Published in final edited form as:

J Adolesc Health. 2018 January ; 62(1): 114–117. doi:10.1016/j.jadohealth.2017.07.018.

Prevalence of hepatitis C screening, testing, and care experience among young adults who use prescription opioids nonmedically

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Abstract

Purpose—Examine the prevalence of hepatitis C virus (HCV) screening, confirmatory testing, and care experiences among young adult nonmedical prescription opioid (NMPO) users.

Methods—We examined self-reported HCV screening history in a sample of 18- to 29-year-olds reporting past-month NMPO use, and used modified Poisson regression to identify associated sociodemographic and drug use patterns.

Results—Among 196 participants, 154 (78.6%) reported prior HCV screening, among whom 18 (11.7%) reported positive results. Of these, 13 (72.2%) reported receiving a confirmatory test; 12

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Disclosure statement

The decision to write-up this manuscript for publication, and the contents are the sole responsibilities of the authors.

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(66.7%) were referred for specialty HCV care. Screening was associated with injection drug use (adjusted prevalence ratio (APR): 1.19; 95% confidence interval (CI): 1.05–1.33) and history of hospitalization for psychiatric illness (APR: 1.23; 95% CI: 1.09–1.39). Younger participants (18–23 years) were less likely to have been screened (APR: 0.69; 95% CI: 0.57–0.85).

Conclusion—Among young adult NMPO users, post-HCV screening support and referral to care were inadequate.

Keywords

hepatitis C virus; nonmedical prescription opioid use; screening; testing; linkage to care; referral; follow-up; young adult

Young people who use drugs represent an increasing fraction of the overall hepatitis C virus (HCV)-infected population. This changing demographic has led to a re-emerging epidemic of incident HCV infection (1), particularly among individuals who are less than 30 years old (2).

With the changing epidemiology of HCV infection, the role of illicit drug use and in particular nonmedical prescription opioid (NMPO) use among young adults has become an issue of public health concern (3). NMPO use has been shown to drive transitions to injection drug use and syringe sharing behavior, which, in turn, increases the risk of HCV transmission among young adult drug users.

Screening and confirmatory testing for HCV among this population should be encouraged because early detection and treatment of HCV among young persons reduces HCV transmission to other young individuals (4).

In this study, we examined the prevalence of self-reported HCV screening and testing, as well as HCV care experiences among young adults who use prescription opioids nonmedically in Rhode Island.

METHODS

The Rhode Island Young Adults Prescription Drug Study (RAPiDS) recruited young adult NMPO users (aged 18 to 29 years) between January 2015 and February 2016. The design of this cross-sectional study has been described elsewhere (5). In brief, participants were recruited via snowball sampling, bus advertisements, and by research assistants who visited areas where young people who use drugs were known to congregate (e.g., bus depots, homeless shelters). Eligible participants were invited to a study office, at which point a trained interviewer administered the electronic survey. NMPO use was defined as opioid use without a prescription, or not as directed by a provider (e.g., higher dose, different route of administration)(6). The study was approved by the Institutional Review Board of Brown University.

The primary outcome of interest was a history of self-reported HCV screening assessed by asking: “Have you ever been tested for hepatitis C?” (yes vs. no). We excluded 4 (2.0%) persons of the 200 RAPiDS participants who did not respond to the primary outcome of

interest, leaving an eligible sample of $n=196$. Among participants reporting screening for HCV with a positive test result, we further sought information on HCV treatment and cure and assessed the support services offered to them. Possible response options to these questions included: “I was offered a follow-up blood test”; “I was offered education about living with hepatitis C”; “I was offered education about how not to transmit HCV to someone else”; and finally, “I was offered a referral to a doctor or clinic for my hepatitis care”. Age distribution of the respondents was dichotomized as <24 years vs ≥ 24 years based on similar categorization employed in previous studies in young drug users. Barriers to screening and testing studied included health insurance status, experience of discrimination from the healthcare community, comorbid psychiatric illness including depression, and access to drug addiction treatment services (7).

Bivariable associations were examined using Pearson’s χ^2 test and Fisher’s exact test for cell counts <5 . Modified Poisson regression was used to determine the independent correlates of prior HCV screening. Variables with $p \leq 0.20$ from initial bivariable analysis were included in the initial multivariable model, and the model was subsequently reduced using a backward selection procedure based on the quasi likelihood under the independence model criterion (QIC), a measure of the fit of nested modified Poisson regression models. To achieve a more parsimonious model, only variables that attained statistical significance at the 0.05 significance level were retained in the final model (model 2). Statistical analysis was done using SAS software version 9.4 (SAS Institute, Cary, NC), and all p -values are two-sided.

RESULTS

Among the eligible analytic sample of $n=196$, the mean age was 24.5 years ($SD=3.2$), and 154 (78.6%) participants reported ever being screened for HCV. Screening history differed by age group, with a higher proportion of respondents 24–29 years reporting being screened (89.5%) compared to those 18–23 (59.7%), as shown in Table 1.

Of the 154 who reported screening for HCV, 18 (11.7%) participants reported a positive test result. Among these 18, support services offered to participants after a positive HCV screening test included: follow-up confirmatory blood test ($n=13$, 72.2%), referral for specialty HCV care ($n=12$, 66.7%), education about living with HCV ($n=9$, 50%), and education about how not to transmit HCV to someone else ($n=10$, 55.6%).

Two multivariable models were built to determine the independent correlates of prior HCV screening: model 1 was the model with the lowest QIC, while model 2 was the most parsimonious model. In the final model (model 2), age group 18–23 years (adjusted prevalence ratio (APR)=0.69; 95% confidence interval (CI)=0.57–0.85), history of injecting drugs (APR=1.19; 95% CI=1.05–1.33), and history of ever being hospitalized for psychiatric illness or depression (APR=1.23; 95% CI=1.09–1.39) were all significantly associated with HCV screening history (see Table 2).

DISCUSSION

This study examined the prevalence of self-reported HCV screening, testing and care experiences among young adults who use prescription opioids nonmedically in Rhode Island. The prevalence of prior HCV screening was moderately high within this cohort (reported by 3 in 4 participants); however, among those who reported receiving a positive result, post-screening diagnostic testing and referral to care were not as frequent. Even though over 90% of participants who had ever injected drugs had been screened for HCV, approximately 1 in 3 participants with a positive HCV screening were not referred to care. Further, younger participants aged 18–23 years were less likely to have been screened compared to 24–29 year-olds.

These results reveal gaps in current follow-up strategies for HCV management in young adults who screen positive, and indicate sub-optimal referral to treatment for young people who use opioids. Establishing case management programs focusing on HCV-positive young adults and involving trained case managers may improve referral and linkage to care, while also ensuring adequate supervision of patient follow-up (8–10). Further, strategies may be needed to encourage young individuals to receive HCV screening and testing early in the course of illicit drug use.

This study has some important limitations. First, the modest sample size in the study increases the likelihood of low statistical power to detect truly significant associations. Second, field-based recruitment occurred at multiple sites, including at needle exchange programs with HCV screening capability. This could be the reason for the high HCV screening response in the cohort, thus selection bias is possible in the recruitment of participants. The results may not be generalizable to settings with more limited HCV screening and testing services for people who inject drugs.

In addition, we did not give participants additional information about HCV and this may have affected the number who reported screening for HCV. Finally, as the study was cross-sectional, we note that no causal inferences can be made.

In sum, our study makes several important contributions to the literature. To the best of our knowledge, this study is among the first to examine HCV screening and care experiences among young adult nonmedical prescription opioids (NMPO) users. Further, our study unveils the need to encourage young NMPO users to receive HCV screening early in the course of illicit drug use. Finally, this study demonstrates the need to not only screen at-risk patients, but to also ensure adequate follow-up after referral to care. Establishing comprehensive integrated care programs which incorporate peer support, counselors, case managers, and educators is recommended to improve follow-up care.

Acknowledgments

This study was supported by the RAPIIDS grant from the National Institutes of Health (NIH R03-DA03770). We acknowledge Jesse Yedinak, MPA for her administrative support and Beth Elston who gave statistical support. Authors have no conflict of interest to declare. Dr. Taylor's contribution to the project described was supported by Grant Number P30AI042853 from the National Institute Of Allergy And Infectious Diseases. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute Of Allergy And Infectious Diseases or the National Institute of Health

Abbreviations

HCV	Hepatitis C virus
NMPO	Nonmedical prescription opioid
RAPiDS	Rhode Island Young Adult Prescription Drug Study

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Implications and Contribution summary statement

Although 3 in 4 young adults who use prescription opioids non-medically had been screened for hepatitis C, post-screening diagnostic testing, support, and referral to care were inadequate. Younger participants were less likely to have been screened compared to older participants.

Table 1

Sociodemographic factors, risk behaviors, and barriers to HCV screening among the Rhode Island Young Adult Prescription Drug Study [January 2015–February 2016] stratified by HCV screening history

Characteristics	Total (%) (N=196)	HCV screening history		p value
		Screened	Not screened	
		n (%)	n (%)	
Age (years)				<0.001
18–23	72 (36.7)	43 (59.7)	29 (40.3)	
24–29	124 (63.3)	111 (89.5)	13 (10.5)	
Race *				0.692
White	121 (62.7)	97 (80.2)	24 (19.8)	
Non-white	72 (37.3)	56 (77.8)	16 (22.2)	
Ethnicity				0.692
Hispanic	27 (13.8)	22 (81.5)	5 (18.5)	
Non-Hispanic	169 (86.2)	132 (78.1)	37 (21.9)	
Sex at birth *				0.399
Male	130 (67.7)	100 (76.9)	30 (23.1)	
Female	62 (32.3)	51 (82.3)	11 (17.7)	
Ever snorted drugs *				<0.001
Yes	116 (59.8)	101 (87.1)	15 (12.9)	
No	78 (40.2)	51 (65.4)	27 (34.6)	
Ever injected drugs *				<0.001
Yes	59 (30.3)	56 (94.9)	3 (5.1)	
No	136 (69.7)	97 (71.3)	39 (28.7)	
Ever been homeless				<0.001
Yes	109 (55.6)	96 (88.1)	13 (11.9)	
No	87 (44.4)	58 (66.7)	29 (33.3)	
Ever been hospitalized for psychiatric illness or depression				0.003
Yes	65 (33.2)	59 (90.8)	6 (9.2)	
No	131 (66.8)	95 (72.5)	36 (27.5)	
Health insurance access				0.391
Yes	171 (87.2)	136 (79.5)	35 (20.5)	
No	25 (12.8)	18 (72.0)	7 (28.0)	
Discrimination from medical community				0.078
Yes	59 (30.1)	51 (86.4)	8 (13.6)	
No	137 (69.9)	103 (75.2)	34 (24.8)	
Unable to access addiction treatment program				0.019
Yes	39 (19.9)	36 (92.3)	3 (7.7)	
No	157 (80.1)	118 (75.2)	39 (24.8)	

* implies characteristic with reduced sample size due to missing data

Table 2

Modified Poisson regression models of HCV screening history and covariates, in the Rhode Island Young Adult Prescription Drug Study cohort [January 2015–February 2016]

Characteristic	Model 1	Model 2
	APR (95% C.I)	APR (95% C.I)
Age (years)		
18–23	0.72 (0.59–0.87)	0.69 (0.57–0.85)
24–29	Ref	Ref
Ever snorted drugs		
Yes	1.13 (0.94–1.36)	-
No	Ref	-
Ever injected drugs		
Yes	1.11 (0.97–1.28)	1.19 (1.05–1.33)
No	Ref	Ref
Ever been homeless		
Yes	1.14 (0.98–1.34)	-
No	Ref	-
Ever been hospitalized for psychiatric illness or depression		
Yes	1.19 (1.05–1.34)	1.23 (1.09–1.39)
No	Ref	Ref
Discrimination from medical community		
Yes	0.94 (0.81–1.09)	-
No	Ref	-
Unable to access addiction treatment program		
Yes	1.02 (0.89–1.16)	-
No	Ref	-

APR= adjusted prevalence ratio