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Overdose Education and Naloxone Rescue Kits for Family Members of Opioid Users: Characteristics, Motivations and Naloxone Use

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Abstract

Background—In response to the overdose epidemic, a network of support groups for family members in Massachusetts has been providing overdose education and naloxone rescue kits (OEN). The aims of this study were to describe the characteristics, motivations and benefits of family members who receive OEN and to describe the frequency of naloxone used during an overdose rescue.

Methods—This cross-sectional, multisite study surveyed attendees of community support groups for family members of opioid users where OEN training was offered using a 42 item self-administered survey that included demographics, relationship to opioid user, experience with overdose, motivations to receive OEN, and naloxone rescue kit use.

Results—Of 126 attendees who completed surveys at 8 sites, most attendees were white (95%), female (78%), married or partnered (74%), parents of an opioid user (85%), and provide financial support for opioid user (52%). The OEN trainees (79%) were more likely than attendees not trained (21%) to be parents of an opioid user (91% v 65%, $p < 0.05$), provide financial support to an opioid user (58% v 30%, $p < 0.05$), and to have witnessed an overdose (35% v 12%, $p = 0.07$). The major motivations to receive training were: wanting a kit in their home (72%), education provided at the meeting (60%) and hearing about benefits from others (57%). Sixteen parents reported witnessing their child overdose and five attendees had used naloxone successfully during an overdose rescue.

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AUTHOR CONTRIBUTIONS

SMB, JP, CJ, PGO and AYW contributed to design of the study. SMB, CJ, JP and AYW designed the survey. SMB and DMC EQ performed the analysis. SMB, JP, PGO and AYW contributed to the interpretation of the results. SMB wrote the first draft of the manuscript and the remaining authors contributed to the revised and final document.

Conclusions—Support groups for families of people who use opioids are promising venues to conduct overdose prevention trainings, because attendees are motivated to receive training and will use naloxone to rescue people when witnessing an overdose. Further study is warranted to understand how to optimize this approach to overdose prevention in the community setting.

INTRODUCTION

Fatal drug overdoses are the leading cause of injury death in the United States surpassing deaths from motor vehicle crashes.[1] The increase in these deaths have been driven by a substantial increase in prescription opioids.[2] Misuse of prescription opioids often leads to a transition to injection heroin, which increases overdose risk. [3] One strategy to reduce opioid-related deaths has been community distribution of overdose education and naloxone rescue kits (OEN).[4] OEN equips individuals who are using drugs or bystanders to recognize and respond to an overdose. Between 1996–2010, more than 50,000 lay people in the United States were trained to recognize an overdose and had received a naloxone kit.[5]

OEN has been shown to be feasible, to increase knowledge of overdose, to decrease overdose deaths in communities where it is implemented and to be cost-effective.[6–9] Initially, harm reduction organizations provided the infrastructure for OEN programs and focused on people who inject drugs. However, in response to increasing public awareness about opioid overdose, access to OEN programs has expanded to community support groups, emergency first responders, and addiction treatment settings.[10,11] In some states, naloxone rescue kits are available at pharmacies by prescription or without a prescription through collaborative practice agreements or standing orders.[12,13]

As part of expansion efforts, attention has also been placed on the role of family members in preventing overdose. A study among family members of opioid users in the United Kingdom demonstrated interest in receiving OEN.[14] Studies of knowledge and attitudes of opioid overdose have demonstrated that family members retain opioid overdose-related knowledge and competence three months after training.[6,7] The motivations of family members who participate in an existing OEN training program that distributes nasal naloxone has not previously been described. With rising opioid-related overdose deaths, it is important to understand the motivations of family members to receive and not receive OEN to refine recruitment and training efforts.

The Massachusetts Department of Public Health (MDPH) began in 2007 to support OEN through designated community-based organizations. In 2011, Learn to Cope, a network of family support groups in Massachusetts became one of the community-based organizations offering OEN training.[15] In this setting, we administered a survey to family support group attendees to: 1) describe the characteristics of those who received OEN and those who did not; 2) describe the motivations and benefits of those who received OEN and those who did not; and 3) among those who received OEN, to describe the frequency of naloxone used during an overdose rescue.

METHODS

Design and population

We conducted a cross sectional survey of a convenience sample of attendees of community support groups for family members of people who use opioids where voluntary OEN training was offered at 8 sites. Adult, English-speaking support group attendees were eligible to take the survey. Attendees who had previously taken the survey were excluded from taking it a second time.

Setting

Learn to Cope is a support group for family members of people who use drugs, primarily opioids, based in Massachusetts started in 2004. Beginning in 2011, OEN became available at every Learn to Cope meeting through the Massachusetts Opioid Overdose Prevention Pilot Program. At the start of each meeting, members are told about the availability of OEN training and encouraged to be trained. At a designated time, an MDPH-approved trainer takes interested members out of the meeting to a separate room in order to provide OEN. An MDPH “master” trainer designated trains and supervises the MDPH approved trainers. OEN training lasts approximately 20 minutes and includes teaching about how to recognize and respond to an overdose. Participants also put together a demonstration nasal naloxone kit. MDPH developed the OEN curriculum. At the time this study was conducted, there were 10 meeting locations across the state.

Procedure

The authors (SMB, CJ, AYW, JP) developed a 42 item self-administered survey that included five domains; demographics, relationship to opioid user, experience with overdose, motivations to receive OEN, and naloxone rescue kit use. (See appendix) The demographic section included age, gender and race. The relationship to user, experience with overdose and motivations domains were developed using clinical judgment and experience. The questions in the naloxone rescue kit use domain were from the Massachusetts overdose prevention program’s tracking form.[8] The survey was piloted with 5 Learn to Cope members who confirmed that the survey was understandable and did not take more than 15 minutes to complete; minor modifications were made from their suggestions. Subjects were recruited by convenience at eight meetings from July 1, 2013 through September 2013. At the start of the meeting, the meeting leader informed the group that a researcher (SMB) was present to conduct surveys about naloxone distribution at the end of the meeting. Interested attendees stayed after the meeting to complete the survey and receive a $5 gift card for compensation. The study was exempt through the Boston University Medical Center Institutional Review Board.

Statistical Analysis

Descriptive statistics (i.e., frequencies and proportions for categorical variables; means, medians, standard deviations, and interquartile ranges for continuous variables) were calculated for all variables stratified by receipt of OEN. Chi-square tests, and t-tests or Wilcoxon Rank Sum tests were used as appropriate to compare the characteristics of the

trained and untrained family members. Key variables of interest included the family members' experience with addiction such as duration of use, experience with overdose and involvement with the legal system and whether that would impact receipt of OEN. Descriptive statistics were also used to describe the reported motivations and benefits for receiving OEN training and the frequency of naloxone used during overdose rescue. Analyses were conducted using SAS version 9.2 (SAS Institute Inc., Cary, NC, USA).

RESULTS

Characteristics of Attendees

Of 132 support group attendees who started surveys at eight sites; 6 surveys were excluded from the analysis because they were incomplete. Among the 126 included, most attendees were female, white, married or partnered, parents of an opioid user, provide financial support for loved one, and have daily contact. 99 had received OEN and 27 had not received OEN. Those who received OEN training were more likely to be a parent (91% v 65%, <0.05), provide financial support (58% v 30%, <0.05), have daily contact (54% v 33%, <0.005), have applied for court mandated treatment (41% v 15%, <0.05), have attended more meetings (median number of meetings 20 v. 5 <0.05) and witnessed an overdose (35% v 12%, <0.05). (Table 1)

Reasons for Wanting OEN Training

The trainees most frequently reported wanting to have the kit in the house (72%), encouragement from education provided at the meetings (60%) and hearing about the benefits from other Learn to Cope members (57%) as reasons for having obtained OEN. Of 27 untrained attendees, 13 (48%) wanted to be trained. Reasons they wanted training included: encouragement from education provided at Learn to Cope meetings (69%), hearing about the benefits from other Learn to Cope members (31%) and wanting to have a kit in the house (31%). (Table 2)

Benefits of participating in the program

More than half of the trainees endorsed "greater sense of security, "improved confidence to handle an overdose," and "greater understanding of overdose prevention and management" as benefits of OEN training. (Table 3)

Reasons to not be Trained

Of the 27 untrained subjects; 6 (22%) subjects did not want training and 8 (30%) subjects did not give a response. Of the 6 that did not want training, 2 responded OEN was "not necessary", 2 did "not live with the loved one", 1 responded her "family member does not use opioids", 1 did not "think that she would use it" and none reported "having heard negative things."

Overdose Experiences and Naloxone Use

Of 37 participants who reported having witnessed an overdose in their lifetime, 46% (16/35) were parents who had witnessed a child having an overdose. Five participants administered

naloxone to a family member or stranger after being trained at a Learn to Cope meeting. In every case, the overdose victim survived. Rescuers calling 911 for help in all 5 overdoses and performed rescue breathing in 4 of 5. Naloxone was sufficient to restore breathing in 4 of 5 overdoses. In the fifth overdose, additional naloxone was needed by the ambulance service before the victim became responsive. (Table 4)

DISCUSSION

In this study of family members of opioid users attending a support group, we found high uptake of overdose education and naloxone rescue kits offered at the meetings. They were commonly parents who provided financial support, had daily contact, had applied for court-mandated treatment, and had witnessed an overdose. These characteristics were more common among attendees who had received OEN than in those who had not. Participants acknowledged several motivations and benefits. Among the minority who had not received OEN, almost half wanted to be trained. Several attendees had administered naloxone as part of rescuing someone who had overdosed after receiving training at a meeting.

The high degree of involvement in the lives of an opioid user among attendees is consistent with reported motivations to have a kit in the house for a greater sense of security and improved confidence to handle an overdose. OEN may provide family members with a concrete tool to cope with what can be a disempowering situation of caring for an individual with addiction. Increased control and confidence have been reported in a qualitative study conducted among people who inject drugs who had been trained in OEN and had rescued someone else with naloxone.[16] The motivations acknowledged by family support group attendees were not only internally driven motivations to prepared to respond to an overdose, but also externally driven by the encouragement of other support group members and, thus, likely amplified in the support group setting. OEN programs in family support group setting show promise as a strategy to expand public health overdose prevention efforts into the community and social networks impacted by opioid use.

This work complements and extends prior research about OEN among families of people who use opioids in that showed that they are interested in OEN and can retain knowledge and attitude changes. [6,7,14] First, we describe a program implemented in the real world, in which some attendees had used naloxone as part of overdose rescue. Second, attendees were equipped with nasal naloxone, which may have lower barriers (e.g. less stigma) to use than needle-based naloxone kits.

There are limitations to this study. It was a convenience sample that limits generalizabilty. However, we did have high participation in the survey from multiple sites. Respondents were anonymous and compensated to attract not only enthusiastic supporters. It was cross sectional and causal inferences cannot be made. Although we asked about motivations and benefits using questions that have face validity and were pilot tested, there is no formally validated measure of motivations or overdose response outcomes. As this was self-administered there are missing data and it is possible that the subjects who participated and provided complete answers were more highly motivated.

This study suggests that OEN programs at support groups for family members are feasible and should be considered as part of an overdose prevention public health strategy. With evidence that community OEN reduces opioid overdose deaths and is cost-effective,[8,9] policy makers should consider mobilizing family members as part of the response to the opioid overdose epidemic. Efforts should be focused also on reaching family members beyond support group meetings who might otherwise feel stigmatized and isolated. Further research should study different education and training methods to determine how to optimally deliver and disseminate OEN among families of opioid users. Future work should evaluate also the role of OEN as a component of an intervention package for family members who have a loved one struggling with addiction.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Characteristics of Family Members Overall and by Receipt of OEN Training

	Overall (N=126)	OEN trained (n=99)	Not OEN trained (n=27)	p-value
	% (n/d)	% (n/d)	% (n/d)	
Age				
N Mean (Std Dev)	132 53.1 (10.0)	98 52.3 (8.4)	26 55.0 (13.4)	0.20
Gender				
Female	78% (98/125)	79% (78/99)	77% (20/26)	0.84
Male	22% (27/125)	21% (21/99)	23% (6/26)	
Race				
White	95% (119/125)	94% (93/99)	100% (26/26)	0.44
Other	5.0% (6/125)	6.0% (6/99)	0% (0/26)	
Marital Status				
Married/Partnered	74% (93/125)	75% (74/99)	73% (19/26)	0.99
Divorced/Separated/Widowed/Single	26% (32/125)	25% (25/99)	27% (7/26)	
Relationship to User				
Parent	85% (104/122)	91% (87/96)	65% (17/26)	0.0056
Other	15% (18/122)	9% (9/96)	35% (9/26)	
Provided Financial Support				
Yes	52% (65/125)	58% (57/98)	30% (8/27)	0.0086
No	48% (60/125)	42% (41/98)	70% (19/27)	
Frequency of Contact				
Daily	50% (62/125)	54% (53/98)	33% (9/27)	0.0041
Weekly	33% (41/125)	35% (34/98)	26% (7/27)	
2–3 Times a Month	8.8% (11/125)	7.1% (7/98)	15% (4/27)	
Monthly	4.8% (6/125)	2.0% (2/98)	15% (4/27)	
No Contact	4.0% (5/125)	2.0% (2/98)	11% (3/27)	
Applied for Court Mandated Treatment *				
Yes	35% (44/125)	41% (40/98)	15% (4/27)	0.04
No/Unsure	65% (81/125)	59% (58/98)	85% (23/27)	
Number of LTC Meetings				
Median, IQR**	16, (5–60)	20, (9–70)	5, (2–10)	<0.0001
Heard about Naloxone before LTC				
Yes	47% (59/126)	43% (43/99)	59% (16/27)	0.14
No	53% (67/126)	57% (56/99)	41% (11/27)	
Witnessed Overdose				
Yes	30% (37/124)	35% (34/98)	12% (3/26)	0.07
Victim was son or daughter	46% (16/35)***	47% (15/32)	33% (1/3)	0.50

	Overall (N=126)	OEN trained (n=99)	Not OEN trained (n=27)	p-value
	% (n/d)	% (n/d)	% (n/d)	
No/Unsure	70% (87/124)	65% (64/98)	88% (23/26)	
Unsure	1.6% (2/124)	2.0% (2/98)	0.0% (0/26)	

* In Massachusetts, Section 35 refers to the court's ability to involuntarily commit individuals to treatment who pose a risk to self because of alcohol or drug use. Subjects were asked if they have ever filed a Section 35, if they answered "yes" they answered the following question "If yes, was this related to your loved one's use?"

** IQR: Intraquartile range

*** Two of the 37 did not respond

Table 2

Motivations for OEN Training by Receipt of OEN Training

Motivations for OEN training	**OEN trained (n=99)**	**Not OEN trained, but wanted training (n=13)**
	% (n/d)	**% (n/d)**
Wanted to have naloxone in the house	72% (67/93)	31% (4/13)
Encouraged by education provided at Learn to Cope	60% (56/93)	69% (9/13)
Heard about benefits from Learn to Cope members	57% (53/93)	31% (4/13)
Wanted more information about overdose	26% (24/93)	23 % (3/13)
Wanted kit for someone else	19% (18/93)	7.7% (1/13)
Previously witnessed overdose	18% (17/93)	7.7% (1/13)
Experienced death of loved one	1.1% (1/93)	0.0% (0/13)

Table 3

Reported Benefits of OEN Training by Trainees

Reported benefits of OEN training	**Received OEN (n=92)**
	% (n/d)
Greater sense of security	74% (68/92)
Improved confidence to handle overdose	62% (57/92)
Greater understanding of overdose prevention and management	60% (55/92)
Educate others about OEN	33% (30/92)
Was able to reverse an overdose	29% (27/92)

Table 4

Characteristics of last witnessed overdose rescue where OEN program naloxone was used by respondent

Characteristics of last witnessed overdose rescue	Response % (n/d)
Relationship to Overdose Victim*	
Parent	40% (2/5)
Grandparent	20% (1/5)
Stranger	20% (1/5)
Friend	20% (1/5)
Setting	
Private	80% (4/5)
Public	20% (1/5)
Other Characteristics of Overdose	
Survived	100% (5/5)
EMT Administered naloxone in addition to program naloxone	20% (1/5)
911 Called/ Police EMT or Fire Present	100% (5/5)
Stayed with Victim Until Help Arrived	80% (1/5)
Slap	40% (2/5)
Ice/Water	0% (0/5)
Salt/Cocaine Injection	0% (0/5)
Victim placed in recovery position	60% (3/5)
Sternal/Lip Rub	80% (4/5)
Rescue Breathing	80% (4/5)

*Did not include three responses from subjects who used naloxone as part of their job in a health care setting