (ASC) program managed by family physicians with special interest in addictions.

This study measured changes in self-reported substance use in patients referred to an ASC program run by family physicians working in a primary care setting. If effective, shared care could enhance primary care physicians' involvement in addiction treatment, thereby greatly expanding patients' access to treatment.

METHODS

The ASC program is based in an academic family medicine unit at St Joseph's Health Centre—a community teaching hospital in an inner-city neighbourhood of Toronto, Ont. The program is staffed by a nurse clinician, an addiction therapist, a clinical fellow, and 6 family physicians with special interest in addictions. The physicians provide comprehensive family medicine care and clinical teaching in addition to their addiction work. The ASC program is part of a larger addiction program, providing consultations and follow-up for inpatients and emergency patients, as well as prenatal and obstetrical care for pregnant substance users.

The study was conducted between January 2005 (the start of the shared care program) and April 2006. Patients who attended the program were self-referred or referred by family physicians, government agencies, or the emergency department. At the initial visit, the addiction therapist informed all patients of the study and asked them to provide written consent to be interviewed several months later.

Interventions consisted of brief counseling, planned outpatient medical detoxification, pharmacotherapy, and referral to addiction treatment programs or social service agencies. Each patient was first assessed by the addiction therapist and then by the physician. A consultation note was faxed to the primary care physician containing a brief history, diagnosis, and treatment recommendations. We followed the patient from 1 or 2 visits to several months or longer, until they no longer wanted or needed our counseling and medical services. After treatment completion, we reassessed the patient at the patient's or physician's request.

At intake, the addiction therapist recorded patient demographic information and the amount of alcohol and drugs patients had used in the previous month. Approximately 4 months after the initial visit, the research assistant conducted a structured telephone interview, asking patients about their substance use in the past month, participation in addiction treatment, and mood and social functioning. The baseline and follow-up interviews used standard quantity-frequency questions about amount and pattern of substance use.

The main outcome variables were the changes from baseline in problematic substance use, and changes in amount of substance use. Except for alcohol and cocaine, all substance use was defined as problematic if patients reported that their use was currently creating problems for them. For cocaine, any current use was considered problematic. For alcohol, patients were considered "problem drinkers" if they reported that their drinking was a problem for them and if they drank above the low-risk drinking guidelines (ie, 14 standard drinks per week for a man and 9 for a woman; or no more than 2 drinks on any one drinking day). A standard drink was defined as a 12-oz bottle of 5% beer, 5 oz of wine, or 1.5 oz of liquor. Binge drinking was defined as 5 or more drinks on one occasion. Note that this definition of problematic alcohol use includes both alcohol-dependent patients and hazardous or at-risk drinkers.

St Joseph's Health Centre's Research Ethics Board approved the study. Written consent was obtained at baseline, and patients received care even if they refused consent. The research assistant who did the follow-up interviews did not share individual patient results with the team.

All statistical analyses were performed using statistical software SPSS, version 12.0. The χ^2 test for dependent samples was used for categorical variables, and the *t* test was used for continuous variables to identify differences in baseline characteristics and follow-up status.

RESULTS

Patient characteristics

Of the 290 referrals made between January 2005 and April 2006, 41% were from family physicians, 40% were from the Ministry of Transportation and other government agencies, 9% were from the emergency department or medical specialists, and 10% were self-referrals (**Table 1**). Twenty-six patients were not eligible for the study because they did not have addiction problems or because they only presented for legal assessment. Sixty patients refused to consent. This left 204 patients who consented to participate in the study, but data were lost for 4 patients. The average number of appointments and no-shows for noninterviewed patients was 4 and 1, respectively; the average number of appointments and no-shows for the interviewed patients was 5 and 1, respectively. The differences in these values were not significant. Of the 200 patients who consented, 148 patients kept their initial appointment with the physician (following the therapist appointment), for an attendance rate of 74%.

Table 1. Sources of referral for study participants: *N = 290.*

REFERRAL SOURCES	TOTAL NO. OF REFERRALS, N (%)
FPs	119 (41)
Specialists	26 (9)
Self	29 (10)
Ministry of Transportation and other government agencies	75 (26)
Probation	41 (14)

We made at least 3 attempts to contact each patient; however, we were able to contact and interview only 71 of the 200 patients in follow-up. Although no one directly refused to be interviewed, many patients did not answer their telephones, their telephone numbers were incorrect or out of service, they had moved and could not be located, or they did not return messages. The average age of the interviewed sample was 46 years; 68% were men. Alcohol was the most common substance used (75%), followed by opioids (44%) and cannabis (41%). The average number of substances used (excluding tobacco) was 2.2; 28 patients used more than 1 substance problematically. Compared with those in the noninterviewed sample (n = 129), those in the interviewed sample (n = 71) were slightly older (mean age 46 years vs 40 years, $P = .002$), were less likely to use cocaine (23% vs 49%, $P = .001$) or alcohol (75% vs 94%, $P < .001$), and had a higher show rate for the initial physician appointment (87% vs 67%, $P < .001$) (**Table 2**).

Table 2. Baseline characteristics: *Mean (SD) age of patients in the group without follow-up was 40.10 (11.71) years and in the group with follow-up was 45.94 (13.38) years (P = .002).*

CHARACTERISTICS	NONINTERVIEWED SAMPLE WITH NO FOLLOW-UP,* N = 129	INTERVIEWED SAMPLE WITH FOLLOW-UP,* N = 71	*P* VALUE
Sex			
• Female	26 (20)	23 (32)	.054
• Male	103 (80)	48 (68)	.054
Substances used†			
• Alcohol	121 (94)	53 (75)	<.001‡
• Narcotic analgesics	45 (35)	31 (44)	.172
• Marijuana	67 (52)	29 (41)	.148
• Benzodiazepines	26 (20)	18 (25)	.396
• Cocaine	63 (49)	16 (23)	.001‡
• Other§	21 (16)	10 (14)	.682

*All percentages have been rounded.
†Twenty-eight patients used more than 1 substance problematically.
‡Statistically significant values ($\alpha = 0.05$).
§Other substances include heroin, club drugs, or dimenhydrinate.

Patient outcomes

Of the 71 patients, 22 (31%) had entered a formal inpatient or outpatient addiction treatment program or were attending Alcoholics Anonymous. Alcohol use declined from 75% of participants at baseline to 48% of participants at the time of follow-up ($P < .005$) (**Table 3**). Of 33 problematic drinkers, only 9 were still drinking problematically at follow-up. The mean number of standard drinks problem drinkers consumed per week declined from 32.9 at baseline to 9.6 at follow-up ($P < .0005$), a reduction of 71%. Reported binge drinking declined from 49% of problem drinkers to 21% ($P = .02$).

Prescription opioid use declined from 44% of participants to 27% at follow-up, but this difference was not statistically significant (**Table 4**). Six of the 29 problem opioid users had initiated methadone treatment. Thirteen of the remaining 23 patients decreased their mean daily use in morphine equivalents, which declined from 168.38 mg to 70.85 mg ($P = .001$). Marijuana use declined from 41% at baseline to 17% at follow-up ($P < .005$), while the mean number of days per week on which marijuana was smoked declined from 3.62 to 1.83 ($P = .002$) (**Table 5**). Problematic marijuana use declined from 13 to 8 patients, which was not significant. Overall benzodiazepine use declined from 25% to 11% of participants ($P = .03$), while problematic use declined from 8 patients to 1 ($P = .004$) (**Table 5**). Cocaine use declined from 16 patients at baseline to 7 patients at follow-up, which was not statistically significant. Other drug use (eg, heroin, club drugs, dimenhydrinate) declined from 10 patients to 1 ($P < .005$).

Sixty-four of 71 patients answered questions on mood and social functioning at the follow-up interview. Because they were not consistently asked these questions at baseline, we could not determine whether there had been any change in these domains. Of these patients, 78% reported that they "rarely or never" had problems with substance use, and 64% reported that they "rarely or never" had urges to use alcohol or other drugs.

Table 3. Alcohol use in patients at baseline and follow-up

ALCOHOL USE	BASELINE* (INITIAL CONSULTATION)	FOLLOW-UP* (3–4 MO AFTER INITIAL CONSULTATION)	*P* VALUE
All interviewed participants (n = 71)			
• Drinking alcohol, n (%)†	53 (75)	34 (48)	.004‡
• Binge drinking, n (%)	18 (25)	8 (11)	.094
• Mean drinking, d/wk	3.25	1.66	.001‡
Problem drinkers (n = 33)			
• Currently a problem, n (%)	33 (46)	9 (13)	< .001‡
• Mean drinking, d/wk	4.97	2.21	< .001‡
• Mean no. of standard drinks per wk	32.9	9.6	< .001‡
• Binge drinking, n (%)	16 (23)	7 (10)	.020‡

*Percentages have been rounded.
†Number of patients reporting any current alcohol use whether problematic or not.
‡Statistically significant values (α = 0.05).

Table 4. Opioid use in patients at baseline and follow-up

OPIOID USE	BASELINE* (INITIAL CONSULTATION), N (%)	FOLLOW-UP* (3–4 MO AFTER INITIAL CONSULTATION), N (%)	*P* VALUE
All interviewed patients (n = 71)			
• Using prescription opioids†	31 (44)	19 (27)	.102
• Using nonprescription opioids	9 (13)	2 (3)	.063
• Methadone therapy	3 (4)	9 (13)	.012‡
Problem opioid users (n = 29)			
• Currently a problem	29 (41)	11 (15)	< .001‡

*Percentages have been rounded.
†Number of patients reporting any current opioid use whether problematic or not.
‡Statistically significant values (α = 0.05).

Table 5. Substance use in patients at baseline and follow-up: *n = 71; some participants reported using more than one substance.*

SUBSTANCE USE	BASELINE* (INITIAL CONSULTATION), N (%)	FOLLOW-UP* (3–4 MO AFTER INITIAL CONSULTATION), N (%)	*P* VALUE
Substances used			
• Marijuana†	29 (41)	12 (17)	.004‡
• Benzodiazepines†	18 (25)	8 (11)	.026‡
• Other§	10 (14)	1 (1)	.005‡
Substances used problematically			
• Marijuana	13 (18)	8 (11)	.323
• Benzodiazepines	8 (11)	1 (1)	.004‡
• Cocaine	16 (23)	7 (10)	.079

*Some percentages have been rounded.
†Number of patients reporting any current use whether problematic or not.
‡Statistically significant values (α = 0.05).
§Other substances include heroin, club drugs, or dimenhydrinate.

DISCUSSION

The study had several limitations. The patients were referred from a variety of sources and used a range of substances. Despite persistent efforts, we only interviewed 35% of the cohort in follow-up. Our results might be biased, because patients who had relapsed might have avoided the follow-up interview. The group that was not contacted differed from the interviewed group in several respects, including pattern of substance use and attendance rate. The follow-up period was relatively short, and follow-up results were based on patients' self-report, with no corroborating measures, such as urine drug tests or collateral information from family members. There is evidence, however, that self-reports of substance use are reliable, particularly in patients seeking treatment.[14,26,27]

Despite these limitations, the study demonstrates that shared care holds promise as a new treatment model for addictions. Shared care has several potential advantages over formal addiction treatment. The family medicine setting might be more acceptable and less stigmatizing to patients than specialized addiction settings. Formal addiction programs have limited capacity and long, inflexible waiting lists, whereas shared care programs can see patients quickly and return them

to their family doctors for follow-up. Rapid treatment access and long-term follow-up are important determinants of treatment success.[28] Shared care integrates medical and psychosocial treatment of addiction, whereas formal addiction treatment tends to focus exclusively on psychosocial treatment.

Finally, shared care enhances the referring family physician's skills through written and telephone feedback, provision of educational materials, and initiation of pharmacotherapy. This could greatly enhance the addicted patient's access to treatment. Family physicians are in an ideal position to provide ongoing care, because they tend to have long-standing relationships with patients who trust and respect them. Patients prefer primary care to formal addiction treatment, and only the primary health care system has the capacity to intervene with the large numbers of alcohol and drug users in our population. For example, in a population survey of Ontario residents (N=1084), only 36% of those with a history of alcohol dependence had sought help for their condition. The physician was the most common source for those seeking help (29.7%), followed by attendance at Alcoholics Anonymous (12.3%). Only 7% had attended a formal program.[29]

Properly trained primary care physicians could have a considerable public health effect on addiction-related morbidity and mortality. A large cohort study found that heavy drinkers who received counseling from their own primary care physicians had marked reductions in alcohol use.[30] Several trials have demonstrated that, with appropriate training or specialist support, primary care physicians are as effective as specialized clinics in the management of alcohol or opioid dependence.[24,31,32] Primary care enhances the effectiveness of formal addiction treatment, perhaps because primary care practitioners can provide ongoing advice and early detection of relapse.[33] Controlled trials, cohort studies, and a systematic review demonstrated that patients with substance-related medical conditions had reductions in hospitalizations, emergency department visits, health care costs, and possibly mortality if their primary care practitioners had addiction medicine training, or if addiction treatment was integrated with primary care.[34-37]

Shared care programs can help demystify addictions for the primary care physician. Withdrawal protocols and medications to treat addiction are simple and safe compared with protocols for other common medical conditions, such as hypertension and diabetes. Addiction counseling is similar in most respects to the counseling that family physicians routinely provide to patients with other chronic medical conditions.[11,38,39] Shared care also serves as a bridge between the addiction and health care systems. Currently the 2 systems act independently, with separate funding, staffing, and sites.

Conclusion

The family medicine–based ASC program had high attendance rates and substantial reductions in use of alcohol, opioids, and other substances. The study results should be viewed as preliminary owing to the incomplete follow-up rates and reliance on self-reports. Nonetheless, the study suggests the need for further research and possibly expansion of programs in ASC.

Dr Kahan is Medical Director of the Addiction Medicine Services Clinic at St Joseph's Health Centre in Toronto, Ont, a staff physician in the Department of Family Medicine at St Joseph's Health Centre, and an Associate Professor in the Department of Family and Community Medicine at the University of Toronto. **Dr Wilson** is an Associate Professor and Chief of the Department of Family and Community Medicine at the University of Toronto and a staff physician in the Department of Family Medicine at St Joseph's Health Centre. **Dr Midmer** is an Associate Professor and Research Scholar in the Department of Family and Community Medicine at the University of Toronto. **Dr Ordean** is Medical Director of the Toronto Centre for Substance Use in Pregnancy at St Joseph's Health Centre, a staff physician in the Department of Family Medicine at St Joseph's Health Centre, and an Assistant Professor in the Department of Family and Community Medicine at the University of Toronto. **Ms Lim** is a Research Coordinator for Family Medicine and Addiction Medicine Services at St Joseph's Health Centre.

Contributors

Dr Kahan contributed substantially to the study conception and design, acquisition of data, interpretation of data, and drafting and critical revision of the article and approved the final version for submission. **Dr Wilson** contributed substantially to the implementation of the study, the study conception and design, and critical revision of the article and approved the final version for submission. **Dr Midmer** contributed substantially to the interpretation of data and critical revision of the article and approved the final version for submission. **Dr Ordean** contributed substantially to the study conception and critical revision of the article and approved the final version for submission. **Ms Lim** contributed substantially to the study conception and design, acquisition of data, analysis of data, and critical revision of the article and approved the final version for submission.

Competing interests

None declared

Correspondence

Dr Meldon Kahan, St Joseph's Health Centre, 30 The Queensway, Toronto, ON M6R 1B5; telephone 416 530-6860; e-mail **kahanm@stjoe.on.ca**

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