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Gender Differences in Physical and Mental Health Outcomes Among an Aging Cohort of Individuals with a History of Heroin Dependence

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Abstract

Background—This paper examines the health status and functioning of an aging cohort of individuals with a history of heroin dependence with a focus on gender differences.

Method—Study subjects were originally sampled from methadone maintenance clinics in California in the 1970s and completed follow-up interviews in 2005–09. Out of the original study sample ($N = 914$), 343 participants (44.3% female) were interviewed (70.6% of those not deceased). Bivariate analyses examined gender differences in participants' overall health status and physical and mental health problems. Scores on *SF-36* scales were compared with general population norms by gender and age, as well as between participants in the study sample who did and did not report past-year drug use.

Results—Average age of the study sample was 58.3 ($SD = 4.9$) years for males and 55.0 ($SD = 4.1$) years for females. There were no significant gender differences in past-year drug use (38% of sample) or injection drug use (19%). Women reported significantly more chronic health problems and psychological distress compared with men, and overall poorer health and functioning compared with general population norms. Men under 65 had poorer physical health and social functioning compared with population norms. Men in the study sample reporting past-year substance use had poorer physical functioning, but less bodily pain, than non-users, whereas women with past-year substance use had poorer mental health than other women.

Conclusion—Individuals with a history of heroin dependence have poorer health and functioning than their counterparts in the general population. At a younger age, women reported poorer overall health status and more chronic health and mental health problems than men. Study findings may inform interventions for this population, particularly related to gender-specific treatment needs.

Keywords

heroin dependence; health outcomes; physical health; mental health; gender differences; follow-up study

1. Introduction

There is increasing attention paid to the projected societal effects of the aging of the “Baby Boomer” cohort, including their anticipated health problems and needs for health services (Boddiger, 2008). This cohort (born between 1946 and 1964) contains a historically high number of individuals who became drug dependent during the upsurge in drug use that occurred in the 1960s–70s (Gfroerer, Penne, Pemberton, & Folsom, 2003). Survey data indicates that this cohort continues to use illicit substances at higher rates than previous generations (Duncan, Nicholson, White, Bradley, & Bonaguro, 2010). Estimates are that the number of adults aged 50 or older with substance use problems will approximately double from 2.8 million (annual average) in 2002–06 to 5.7 million in 2020 (Han, Gfroerer, Colliver, & Penne, 2009; Korper & Council, 2002). This aging cohort may have unprecedented levels of substance use disorders, associated health problems, and need for treatment (Colliver, Compton, Gfroerer, & Condon, 2006; Patterson & Jeste, 1999; Wu & Blazer, 2010).

Among this cohort, individuals with a history of heroin dependence will constitute an increasingly larger proportion of individuals who are in need of drug treatment (Gfroerer et al. 2003). Data reported into the national Treatment Episode Data System (TEDS) in 2003 showed that individuals aged 40–50 were the largest cohort in treatment for heroin use, representing over a quarter (27.5%) of the overall population receiving treatment for heroin (SAMHSA, 2005). Opiates were the second most commonly reported substance used by adults over 50 entering treatment (following alcohol), accounting for 22% of admissions aged 50 to 54 and 19% of those aged 55 to 59 (SAMHSA, 2007b). Between 1995 and 2005, primary opiate admissions increased from 6.6% to 10.5% of admissions aged 65 or older (SAMHSA, 2007a). Other analyses conducted with TEDS have shown that a growing proportion of older-aged admissions over this same time period reported polysubstance abuse, particularly cocaine and heroin abuse (Lofwall, Schuster, & Strain, 2008). Since individuals dependent on heroin generally have more physical and mental health disorders and overall poorer health, as compared with general population norms (Darke, Ross, & Teesson, 2007a; Ryan & White, 1996), it is assumed that these health problems will intensify as this population reaches older age by 2020–2030 (Lofwall, Brooner, Bigelow, Kindbom, & Strain, 2005; Jeste et al. 1999; Knickman & Snell 2002).

1.2 Health outcomes of heroin-dependent individuals

Several studies have established the chronic nature of heroin dependence over the life course (Goldstein & Herrera 1995; Hser, Hoffman, Grella, & Anglin 2001; Vaillant, 1973) as well as the problems in functioning observed among older heroin users (Anderson & Levy, 2003; Boeri, Sterk, & Elifson, 2008; Levy & Anderson 2005; Mullen & Hammersley, 2006). However, few studies have examined the health status of heroin users as they enter into middle- and older-age (Rosen, Hunsaker, Albert, Cornelius, & Reynolds, 2011). In a 33-year follow-up study of male heroin users, a subsample ($n = 108$; average age of 58) that completed medical tests had several indicators of poor health (Hser et al., 2004). Over half had elevated blood pressure, were overweight, and had abnormal liver function; about one fifth had elevated glucose levels; and, overall, the sample rated their health more poorly than men in the general population of comparable age.

A recent study using cross-sectional data from a population-based household sample showed that individuals who used heroin for longer durations had significantly higher odds of several physical and mental health disorders, including anxiety, hepatitis, and tuberculosis, after controlling for multiple confounding factors (Han, Gfroerer, & Colliver, 2010). A longitudinal follow-up study of heroin users in England showed that, of the surviving subjects who were interviewed, those who were currently using opiates had poorer overall

health (Tobutt, Oppenheimer, & Laranjeira, 1996). Although use of alcohol was low among the surviving cohort, a majority was using tobacco daily. Women were one third of the surviving cohort; however, gender differences were not examined.

1.3. Gender differences among heroin users

Most studies that have examined gender differences among heroin users have focused on initiation and progression of heroin use (Anglin, Hser, & McGlothlin, 1987; Hser, Anglin, & McGlothlin, 1987; Luthar, Cushing, & Rounsaville, 1996), or on current mental health and functioning among patients in opioid substitution treatment (Chatham, Hiller, Rowan-Szal, Joe, & Simpson, 1999; Deering et al., 2004; Puigdollers et al., 2004). Studies have shown high rates of polydrug use and comorbid mental health disorders among heroin users (Ross et al., 2005), particularly women (Shand, Degenhardt, Slade, & Nelson, 2011), in treatment (Brecht, Huang, Evans, & Hser, 2008; Rounsaville, Weissman, Crits-Christoph, Wilber, & Kleber, 1982) and population-based (Grella, Karno, Warda, Niv, & Moore, 2009) samples. Women heroin users generally report more health problems, poorer overall health status, and poorer health-related quality of life than men, even among younger cohorts of users in their 20s and 30s (Domingo-Salvany et al., 2010; Williamson, Darke, Ross, & Teesson, 2009). However, there has been little examination of gender differences among older adults with a history of heroin dependence (Hamilton & Grella, 2009).

1.4. Current paper

The aim of the present study is to examine the overall health status, prevalence of physical and mental health disorders, and psychosocial functioning of older adults with a history of heroin dependence. The study sample was originally sampled from methadone treatment programs in the late 1970s, and was followed up over a period spanning approximately 25 years. This study thus enables us to compare health-related outcomes of those who persisted in drug use with those who were abstinent at the time of follow-up. In particular, we focus on gender differences in health status and functioning within the study cohort, as well as their status in comparison with general population norms.

2. Materials and methods

2.1. Study design and procedures

The study cohort originally participated in one of two separate studies that were conducted in California in the 1980s (combined $N = 914$). Both studies examined the effects upon patients of changes in the public financing of methadone treatment that led to the closure of clinics in which they were enrolled, in comparison with comparable patients in methadone clinics that were not closed (Anglin & McGlothlin, 1985; Anglin et al., 1989; McGlothlin & Anglin, 1981). All participants had been enrolled in methadone maintenance treatment at some point in 1976–78 at clinics that were located in 6 counties in Central and Southern California. Subjects were sampled for the original studies from clinic records and completed a background assessment and baseline interview from 1978–1981.

We attempted to locate all subjects from these two prior studies who were not identified as deceased (i.e., no record of their death with the National Death Index) in order to invite them to participate in a 25-year follow-up study. The original study records were used as a starting basis for identifying the participants' current whereabouts. Addresses were checked against records obtained from the California Department of Motor Vehicles and Department of Corrections and Rehabilitation. We also accessed Internet-based programs that enabled us to obtain current address information. Upon contact, respondents were verified as those in the original study based on their date of birth, residence in the specific county at the time of the original study, and social security numbers.

Subjects who consented to participate in the follow-up study were asked to complete a timeline detailing their periods of drug use, incarceration, and treatment, and other major life events in advance of the interview. Interviews were conducted with study participants at a location of their choosing, which included private homes, restaurants, or other public settings, from March 2005 to January 2009. Study participants were paid \$100 for completion of the interview, which averaged approximately 3 hours. All procedures were reviewed and approved by the UCLA Institutional Review Board and a federal Certificate of Confidentiality was obtained to protect the data obtained in this study.

2.2. Status and characteristics of the study sample

The current status of subjects from the original study sample ($N = 914$) is as follows: 414 subjects (45.3%) were identified as deceased and their death certificates were obtained from the National Death Index to verify the date and cause of death. An additional 14 subjects were reported as deceased by family members or others, but no death certificate was obtained due to lack of matching on either name or social security number. Thus, the total verified and “probable” deceased group ($N = 428$) constitute 46.8% of the original study sample.

Of the remaining 486 subjects, 343 completed follow-up interviews (70.6% of the still-living subjects). Six subjects were incarcerated and not interviewed; 18 subjects refused to be interviewed and 5 subjects were too ill to be interviewed ($n = 29$ unable to be interviewed; 3.2%). The remaining 114 subjects (12.5% of original sample; 23.5% of sample excluding deceased) were not located or interviewed.

The interviewed sample consists of 191 (55.7%) males and 152 (44.3%) females. The average age at baseline interview was 35.4 for males and 30.2 for females; the corresponding ages at follow-up were 58.3 ($SD = 4.9$) and 55.0 ($SD = 4.1$), respectively. We compared socio-demographic and background characteristics of individuals who: (1) completed the follow-up interview, (2) were deceased at the time of follow-up, and (3) were not located. Women were over-represented in the interviewed group (44%) as compared with the overall sample (37%; $p < .001$). There was also a higher proportion of Whites in the interviewed group, and higher proportions of Hispanics and African Americans in the other groups, relative to the total sample ($p < .05$). A greater proportion of the interviewed subjects had completed high school (47%) relative to the total sample (40%, $p < .01$). Further, a higher proportion of individuals in the deceased group had rated their health as “fair or poor” (versus “good or excellent”) as compared to those in the other groups ($p < .05$). Individuals in the deceased group were older, on average, at the baseline interview (34.2+7), as compared with the total sample (32.2+6, $p < .001$). There were no significant differences among groups, however, on ages at initiation of alcohol, tobacco, heroin, or other drug use.

2.3. Measures

The MOS 36-item Short-Form Health Survey (SF-36)—The MOS *SF-36* is a 36-item questionnaire that assesses eight general areas of physical health and functioning (Ware & Sherbourne, 1992). The *SF-36* has been successfully used with opiate-dependent individuals (Ryan & White, 1996); age- and gender-specific norms based on the general population were used in comparison with the study sample.

The *Symptom Checklist-56 (SCL-56*; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974) comprises 56 items, each rated on a 4-point scale, covering psychiatric and somatic problems related to mental distress during the last seven days. A sum of all items, the *Global Severity Index*, was used in analyses, with higher scores indicative of greater severity.

The *Beck Depression Inventory* (BDI; Beck, Steer, & Carbin, 1988) comprises 21 items regarding depressive symptoms and attitudes; each is rated on a scale of 0–3, with higher scores indicating more intensity. Cut-off scores are used to determine minimal, mild, moderate, and severe levels of depressive symptoms.

Medical conditions were based on the respondent's self-report of having any of 16 chronic health problems.

Current drug use was based on a positive response to having used any of a list of 15 substances (including alcohol) in the 12 months prior to the interview.

2.4. Analyses

Bivariate analyses examined: (1) gender differences in self-reported socio-demographic characteristics, past-year alcohol and drug use, overall health status, and specific chronic health problems, and (2) physical and mental health outcomes of the study sample using scores on the *SF-36* scales, in comparison with individuals in the general population using age- and gender-based norms. Additionally, independent t-tests were conducted by subgroups of the study sample defined by any alcohol or drug (AOD) use in the year prior to the follow-up, by gender and age group.

3. Results

3.1. Socio-demographic characteristics and past-year substance use

Table 1 shows socio-demographic characteristics and past-year drug use of the study sample by gender. There were significant gender differences by race/ethnicity, education, and age, with greater proportions of males that are Hispanic, less educated, and older. There were no gender differences, however, with regard to employment or marital status.

About two fifths of the sample (37.9%) reported past-year illicit drug use, with no difference between men and women. The most commonly used drugs were marijuana (22%) and heroin/other opioids (20.1%). In addition, about one fifth of the sample (18.7%) reported injection drug use in the past year. Over one third of the sample (35.1%) reported alcohol use, with no significant difference by gender. Similarly, there were no differences in rates of substance abuse treatment participation in the past year (37.6% of overall sample).

3.2. Gender differences in health status

Table 2 summarizes the health status of the study sample. Overall, few in the sample considered their health to be "excellent" (about 4%) and close to half (47.8%) considered their current health status to be fair or poor. Considerably more women than men considered their health to be poor (27.3% vs. 8.4%, $p < .001$).

When asked about specific health problems for which they had ever been diagnosed and/or treated, a greater proportion of women than men endorsed the following conditions: heart disease, circulatory problems, asthma, bladder problems, colitis/bowel problems, arthritis, and chronic headaches.

Average scores on the *BDI* were in the mild-to-moderate range (10–18), although women scored significantly higher than men. Similarly, women were more likely to report a history of suicidal thought or attempts, and had significantly higher scores on the *Global Severity Index*, indicating overall higher levels of distress.

3.3. Physical and mental health functioning of study sample vs. population norms for men

Scores on the eight *SF-36* scales for the study sample were compared with general population norms by age and gender. Table 3 shows the mean scores for men in the sample by age group, for the total sample and subgroups based on past-year use of alcohol or drugs. Among men aged 45–54 years, the study sample differed significantly from men in the general population on *Physical Role Functioning*, *Bodily Pain*, *General Health*, *Energy & Fatigue*, and *Social Functioning*. In all cases, the study sample scored lower, indicating poorer functioning in these domains. Similarly, men in the study sample aged 55–64 years scored significantly lower (i.e., poorer functioning) on *Physical Functioning*, *Physical Role Functioning*, *Bodily Pain*, *General Health*, *Energy & Fatigue*, *Social Functioning*, and *Emotional Well-Being*. There were no significant differences between men in the study sample aged 65 and older and population norms; however, the small size of this subgroup ($n = 23$) limited the statistical power of these comparisons.

When scale scores were compared between subgroups defined by any past-year AOD use, there were significant differences among men aged 45–54 on *Physical Functioning*, with higher scores (i.e., better functioning) among those reporting no past-year drug use. There was also a significant difference among men in the study sample aged 55–64 on *Bodily Pain*, with higher scores (i.e., better functioning) among those reporting any past-year AOD use.

3.4. Physical and mental health functioning of study sample vs. population norms for women

Scores for women in the study sample and age-based general population norms were similarly compared (see Table 4). Women in the study sample aged 45–54 and 55–64 had significantly poorer functioning as compared with women of comparable age in the general population on all of the *SF-36* scales. The small subgroup of women aged 65 or older ($n = 3$) precluded comparisons for this age group.

When examined for subgroups based on past-year AOD use, women in the study sample aged 45–54 who reported any past-year AOD use had significantly poorer scores on *Emotional Well-Being* as compared with women without past-year AOD use. Among women in the study sample aged 55–64, those who reported past-year AOD use had significantly poorer scores on *Emotional Role Functioning* than their counterparts in the general population.

4. Discussion

This study extends prior research on the health status and functioning of heroin users by examining gender differences among an aging cohort of individuals with a history of heroin dependence, most of whom are not currently using heroin and/or participating in drug treatment. Consistent with research conducted with in-treatment samples (Lofwall et al., 2005; Rosen, Smith, & Reynolds, 2008), women in this study reported poorer overall health status, more chronic health problems, and poorer functioning, particularly related to mental health. Also consistent with other longitudinal studies, marijuana and alcohol were the most commonly used substances, other than heroin (Brecht et al., 2008); however, there were no gender differences in rates of heroin or other drug use among the study cohort. Although not significant, there were higher rates of tobacco use among women in the study sample. This observation is noteworthy, as population-based studies have shown higher rates of tobacco use among older males than females (Moore et al., 2009).

Shorter-term follow-up studies have demonstrated that health-related problems tend to diminish with reductions in use of heroin and other drugs (Teesson et al., 2008), in particular

health problems related to injection drug use (Teesson et al., 2006). Conversely, longer duration of heroin use has been associated with poorer physical health, including a higher risk of disability at relatively young ages (Darke et al., 2009). In the present study, both men and women had overall poorer mental and physical health and functioning as compared with their counterparts in the general population. However, among younger men (45–55 years old), those who reported past-year AOD use had significantly poorer physical functioning compared to men who reported no past-year use. In contrast, among men aged 55–64, those who reported past-year AOD use reported less bodily pain compared with men who were reported no use. This latter finding suggests that men who continue to use AOD may be self-medicating for pain, or perhaps unintentionally deriving this benefit from their substance use.

Findings for women were markedly different. Although women in the study sample also generally had poorer mental and physical health and functioning than women in the general population, those who reported past-year AOD use were significantly more impaired in the area of mental health. In contrast, past-year AOD use was not associated with poorer mental health among men in the study sample. Women in the study sample generally scored worse than men on all of the indicators of mental health status, with about one half reporting a history of suicidal ideation and about one-third a history of suicide attempts. The mental health profile of women in the sample is of concern, given that prior research with heroin users has shown that the risk of suicide is highest among those who are polysubstance users, who have a history of prior suicide attempts, and who are socially isolated (Darke et al., 2007b).

The study findings thus show that both men and women with a history of heroin dependence suffer significant impairments in physical and mental health as compared with the general population, however, they have impairments in differing domains, particularly associated with continued AOD use. It is possible that the poorer mental health among women with past-year substance use may be bi-directional, in that women with poorer mental health at baseline tended to persist longer than other women in their drug use. We note that the baseline survey did not include sufficient data on mental health status to allow us to test this hypothesis, however, at baseline women were more likely to report their physical health as fair or poor compared with men (34.2% vs. 19.4%, $p < .01$).

4.1. Study limitations and strengths

Several factors related to the study design need to be considered in the interpretation of findings. The specificity of the sample's geographic origin and composition limits the generalizability of study findings. Participants' access to treatment and their associated health outcomes may have been influenced by drug treatment policies and treatment system features that were unique to California during the original study period and the subsequent follow-up period (Anglin & McGlothlin, 1985). Use of self-report data on health status is inherently limited; it is possible that some individuals may not have utilized health care services, and thus lacked knowledge of existing health conditions. This may be particularly true of males, who are generally less likely to utilize health care services (Bertakis et al., 2000). However, the study utilized procedures that have been shown to increase the validity of self-report data obtained from drug-using samples (Del Boca & Noll, 2000). Lastly, the resultant follow-up sample is subject to attrition bias, both from "survivor bias" and from loss to follow-up among those still living. It is possible individuals who were not located had poorer outcomes regarding substance use and health status than the interviewed sample. It is noteworthy that those subjects who were deceased had rated their health more poorly at the baseline interview compared with the sample that was successfully interviewed at follow-up.

The study also has several notable strengths. The 71% follow-up interview completion rate is comparable to other follow-up studies of heroin users that were conducted over much shorter durations (Darke et al., 2007a; Flynn et al., 2003; Gossop, Marsden, Stewart, & Treacy, 2002). As noted previously, the current sample includes a sufficient proportion of women to enable an examination of gender differences in current status and functioning, unlike previous longitudinal studies.

4.2. Conclusion

Given the anticipated aging of the Baby Boom cohort, and their historically higher rates of drug use and dependence, some have argued that “the United States faces unprecedented challenges in dealing with health problems of the large numbers of illicit drug users and former users, which is a serious and urgent public health concern” (Han et al., 2010, p. 295). This problem will not be confined to the United States; as noted by another prominent researcher “opioids make the single largest contribution to illicit drug-related mortality and morbidity worldwide and remain the major clinical problem for drug treatment agencies” (Darke et al., 2007a, p. 49). Indeed, a recent systematic review showed that risk of mortality for heroin users across countries exceeds that of the general population by an average of 15 times, although variations exist by region and subject-related characteristics (Degenhardt et al., 2011).

The findings from the current study support the need to address health-related problems among middle- and older-age individuals who have a history of heroin dependence, particularly those who are currently using heroin and/or other substances. Moreover, such interventions should be tailored to address the age- and gender-specific issues found among this population. Health services providers may currently be unaware of the need to screen for and identify those individuals with a history of heroin dependence, including those in middle- and older-age who have continued use, and the higher risk for medical and mental health problems among this population.

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Table 1

Socio-demographics and past-year drug use by gender

	Men (N = 191)		Women (N = 152)		Total (N = 343)	
	N	%	N	%	N	%
Race/Ethnicity***						
White	114	59.7	130	85.5	244	71.1
Hispanic	73	38.2	19	12.5	92	26.8
Other ^d	4	2.1	3	2.0	7	2.0
Educational status**						
Less than HS	55	28.8	24	15.8	79	23.0
High school/GED	59	30.9	41	27.0	100	29.2
Trade school/college participation	77	40.3	87	57.3	164	47.8
Age****						
45 – 54	39	20.4	74	48.7	113	32.9
55 – 64	129	67.6	76	50.0	205	59.8
65+	23	12.0	2	1.3	25	7.3
Employment status**						
Employed	87	45.8	63	41.5	150	43.9
Unemployed	81	42.6	85	55.9	166	48.5
Retired	22	11.6	4	2.6	26	7.6
Married or lives w/partner	97	50.8	64	42.1	161	46.9
Past-year drug use						
Marijuana	40	20.9	36	23.7	76	22.2
Amphetamines	21	11.0	15	9.9	36	10.5
Tranquilizers	6	3.1	9	5.9	15	4.4
Heroin/other opioids	44	23.0	25	16.5	69	20.1
Cocaine/crack	17	8.9	13	8.6	30	8.8
Any illicit drug use	73	38.2	57	37.5	130	37.9
Any injection	41	21.5	23	15.1	64	18.7
Past-year alcohol use	74	39.0	46	30.3	120	35.1

	Men (N = 191)		Women (N = 152)		Total (N = 343)	
	N	%	N	%	N	%
Current tobacco use [†]	102	53.4	93	63.8	199	58.0
Drug treatment in past year	72	37.7	57	37.5	129	37.6

[†] $p < .06$,

** $p < .01$,

*** $p < .001$.

^a Includes African American, Asian/Pacific Islander, and American Indian

Table 2

Health status by gender

	Men (N = 191)		Women (N = 152)		Total (N = 343)	
	N	%	N	%	N	%
Overall self-reported health status, % ^{****}						
Excellent	9	4.7	4	2.7	13	3.8
Very good	36	18.9	24	16.0	60	17.6
Good	62	32.5	43	28.7	105	30.8
Fair	68	35.6	38	25.3	106	31.1
Poor	16	8.4	41	27.3	57	16.7
Chronic health problems, %						
Hypertension	79	41.4	68	44.7	147	42.9
Heart disease ^{****}	37	19.4	55	36.2	92	26.8
Circulatory problems ^{**}	18	9.4	33	21.7	51	14.9
Asthma ^{**}	20	10.5	35	23.0	55	16.0
Emphysema/lung cancer	17	8.9	16	10.5	33	9.6
Liver cirrhosis	17	8.9	19	12.5	36	10.5
Ulcers	33	17.3	31	20.4	64	18.7
Diabetes	28	14.7	21	13.8	49	14.3
Bladder problems ^{***}	9	4.7	37	24.3	46	13.4
Colitis/bowel problems ^{***}	2	1.1	17	11.2	19	5.5
Arthritis [*]	86	45.0	88	57.9	174	50.7
Back/neck problems	97	50.8	81	53.3	178	51.9
Headaches ^{**}	42	22.0	58	38.2	100	29.2
Dental problems	120	62.8	100	65.8	220	64.1
Hearing problems [†]	45	23.6	23	15.1	68	19.8
Neurological disorders [*]	3	1.6	10	6.6	13	3.8
Mental health symptoms, %						
Suicidal thoughts (lifetime) ^{**}	66	34.7	75	49.3	141	41.2

	Men (N = 191)		Women (N = 152)		Total (N = 343)	
	N	%	N	%	N	%
Suicidal attempts (lifetime) ***	23	12.1	49	32.2	72	21.1
SCL-56 Global Severity Score ***	95.5 (26.0)		109.7 (35.5)		101.8 (31.4)	
Beck Depression Inventory ***	13.0 (10.1)		18.1 (12.1)		15.2 (11.3)	

† $p < .10$,

* $p < .05$,

** $p < .01$,

*** $p < .001$.

Table 3

Mean scores on SF-36 scales for men by age and drug use status

	Ages 45-54		Ages 55-64		Ages 65+		
	Total (n = 39)	No Past-year Drug Use (n = 16)	Total (n = 129)	No Past-year Drug Use (n = 59)	Total (n = 23)	No Past-year Drug Use (n = 13)	Past-year Drug Use (n = 10)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Physical functioning	67.05 (27.93)	77.81 [†] (24.42)	66.23 ^{**} (29.47)	63.31 (31.60)	64.57 (29.88)	63.46 (30.03)	66.00 (31.25)
Role functioning physical	48.72 ^{**} (41.73)	57.81 (42.54)	55.04 ^{***} (43.46)	53.81 (44.48)	66.30 (44.98)	76.92 (38.81)	52.50 (50.62)
Bodily pain	61.15 [*] (27.90)	66.09 (31.41)	63.76 [*] (28.09)	57.16 [†] (26.67)	63.70 (29.33)	61.35 (31.17)	66.75 (28.09)
General health	51.15 ^{**} (22.98)	56.25 (21.41)	50.35 ^{***} (23.16)	48.90 (23.34)	58.70 (19.08)	55.00 (18.71)	63.50 (19.44)
Energy & fatigue	45.90 ^{**} (20.93)	47.81 (21.98)	48.06 ^{***} (20.40)	47.20 (21.18)	57.39 (22.15)	53.46 (22.95)	62.50 (21.11)
Social functioning	68.27 ^{**} (27.03)	74.22 (29.04)	71.03 ^{***} (26.97)	67.58 (26.98)	74.46 (26.51)	74.04 (24.72)	75.00 (30.05)
Role functioning emotional	68.38 (45.21)	77.08 (39.85)	68.73 (41.61)	64.97 (43.95)	84.06 (34.63)	82.05 (37.55)	86.67 (32.20)
Emotional well-being	67.38 (20.59)	67.75 (23.53)	68.16 ^{**} (19.78)	69.42 (18.95)	78.61 (13.13)	77.23 (13.50)	80.40 (13.13)

† Difference between drug-use group means, $p < .05$.

* $p < .05$,

** $p < .01$,

*** $p < .001$.

[†] Difference between drug-use group means, $p < .05$.

Table 4

Mean scores on SF-36 scales for women by age and drug use status

	Ages 45–54			Ages 55–64		
	No Past-year Drug Use (<i>n</i> = 27)		Past-year Drug Use (<i>n</i> = 47)	No Past-year Drug Use (<i>n</i> = 44)		Past-year Drug Use (<i>n</i> = 32)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Physical functioning	50.07 ^{***} (30.89)	48.89 (33.78)	50.74 (29.47)	54.57 ^{**} (32.06)	56.78 (33.25)	51.33 (30.51)
Role functioning physical	43.92 ^{***} (44.53)	41.67 (45.99)	45.21 (44.12)	46.96 ^{**} (43.59)	48.30 (43.27)	45.00 (44.72)
Bodily pain	48.75 ^{***} (29.73)	53.80 (33.61)	45.85 (27.21)	51.35 ^{**} (28.11)	51.48 (30.38)	51.17 (24.91)
General health	41.08 ^{***} (24.85)	42.59 (29.33)	40.21 (22.16)	45.41 ^{***} (26.13)	45.45 (27.04)	45.33 (25.19)
Energy & fatigue	40.07 ^{**} (22.41)	46.54 (24.40)	36.49 (20.64)	40.81 ^{***} (22.21)	41.82 (22.41)	39.33 (22.20)
Social functioning	51.01 ^{***} (34.85)	50.93 (36.02)	51.06 (34.56)	60.81 ^{**} (31.54)	64.77 (31.81)	55.00 (30.72)
Role functioning emotional	46.85 ^{**} (46.13)	53.09 (49.15)	43.26 (44.46)	57.66 ^{**} (44.58)	66.67 [†] (41.30)	44.44 [†] (46.60)
Emotional well-being	56.77 ^{**} (23.11)	66.46 ^{††} (21.91)	51.40 ^{††} (22.19)	60.11 ^{**} (24.14)	61.82 (24.53)	57.60 (23.74)

SF-36 scale scores range from 0–100, with higher scores indicating better functioning; significance tests indicate difference between sample mean and population norm by gender and age group.

**
p < .01.***
p < .001.†
Difference between drug-use group means, *p* < .05.††
Difference between drug-use group means, *p* < .01.