



# Community Support for Harm Reduction and Treatment of Opioid Use Disorder

Bridget L. Hanson<sup>1</sup> · Kari Finley<sup>1</sup> · Jay Otto<sup>1</sup> · Nicholas J. Ward<sup>2</sup> · Swagata Banik<sup>3</sup>

Accepted: 22 August 2023 / Published online: 26 February 2024

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## Abstract

As the opioid epidemic continues, availability of evidence-based strategies for harm reduction and treatment in communities is critical to reduce overdose and other consequences of opioid use disorder. Community members' support of harm reduction and treatment services is needed for new programs and to maintain existent programs. This study sought to understand beliefs and attitudes associated with support for three community-based strategies to address opioid misuse and addiction: naloxone, needle exchange, and medication-assisted treatment. We conducted a cross-sectional online survey with 545 adults. Results of the survey showed that participants supported all three strategies, with the strongest support for medication-assisted treatment. Multiple regression showed that stigma and perceived stigma were significant predictors for all three strategies, with inverse relationships. Stigmatizing beliefs predicted less support while perceiving stigma among others was associated with greater support for the strategies. Normative beliefs also significantly predicted support for all three strategies, such that stronger belief that others were supportive of each strategy was associated with greater support for that strategy. Other predictors varied across the three strategies. Support for harm reduction and treatment programs in communities affected by the opioid epidemic may be bolstered by reducing stigma and increasing normative beliefs. Stronger support for medication-assisted treatment may be leveraged and extended to harm reduction strategies. Results of our study contribute insights for bolstering community support for harm reduction and treatment, which is vital for adoption and maintenance of these important programs.

**Keywords** Beliefs · Attitudes · Stigma · Harm reduction · Opioid epidemic

## Introduction

In the United States (U.S.) alone, approximately 2.7 million people experience opioid use disorder (OUD) [1]. OUD is a chronic disease that causes significant distress or impairment and in which people continue to use despite negative consequences. Those with OUD are at an increased risk of overdose and death. Drug overdose deaths have increased significantly over the past 20 years, with particularly steep increases since 2019 [2]. In recent years, most drug overdose deaths involve an opioid and deaths involving synthetic

opioids such as fentanyl contribute to the vast majority (more than 80%) of those deaths [3]. The rate of overdose deaths involving opioids was 24.7 per 100,000 in 2021, which is 7.5 times greater than it was in 2001 [2]. Despite increased and growing attention, the upward overdose death trend continued through 2022 [4]. Given the negative consequences associated with opioid misuse and the preventable nature of these consequences, wide-scale adoption of harm reduction strategies and availability of treatment services are vital community public health responses.

Targeted naloxone distribution and needle exchange programs that support safer drug use practices are evidence-based strategies aimed to reduce the severe and negative consequences of OUD [5]. Naloxone is an opioid antagonist medication that reverses the effects of opioids, including overdose. Naloxone works by attaching to opioid receptors in the brain and temporarily reversing and blocking the effects of opioids [6]. While initial availability of naloxone was mostly limited to healthcare professionals and law

✉ Bridget L. Hanson  
bridget.hanson@montana.edu

<sup>1</sup> Center for Health and Safety Culture, Montana State University, P.O. Box 170548, Bozeman, MT 59717, USA

<sup>2</sup> Leidos, Reston, VA, USA

<sup>3</sup> Baldwin Wallace University, Berea, OH, USA

enforcement, the trend to make naloxone available more widely to the public through targeted naloxone distribution, with the goal to shorten the time to deliver this life-saving medication in an overdose situation, is growing [7]. Naloxone availability can reduce opioid overdose deaths [8–10], but there continues to be some opposition to having unrestricted naloxone available [11].

Some opponents of broad naloxone availability cite moral hazard concerns – that naloxone availability could result in increased opioid use. Beliefs like “making naloxone more available may reduce the perceived risk of opioid misuse and make people less motivated to seek treatment” have been noted as some of oppositional beliefs surrounding the public debate of unrestricted naloxone access [12]. A recent systematic review found no evidence of this moral hazard; in seven studies of different drugs, data did not show increased opioid use or overdose following increased naloxone availability through take-home naloxone programs [13]. Despite lack of evidence, moral hazard concerns persist.

Needle exchange programs, also known as syringe exchange programs, that promote safer drug use practices by providing clean needles and syringes and disposing of used needles safely is another example of a harm reduction strategy shown to effectively reduce the negative consequences of OUD [14, 15]. People who inject drugs are at increased risk for HIV, hepatitis C, hepatitis B [16], and of wound and soft tissue infections [17]. Needle exchange programs can reduce the transmission of disease by providing sanitary hypodermic needles and promoting safe disposal of used needles. Further, many needle exchange programs provide other services such as referrals to substance use treatment or for needed healthcare like testing for transmittable diseases. Despite evidence that needle exchange programs can reduce drug-use complications, these programs can elicit apprehension and opposition that can prevent or delay broader access to services [18, 19]. Perceptions that needle exchange programs enable drug use, that others oppose needle exchange programs, and beliefs that align with a “not in my backyard” mentality are some beliefs that may be perpetuating apprehension or opposition to needle exchange programs [19].

In addition to access to harm reduction services like naloxone and needle exchange, pharmacological treatment medications for OUD like methadone, buprenorphine, and naltrexone in combination with counseling and other therapies, also called medication-assisted treatment or medications for opioid use disorders, can reduce the severe and negative consequences of OUD [5]. Medication-assisted treatment has been shown to be more effective at treating OUD than non-pharmacological approaches [20], and treatment medications for OUD also reduce the likelihood of opioid overdose deaths [21]. While using medications to treat OUD is generally accepted by the medical community

and often considered the “gold standard” treatment for OUD, there is some controversy about the type of medications that should be selected [22]. Likely stemming from beliefs surrounding the meaning of abstinence in recovery, for some, belief that using certain treatment medications for OUD is akin to “replacing one opioid with another” may limit access and foster opposition to this strategy [22].

While harm reduction and treatment strategies are critical to lessening the array of consequences associated with OUD, from individual-level adverse health effects to broader impacts on community well-being, widespread adoption of each strategy is hampered by beliefs and “concerns” that persist. Further, across strategies to address substance misuse and OUD, stigma is a barrier [18, 19, 23, 24]. Stigma is a driver of health inequalities and disparities among stigmatized groups [25–27]. Stigma can result in less support for harm reduction strategies even when there is an identified need for such services [23].

While stigmatizing beliefs may inhibit support, other beliefs and attitudes may be related to more support for harm reduction and treatment strategies. For example, previous work exploring support for needle exchange programs and safe injection facilities found greater support for these harm reductions strategies when people held beliefs that were less stigmatizing about people who inject drugs and expressed more agreement with beliefs that people who inject drugs deserve help rather than punishment [28]. Other beliefs, like support for the disease model of addiction, were also associated with positive perceptions about medication-assisted treatment as a treatment strategy [29]. Understanding supportive beliefs and attitudes associated with harm reduction and treatment strategies may provide insights and direction to bolster support for such programs. Support from the public is important for initial implementation of strategies in communities and for encouraging individuals to access these services when available.

The present study sought to investigate attitudes and beliefs associated with support for three community-based strategies for addressing opioid misuse: having naloxone available without a prescription, having a needle exchange program, and offering medication-assisted treatment. Given the negative consequences associated with OUD and the ongoing problem of opioid overdose in the U.S., understanding the attitudes and beliefs associated with support for community-based harm reduction and treatment strategies and the stigmatizing beliefs that may be inhibiting the use of these strategies is critical to grow supportive beliefs and ultimately increase the evidence-based strategies available for individuals with OUD.

## Method

Using a Qualtrics purchased panel, we administered an online survey to a convenience sample of 545 adults recruited in September 2020 from Ohio ( $n=290$ , 53.2%) and West Virginia ( $n=255$ , 46.8%), two states with high overdose death rates [30]. Sample demographics are summarized in Table 1.

Survey development was informed by a behavioral model based on the reasoned action approach [31] and was designed to understand beliefs associated with three strategies to address OUD: having naloxone available without a prescription, having a needle exchange program that provides clean needles and syringes in exchange for used ones, and offering medication-assisted treatment when recommended by best practices. The survey was reviewed and approved by the Institutional Review Board of Montana State University.

Degree of support for the three strategies was assessed using three questions: “How much do you support or oppose having naloxone available at drug stores in your community without requiring a prescription?”; “How much do you support or oppose having a needle exchange program available at a public health office in your community?”; and “How much do you support or oppose having local and state substance abuse treatment providers use medication-assisted treatment when recommended by best practices?” with

responses on a seven-point scale from “strongly oppose (1)” to “strongly support (7).”

Attitudes are a subjective evaluation of the behavior including both emotion (e.g., “Having naloxone available is good”) and perceived utility (e.g., “Having naloxone available is unnecessary”) [31]. Attitude was measured using five semantic differentials to indicate how respondents felt about the three strategies: “How do you feel about having naloxone available without a prescription at drug stores within your community?”; “How do you feel about having a needle exchange program available at a public health office in your community?”; and “How do you feel about having local and state substance abuse treatment providers use medication-assisted treatment when recommended by best practices?” The five pairs of words were: good / bad, wise / foolish, safe / dangerous, necessary / unnecessary, and helpful / not helpful. Responses were obtained on a seven-point scale.

Behavioral beliefs are an “individual’s sense of the degree to which a behavior leads to an outcome and whether that outcome is good or bad” [31]. Behavioral beliefs for having naloxone available without a prescription and needle exchange services were adapted from Calabrese and Bell [12]. Nine items were asked for each strategy, such as “The availability of nonprescription naloxone will worsen the opioid epidemic by reducing the risks of addiction,” and “Access to a needle exchange will lead people addicted to opioids to abuse opioids more often.” Behavioral beliefs for medication-assisted treatment were adapted from Andracka-Christou and colleagues [32]; eight items were asked, such as “Medication-assisted treatment reduces relapse.”

Levels of agreement with behavioral belief items were measured from “disagree (1)” to “agree (5)” and then averaged to form a single scale for each strategy. Responses for naloxone and needle exchange behavioral beliefs were reversed so that for all scales, greater behavioral beliefs are associated with more positive expectancies. Cronbach’s alphas for each scale supported use of the composite with 0.96 for naloxone, 0.97 for needle exchange, and 0.93 for medication-assisted treatment.

Normative beliefs are an individual’s perception of what is acceptable or expected by people who are important to them [31]. Participants were asked how much they thought most people important to them supported or opposed: “having naloxone available at drug stores in their community without requiring a prescription”; “having a needle exchange program available at a public health office in their community”; and “having local and state substance abuse treatment providers use medication-assisted treatment when recommended by best practices.” Responses were on a five-point scale from “oppose (1)” to “support (5).”

Modeled after Palamar and colleagues [33], stigma was assessed by asking agreement with 12 statements, six about

**Table 1** Demographic characteristics of the survey sample ( $n=545$ )

Demographic	Characteristic	%
Sex	Female	70.6
	Male	29.4
Age	18–29	18.5
	30–39	20.2
	40–49	17.4
	50–59	18.3
	60 and older	25.5
Race	White	89.5
	Black	8.4
	American Indian or Alaska Native	2.2
	Asian	1.7
	Other	2.0
Annual Household Income	< \$25,000	27.1
	\$25,000–49,000	33.0
	\$50,000–74,999	17.6
	\$75,000 or more	22.3
Education	High school diploma or less	27.9
	Technical college graduate; some college, less than bachelor’s degree	29.7
	College graduate	25.8
	Post-graduate work; advanced degree	16.5
Community Geography	Rural (population less than 2,500)	52.5
	Suburban (population 2,500–50,000)	32.1
	Urban (population 50,000 or more)	15.4

using prescription pain medicine without a prescription and six parallel items about heroin, such as “Using prescription pain medicine without a prescription is morally wrong.” For each statement, participants indicated agreement from “disagree (1)” to “agree (5).” Responses were averaged to create a composite score, Cronbach’s  $\alpha = 0.93$ . Perceived stigma by others was asked with 10 items about what most people in the community believe, with five statements about using prescription pain medicine without a prescription and five parallel statements about heroin, such as “Most people where I live believe people who use heroin are dangerous.” As with stigma, responses were on a five-point scale from

“disagree (1)” to “agree (5)” and averaged into a composite, Cronbach’s  $\alpha = 0.94$ .

Familiarity with the three strategies was assessed by asking participants how familiar they were with ways to reduce the harm associated with addiction like: “having naloxone available without a prescription at drug stores or local hospitals,” “having a needle exchange program that provides clean needles and syringes in exchange for used ones,” and “medication-assisted treatment when recommended by best practices.” The answer choices included a five-point scale from “not at all familiar” (1) to “extremely familiar” (5).

To understand attitudes and beliefs associated with support for the three strategies, we conducted multiple linear regression, with separate models for each strategy. Support for the strategy was the dependent variable and, using the enter method, we tested familiarity, attitudes, behavioral beliefs, normative beliefs, and stigma as predictors. We also included demographic variables of age, sex, and geography as predictors. Analyses were conducted in SPSS 27. Missing data were less than 10% for most variables and did not exceed 12% for any variables (see Table 2). Ten participants were removed due to missing data for dependent variables and demographic predictors; then multiple imputation was used, resulting in a final sample size of 535. Cronbach’s alphas for all scales were similar with both original and imputed datasets (above 0.9 for all).

**Table 2** Descriptive statistics of study variables with original and imputed data

	Original			Imputed <sup>a</sup>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>
Support for naloxone	535	4.89	1.92	4.89
Support for needle exchange	535	4.63	1.98	4.63
Support for medication-assisted treatment	535	5.40	1.68	5.40
Familiarity w/ naloxone	534	2.16	1.37	2.16
Familiarity with needle exchange	534	2.28	1.31	2.28
Familiarity w/ medication-assisted treatment	534	2.29	1.36	2.29
Naloxone attitude, good	504	4.75	2.03	4.75
Naloxone attitude, wise	483	4.74	2.00	4.76
Naloxone attitude, safe	485	4.64	2.03	4.66
Naloxone attitude, necessary	479	4.77	1.98	4.78
Naloxone attitude, helpful	472	4.85	2.00	4.84
Needle exchange attitude, good	495	4.56	2.08	4.56
Needle exchange attitude, wise	492	4.52	2.06	4.53
Needle exchange attitude, safe	498	4.61	2.07	4.63
Needle exchange attitude, necessary	493	4.55	1.99	4.55
Needle exchange attitude, helpful	490	4.55	2.07	4.57
Medication-assisted treatment attitude, good	505	5.33	1.72	5.35
Medication-assisted treatment attitude, wise	489	5.24	1.72	5.27
Medication-assisted treatment attitude, safe	485	5.33	1.69	5.32
Medication-assisted treatment attitude, necessary	485	5.38	1.68	5.35
Medication-assisted treatment attitude, helpful	483	5.40	1.67	5.38
Behavioral beliefs, naloxone	506	2.81	1.21	2.81
Behavioral beliefs, needle exchange	502	2.89	1.30	2.88
Behavioral beliefs, medication-assisted treatment	485	3.70	0.93	3.61
Normative beliefs, naloxone	534	3.14	1.26	3.14
Normative beliefs, needle exchange	535	3.04	1.30	3.04
Normative beliefs, medication-assisted treatment	535	3.45	1.23	3.45
Stigma	535	3.16	1.00	3.15
Perceived stigma	535	3.79	0.88	3.79

Note: <sup>a</sup>*n*=535 for all

## Results

Descriptive statistics of study variables are reported in Table 2. Overall, participants were supportive of all strategies, with means exceeding the scale midpoint of 4. Participants were more supportive of medication-assisted treatment than they were of either of the harm reduction strategies, with significant differences comparing medication-assisted treatment to naloxone,  $t(534) = 8.09, p < .001$ , and to needle exchange,  $t(534) = 11.27, p < .001$ . The difference between support for naloxone and needle exchange was also significant, with participants more supportive of naloxone,  $t(534) = 3.71, p < .001$ .

Each regression model predicting support for strategies to address OUD was significant and predicted more than half of the variation in support for the strategy. See Table 3.

Stigma and perceived stigma were significant predictors for all three strategies to address OUD, with inverse relationships. Stigmatizing beliefs predicted less support while perceiving stigma among others was associated with greater support for the strategies.

Normative beliefs also significantly predicted support for all three strategies. Beliefs that important others

**Table 3** Regression models predicting support for strategies ( $n = 535$ )

	Naloxone			Needle exchange program			Medication-assisted treatment		
	$R^2$	$F$	$p$	$R^2$	$F$	$p$	$R^2$	$F$	$p$
Model	0.63	69.86	< 0.001	0.62	67.79	< 0.001	0.51	43.83	< 0.001
	$\beta$	$t$	$p$	$\beta$	$t$	$p$	$\beta$	$t$	$p$
Familiarity w/ strategy	0.06	1.94	0.05	0.01	0.34	0.73	0.03	0.95	0.34
Attitude, good	0.29	3.83	< 0.001	0.13	1.87	0.06	0.18	2.30	0.02
Attitude, wise	0.25	3.41	< 0.001	0.17	2.78	0.005	0.18	2.04	0.04
Attitude, safe	-0.04	-0.62	0.54	-0.00	-0.06	0.95	0.03	0.40	0.69
Attitude, necessary	0.02	0.29	0.77	0.13	2.22	0.03	0.09	1.12	0.27
Attitude, helpful	0.16	2.35	0.02	0.11	1.65	0.10	0.06	0.82	0.41
Behavioral beliefs	0.00	0.03	0.97	0.12	3.08	0.002	0.10	2.71	0.007
Normative beliefs	0.12	3.42	< 0.001	0.22	6.06	< 0.001	0.16	4.31	< 0.001
Stigma	-0.12	-3.31	< 0.001	-0.09	-2.50	0.01	-0.13	-3.46	< 0.001
Perceived stigma	0.17	5.20	< 0.001	0.18	5.59	< 0.001	0.16	4.22	< 0.001
Age	0.05	1.84	0.07	-0.01	-0.29	0.78	0.04	1.20	0.23
Geography	0.01	0.25	0.80	-0.03	-0.91	0.36	-0.02	-0.55	0.58
Sex	0.03	1.02	0.31	0.05	1.95	0.05	0.09	2.91	0.004

Note: Bold indicates significant  $p$  values

supported the strategies were associated with participants' own support.

Other significant predictors varied depending on the strategy. Naloxone availability was supported by attitudinal beliefs that having naloxone available is good, wise, and helpful. Support for needle exchange programs was predicted by the attitudinal beliefs that it is wise and necessary as well as more positive behavioral beliefs. Support for medication-assisted treatment was predicted by the attitudinal beliefs that it is good and wise as well as more positive behavioral beliefs. Further, participant sex was a significant predictor, with female participants indicating greater support than male participants.

## Discussion

The opioid epidemic continues in the U.S., with severe consequences for individuals and communities [3]. Widespread availability of harm reduction services can reduce the negative effects and consequences of OUD and also offer an avenue for connecting individuals with substance abuse treatment services [34, 35], including effective medication-assisted treatment for OUD. Community support is needed for harm reduction and treatment programs to begin and to be sustained over time, as opposition by community leaders and members can prevent new services from being available and has caused existent programs to close [36]. Stigma related to substance misuse and abuse is well-documented and one barrier to availability of harm reduction and treatment programs. This study sought to explore support for harm reduction and treatment strategies to address OUD

and to identify attitudes and beliefs, including stigma, associated with support for these strategies in the community.

Unsurprisingly, greater stigma was associated with less support for harm reduction and treatment strategies. Addressing stigmatizing attitudes is a critical component of implementing community-based harm reduction strategies and may be accomplished by fostering communications that are guided by principles grounded in research to effectively reduce public stigma including using "person-first" language, highlighting the availability of effective treatment options, emphasizing narratives that seek to humanize the experience of people with OUD, and emphasizing societal factors associated with substance misuse rather than individual factors [37]. Implementing communication strategies that emphasize attitudes supportive of harm reduction and treatment and amplify normative beliefs that important others support such strategies may be an opportunity to reduce stigmatizing beliefs and increase support for community-based strategies to address opioid misuse and addiction. The need for stigma reduction strategies is highlighted by previous research suggesting stigma reduction campaigns can be used to educate the public and change negative perceptions associated with harm reduction strategies [38]. Educational strategies focused on the science of drug addiction and naloxone use have also been suggested to reduce stigma and lessen negative attitudes toward people who use substances [39].

We found that perceiving others in the community as holding stigmatizing attitudes was associated with greater support for strategies to address opioid misuse. This may be a type of compensating strategy where individuals who perceive other community members to be particularly stigmatizing feel the need to provide greater support for harm

reduction and treatment strategies. Given how widespread stigmatizing attitudes about substance abuse are, perceiving stigma among others in the community may be an accurate reflection of common beliefs, and support for harm reduction and treatment strategies may be garnered by increasing awareness of the pervasive nature and harmful effects of stigma.

In addition to stigma and perceived stigma, normative beliefs were also a significant predictor of support for all three strategies. Strategies that foster conversations about how harm reduction and treatment services not only reduce the negative consequences associated with opioid misuse but also fit into existing public health initiatives that are important to community members may help to reduce opposition for such strategies and leverage existing supportive beliefs and values that are shared within a community. Existing research has found that knowledge and awareness of how the opioid crisis is impacting their communities is a key motivator to support harm reduction strategies [19]. Tools such as town hall meetings and citizens' assemblies have been suggested to facilitate dialogue about harm reduction strategy implementation [38]. These venues may help to harness the power of local and regional voices in offering support for strategies and reducing stigma and other barriers associated with acceptance and implementation of harm reduction and treatment strategies. Given higher levels of support for medication-assisted treatment than naloxone or needle exchange, community conversations might benefit from beginning with medication-assisted treatment and then expanding to include harm reduction services. This approach may better engage individuals who are less supportive of harm reduction in general.

While stigma, perceived stigma, and normative beliefs were predictors of support for all three of the strategies, other predictors varied. To increase support for a particular strategy, campaigns or interventions could focus on the specific attitudes and beliefs associated with that strategy. For example, programs might promote naloxone availability and medication-assisted treatment as wise while identifying needle exchange services as necessary.

Interestingly, being familiar with the strategy significantly predicted support only for naloxone availability, despite participants reporting being similarly and relatively unfamiliar with each of the three strategies. Previous research has demonstrated that people who have experience with overdose and naloxone administration often believe strongly in its efficacy and necessity [40, 41]. Perhaps because the other strategies do not have the same immediate and obvious beneficial result as life-saving naloxone, familiarity with those strategies is not associated with support for the strategy.

Results of our study contribute insights for bolstering community support for harm reduction and treatment, which is vital for adoption and maintenance of these important programs. Limitations of this study include the convenience sample. While we were able to obtain a large sample size, our sample was primarily female and white. Further, our sample was obtained from two states (West Virginia and Ohio) and was largely rural. These locations have been deeply impacted by the opioid crisis. Therefore, while results may not generalize to all states or counties, results may be particularly useful for other locations that have been similarly impacted [42]. Additionally, although the cross-sectional design of this study is common in the health belief and stigma literature, causal conclusions are not possible with these data. We suggest bolstering supportive beliefs as a potential mechanism to encourage support for harm reduction strategies, and further research is needed to understand the effectiveness of such efforts. Despite these limitations, the study results increase our understanding of the beliefs and attitudes associated with community support for strategies that address opioid misuse and addiction. The findings offer practical implications for communities as well as suggest avenues for future research.

**Funding** No funding was received for conducting this study.

**Data Availability** The study data are available from the corresponding author upon reasonable request.

## Declarations

**Competing interests** The authors have no disclosures.

**Ethics Approval** This study was approved by the Montana State University Institutional Review Board. Participants provided informed consent before participating in the study.

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