

Transportation Barriers for Substance Abuse and Mental Health Outpatient Treatment

Programs:

A Scoping Review

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ACKNOWLEDGEMENTS

I thank Dr. Kathy Lee, my thesis chairperson, for her relentless guidance and leadership during this time of academic adversity. I also thank my thesis committee members, Dr. Basham and Dr. Washburn, for agreeing to help me complete my master's thesis. I appreciate my family and Quan Nguyen for their support toward my graduate education. Lastly, I thank the National Institute for Transportation and Communities for their financial support toward this study.

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ABSTRACT

TRANSPORTATION BARRIERS FOR SUBSTANCE ABUSE AND MENTAL HEALTH
OUTPATIENT TREATMENT PROGRAMS: A SCOPING REVIEW

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Purpose: The purpose of this manuscript is to help identify transportation barriers and facilitators that impact treatment initiation and continuation for clients with Substance Use Disorders (SUD) and/or mental health needs seeking outpatient services. The author also documented how these barriers were operationalized and measured while seeking to understand which populations have been most impacted by transportation barriers.

Methods: The author conducted a scoping review and documented all relevant academic literature regarding transportation barriers and facilitators for individuals with SUDs and/or mental health needs seeking outpatient treatment.

Results: The author identified 27 studies. Some marginalized groups, such as pregnant women, people experiencing homelessness, and those with HIV/AIDS report transportation struggles while accessing and attending substance abuse and/or mental health outpatient services. Also, those living in rural regions required different services to meet their transportation needs, compared to those in urban environments. Both outcome measurements and transportation interventions were organized to provide suggestions for future research and agency leaders looking to improve access and engagement with their clients.

Discussion: Transportation was a frequently recorded barrier that impacted both behavioral health treatment initiation and continuation. Future researchers, policy makers, and clinicians

should identify the individual transportation needs of their clients and provide appropriate resources to support positive treatment outcomes.

Keywords: Substance Use Disorders, Mental Health, Behavioral Health, Transportation, Barriers

INTRODUCTION

Currently, nearly 20 million Americans experience a Substance Use Disorder (SUD), and approximately 47 million have a mental health diagnosis (Substance Abuse and Mental Health Services Administration, 2018). About 90% of Americans with a SUD in need of treatment did not receive it, while 57.4% of individuals with mental health concerns did not obtain appropriate mental health services (National Institute of Mental Health, 2019). Of those who did receive treatment, one-third of people with a SUD dropped out, while 20% of individuals receiving mental health treatment also prematurely terminated treatment (Lappan et al., 2020; Olfson et al., 2009). Failure to initiate substance abuse treatment is associated with higher risk of mortality, and involvement with the criminal justice system (Gaither et al., 2016; Junginger et al., 2006). Untreated mental health diagnoses are correlated with increased risk of suicide, longer duration of illness, and more frequent depressive episodes (Altamura et al., 2010). Moreover, failure to initiate and maintain treatment plans is a threat to overall well-being and quality of life for both people with SUD and/or mental health concerns (Poremski et al., 2014; Stark, 1992). In addition, racial and ethnic minority clients and immigrant clients were less likely than non-Hispanic whites to initiate treatment due to stigma related to mental health and substance abuse concerns, and were the least likely to complete their treatment plan of all racial groups when they did receive services (Calvo, 2016; Saloner & Cook, 2013).

Because a large proportion of individuals with behavioral health needs go untreated or leave treatment prematurely, it is critical that researchers and practitioners understand the barriers to both treatment initiation and continued treatment engagement. Currently, researchers have identified several medical (e.g., the severity of diagnoses and low-perceived need) and non-medical barriers (e.g., financial barriers, scheduling conflict, negative experience with provider,

stigma) to behavioral health treatment initiation and continuation (Mojtabai et al., 2011; Nutting et al., 2002). However, social workers have long held the mantle of responsibility for also understanding additional environmental factors that impact access to care across professional settings (Gregorian, 2005). These environmental factors are often labeled as Social Determinants of Health (SDoH) (Center for Disease Control and Prevention, 2020). SDoH includes all social, physical, and economic variables outside of the individual, which impact a client's health or their ability to access care (Center for Disease Control and Prevention, 2020). By understanding which SDoH impacts treatment initiation, adherence, and continued engagement, clinicians can better address these needs to help improve treatment outcomes.

One of the determinants frequently reported across all healthcare domains, including behavioral health, is transportation (Locatelli et al., 2017; Syed et al., 2013). According to Bellamy et al. (2016), unreliable access to transportation was the most frequently documented and reported non-medical barrier to clients seeking substance abuse and mental health outpatient services. Transportation barriers manifest themselves in several ways: a lack of independent car ownership, high cost of public transportation, travel distance, travel time, parking fees, a lack of public transportation, distance from agency to a bus stop, and cost of ride-sharing services (Locatelli et al., 2017). Without adequate and affordable transportation options, clients are unable to begin vital treatment nor consistently attend and complete treatment, resulting in sub-optimal outcomes. Although it is known that transportation is frequently a barrier to treatment initiation and ongoing engagement, relatively little is known concerning specific types of transportation barriers to behavioral health treatment and which populations are most impacted by such challenges.

The purpose of this thesis is to help identify transportation barriers and facilitators that impact initiation and continuation for substance abuse and mental health treatment for clients seeking outpatient services. More specifically, the author performed a scoping review to understand which populations have been most impacted due to transportation barriers. In addition, the author documented outcome measurements for transportation barriers as it was essential for evaluating how previous researchers operationalized and captured transportation barriers.

LITERATURE REVIEW

Transportation Barriers

Researchers have historically recorded the impact of transportation barriers on physical healthcare treatment initiation, engagement, and retention (Locatelli et al., 2017; Syed et al., 2013). Despite understanding that transportation is a barrier to medical treatment, researchers have seldomly investigated transportation barriers for behavioral health clients (Locatelli et al., 2017; Syed et al., 2013). Considering the low participation rate coupled with high attrition of those seeking behavioral health services, more research is needed to examine which transportation barriers impact behavioral health outpatient treatment initiation, continuation, and client outcomes.

Syed et al. (2013) conducted a systematic review to understand transportation barriers to healthcare access. However, their review was limited to primary care and chronic illnesses. Moreover, Syed et al argued that transportation measures widely varied between studies. Syed et al. also claimed that different measures for transportation made it difficult for policymakers, researchers, and practitioners to understand the direct impact transportation barriers have on healthcare access and treatment outcomes. Because Syed et al. urged future researchers to more

rigorously define and measure transportation barriers for chronic health conditions, Locatelli et al. (2017) investigated more robust transportation measures to evaluate the impact transportation barriers have on diabetes treatment outcomes. However, it is still unclear if research regarding transportation barriers for behavioral healthcare access contain similar limitations. Some researchers have already highlighted transportation barriers for outpatient behavioral health services in their studies while using different measurements (Adler et al., 2015; Beardsley et al., 2003; Bellamy et al., 2016; Friedmann et al., 2001). For example, Beardsley et al., 2003 used distance between one's zip code and treatment location as a transportation barrier, while Bellamy et al. (2016) measured transportation barriers by asking if the participant had access to reliable transportation. Therefore, more research is needed to understand which transportation measures have been used to explore transportation related barriers to behavioral health outpatient services and how these barriers were operationally defined. Such insights may illustrate the need to advocate for more rigorous and standardized measurements when investigating transportation barriers for behavioral health outpatient services.

THEORETICAL FRAMEWORK

Social Determinants of Health

The relationship between transportation barriers and outpatient treatment initiation and continuation can be better understood through the lens of the Social Determinants of Health (SDoH) framework. SDoH are the conditions of where a person lives, learns, and works and how these conditions impact one's future and current health outcomes as well as access to healthcare (Centers for Disease Control and Prevention, 2020). SDoH also helps illustrate which social, political, and economic environmental factors, and their combinations, promote or diminish health outcomes, and how such factors can create a social and physical environment that bolsters

the well-being of individuals and communities as a whole. According to the SDoH model presented by Schulz and Northridge (2004), the interplay between fundamental (i.e. societal, economic, political, and social inequalities among individuals), intermediate (i.e. built environments and social environments), and proximate factors (i.e., stressors, health behaviors, and social support) are what leads to heightened or diminished individual and/or population level health and well-being (See Figure 1).

In the SDoH model, transportation is listed as an intermediate factor under the “built environment” subheading. Following this model, built environments are directly connected with stressors, health behaviors, social contexts, and other macro level factors, such as socio-economic class structures. Transportation barriers are most commonly a consequence of economic and political inequalities (fundamental factors). For example, Arlington, Texas has failed to legislate mass public bussing for the last 30 years, making it the largest city in the U.S. without mass public transportation (Cotton & Oxeer, 2018). This decision stifles populations, such as university students from attending or continuing their education which increases the U.S. educational gap. Economic inequalities may limit an individual’s purchasing power to own a personal vehicle or keep it registered, insured or in good working repair. Transportation barriers also impact an individual’s access to existing social and healthcare services, limiting individuals’ access to behavioral health care which will lead to worsening symptoms (proximate factors). Specifically, in relation to people with substance misuse or mental health concerns, inadequate access to screening, assessment and ongoing interventions decreases the likelihood that they will receive quality treatment, which negatively impacts their global psychosocial and economic well-being. Lastly, if an individual with SUD or a severe mental illness goes untreated, this may

lead or contribute to ongoing unemployment, which increases wealth inequality (Poremski et al., 2014).

CURRENT STUDY

Researchers have historically recorded the impact of transportation barriers on physical healthcare treatment initiation, engagement, and retention (Locatelli et al., 2017; Syed et al., 2013). Although it is understood that transportation is a barrier to medical treatment, researchers have rarely investigated transportation barriers for clients with SUDs or mental health needs seeking behavioral health outpatient services (Locatelli et al., 2017; Syed et al., 2013). Due to the low participation rate and the high attrition of those seeking behavioral health services, more research is needed to examine which transportation barriers and facilitators impact behavioral health outpatient treatment initiation and continuation. Furthermore, because certain populations in the U.S., such as racial and ethnic minorities, are more generally impacted by barriers to outpatient behavioral health treatment initiation and continuation, it is crucial to understand if specific U.S. populations are more impacted by transportation barriers to outpatient behavioral health services than others. Additionally, because prior studies used different methods to define and measure transportation barriers, it was necessary to evaluate how different transportation measures impacted findings related to transportation barriers for behavioral health outpatient services. Thus, the research questions for this study are: 1.) What are the documented transportation barriers and facilitators for clients attending outpatient substance abuse and mental health services? 2.) Which specific populations are impacted due to transportation barriers? and 3.) How are transportation related barriers operationalized and measured?

METHODS

In order to identify all of the relevant transportation measures for mental health and substance abuse outpatient services, the author conducted a scoping review. Scoping reviews illustrate the characteristics, nature, and volume of all available literature of a particular research domain (Arksey & O'Malley, 2005). This research approach gave the author the flexibility to rigorously summarize a broad selection of academic literature while also identifying gaps in research. While systematic reviews are considered more rigorous, the author decided to conduct a scoping review for the breadth of the investigation. Because the amount of literature investigating transportation barriers for outpatient behavioral health services is unknown, a scoping review was a more appropriate methodology for the current work, as it allowed for incorporation of a broad range of findings.

This study utilized Arksey's and O'Malley's (2005) scoping review framework. Arksey and O'Malley (2005) approach is considered the "gold standard" scoping review methodology and was written for researchers desiring to identify gaps in the literature for a particular domain and for those who need a methodologically sound strategy to organize previously published results. The Arksey and O'Malley (2005) methodology aligned with this thesis's research questions as the author's goals for this project were to identify gaps in the literature regarding transportation barriers for outpatient behavioral health services. Arksey and O'Malley (2005) assert there are five stages for conducting a scoping review: (1) identify the research question; (2) identify relevant studies; (3) select relevant studies; (4) chart the data; and (5) summarize and report results. This methodology is flexible, permitting the author to interact with the review in an iterative manner, revisiting and repeating different stages while updating and improving the methodology as the review was conducted.

Identifying the Research Question

Research questions should include population, intervention, and outcomes (Arksey & O'Malley, 2005) and highlight the elements that will be evaluated during the scoping review. The parameters of the question should be broad enough to generate a variety of results; however, they should also be specific enough to avoid going through an unmanageable amount of search results. The author determined that the population of interest was people who experience mental health concerns and/or a SUD. This scoping review intended to highlight transportation barriers and facilitators while identifying which specific groups of people were most impacted by transportation barriers. Lastly, the author evaluated how transportation barriers were measured and operationalized for clients seeking outpatient behavioral health services. Therefore, the final research questions were: 1.) What are the documented transportation barriers and facilitators for clients attending outpatient substance abuse and mental health services? 2) Which specific populations are impacted due to transportation barriers and 3.) How are transportation related barriers operationalized and measured?

Study Identification

The purpose of the study identification stage is to select relevant sources and create a list of keywords that covers a broad range of academic literature. The author used two data sources: electronic databases and reference lists. The following databases were searched to obtain relevant scholarly literature: *Academic Search Complete*, *PsychInfo*, *CINAHL*, *Medline*, *Psychology and Behavioral Science Collection*, and *Google Scholar*. As for reference lists, the author scanned the bibliographies of the literature obtained through the electronic databases and selected relevant articles.

In order to locate relevant literature, a combination of a primary subject term and a secondary subject term was used. As seen in Table 1, the primary search terms were,

“Outpatient”, “Standard Outpatient Program (SOP)”, “Intensive Outpatient Program (IOP)”, and “Partial Hospitalization (PHP)”. Because *outpatient services* is a broad category, the author included search terms such as SOPs, IOPs, and PHPs, as these are some of the most popular forms of outpatient treatment for those seeking substance abuse or mental healthcare (Substance Abuse and Mental Health Services Administration [SAMHSA], 2019). The secondary search terms were, “mental health”, “substance abuse”, “transportation”, “attrition”, “retention”, “turnover”, “engagement”, “participation”, “compliance”, “barriers”, “obstacles”, “access”, “availability”, “opportunity”, and “linkage services”. Search terms were generated from previous systematic reviews investigating barriers to healthcare (Jack et al, 2010; Syed et al., 2013).

Study Selection

The study selection stage is a mechanism that allows researchers to filter literature that did not address the author’s research question efficaciously. The author built their search filter by creating inclusion and exclusion criteria. For the inclusion criteria, the search was restricted to peer-reviewed academic articles that were published from the past 20 years, between January 1st, 2000 and August 1st, 2020. Furthermore, scholarly literature was only selected if the authors used a U.S. sample and if the article was published in the English language. For the exclusion criteria, the author omitted non-research and review articles, such as systematic or scoping reviews, conference abstracts, and articles conducting meta-analysis. It should be noted that review articles were later utilized to collect potential references for the final review. However, these review articles were not included in the data chart. Articles who’s sample primarily worked with Medication-Assisted Treatment (MAT) was excluded as MAT’s have a different set of barriers compared to talk-therapy, such as local politicians passing discriminatory zoning codes to prevent the construction of MATs, thus requiring a separate analysis (Olsen & Sharfstein, 2014).

Lastly, targeted study samples were limited to adults, excluding studies with participants under the age of 18.

To organize and manage the abstracts, the author used *Covidence*, a web-based systematic and scoping review management program. First, the author included any study that examined variables which investigated barriers to treatment attendance and engagement which also measured transportation with quantitative and/or qualitative measures. Then, titles and abstracts were independently screened by two individuals, the author, and his thesis chairperson. After the initial screening, the author and his chairperson conducted a full-text review to determine the inclusion of literature for the final review. The review consisted of whether or not the scholarly article included some form of transportation variable in their methodology and results, and whether the sample used clients enrolled in outpatient behavioral health services. Inclusion decisions for contested articles between the author and his thesis chairperson were deferred to the chairperson. Reasons for excluded articles were recorded and are illustrated in Figure 2.

Data Charting

According to Arksey and O'Malley (2005), data charting should identify key issues and key findings from the literature included in the final scoping review. The author created a data-charting-form which constituted a mixture of general information: authors, specific outpatient program assessed, study population, the aim of the study, study design, descriptor of the transportation variable, and key findings. A strength of a scoping review is that it is able to quickly illustrate key items and results for policy makers, practitioners, and agencies who need to know the available research on a particular subject.

Data Summarization

In concordance with the recommendations made with Arksey and O'Malley (2005), data were summarized by presenting key findings related to the research question. Key findings were determined by analyzing observable trends using the information gathered from Table 2. Summarized data helped identify transportation barriers that have been most frequently investigated while detailing potential gaps in the literature. In particular, the author focused on presenting populations that have been impacted by varied transportation barriers. The data summarization stage allowed the author to build a narrative of the key findings found during the review.

Results

Of the 1,567 initial studies collected from the selected databases, 520 duplicates were removed, leaving 1,047 articles eligible for the title and abstract review. After completion of this review, an additional 909 articles were excluded. As for the 138 articles that were eligible for full-text review, 111 records were deemed ineligible. As indicated in Figure 2, records were removed for the following reasons: No specific measure/indication for transportation barriers ($n=64$), not related to outpatient mental health or substance treatment ($n=18$), transportation barriers were not related to behavioral health treatment access or continuation ($n=15$), non-scholarly article ($n=6$), the study was not conducted in the U.S. ($n=5$), sample included participants who were younger than 18 ($n=1$), study involved Medication-Assisted Treatment (MAT) ($n=1$), or the sample included inpatient clients ($n=1$). Thus, 27 articles were included in the final analysis. A summary of each selected study is presented in Table 2.

Initial findings indicated that there were approximately an equal number of studies examining transportation barriers for clients with either mental health or substance abuse concerns. Eleven studies investigated transportation barriers for clients seeking mental health

treatment, ten looked at transportation barriers exclusively for clients seeking substance abuse treatment, and six examined barriers for clients seeking treatment for both. To better describe the key findings found across all studies, publications were separated into four distinct categories: 1) Transportation Disadvantage Subgroups, 2) Rural vs. Urban, 3) Transportation Assistance Programs, and 4) Outcome Measurements.

Transportation Disadvantage Subgroups

Out of the 27 articles examined, 18 of them reported racial and ethnic demographic information for clients receiving outpatient mental health and/or substance abuse treatment. Eight studies had a sample with majority racial and ethnic minority participants (Barrio et al., 2008; Beardsley et al., 2003; Garcia et al., 2014; Smith et al., 2006; Wechsberg et al., 2007; Wells et al., 2013; Whetten et al., 2007; Wong et al., 2007). Ten studies had a majority non-Hispanic white sample (Browne et al., 2019; Frazer et al., 2019; Friedman et al., 2001; Jackson & Shannon, 2012; Kracen et al., 2013; Kuo et al., 2013; McCarthy & Blow, 2004; Mellinger et al., 2018; Pfeiffer et al., 2016; Pullen & Oser, 2014). In addition, three studies examined transportation barriers for pregnant or postpartum women (Frazer et al., 2019; Jackson & Shannon, 2012; Kuo et al., 2013), two investigated barriers for clients experiencing homelessness (Adler et al., 2015; Smith et al., 2006), three evaluated barriers for older adults (Barrio et al., 2008; Choi & Gonzales, 2005; McCarthy & Blow, 2004), three analyzed barriers for clients living with a diagnosis of HIV/AIDS (Orellana et al., 2015; Smith et al., 2006; Whetten et al., 2007), and five studies looked at barriers for military service veterans (Adler et al., 2015; Browne et al., 2019; Garcia et al., 2014; Kracen et al., 2013; Pfeiffer et al., 2016). It should be noted that these subgroups are not mutually exclusive, as some articles overlap into multiple categories.

Investigating the impact of transportation barriers for different subgroups illustrated differences in severity and prevalence. In Smith et al. (2006), 73.7% participants living with HIV/AIDS and who experienced homelessness reported having to use a friend's vehicle or public transportation to access mental health services, whereas only 31% of clients diagnosed with HIV/AIDS who were not experiencing homelessness needed to rely on these types of transportation. On the other hand, the reported prevalence of transportation barriers among pregnant women seeking substance abuse outpatient treatment was lower than clients experiencing homelessness and/or living with HIV/AIDS. Frazer et al. (2019) found 20% of pregnant women seeking substance abuse outpatient treatment reported unreliable transit; participants reported difficulties lugging strollers, diaper bags, purses, and child seats when using public transportation. On the other hand, Jackson and Shannon (2012) reported 8.2% of pregnant women had difficulties securing a ride to treatment. Regardless of the lower rates among this group of women, Kuo et al. (2013) reported that, due to poverty, their sample of pregnant and postpartum women lacked vehicle ownership and that transportation vouchers would be beneficial for treatment attendance.

Rural vs Urban

Three articles investigated transportation related differences for rural and urban clients (Adler et al., 2015; Choi & Gonzales, 2005; Pullen & Oser, 2014). Adler et al. (2015) interviewed clinicians to gather their perspectives on the transportation needs of their clients. The clinicians reported that rural veteran clients experiencing homelessness had more difficulties securing reliable transportation while also expressing that there were fewer transportation options (e.g., public transportation) available for rural individuals to use. Pullen and Oser (2014) also found that the clinicians they interviewed reported that rural clients seeking treatment for

SUD were more likely to lack access to reliable transportation due to there being fewer treatment options, losing license privileges, and longer driving distances to treatment. The clinicians reported that clients seeking substance abuse treatment often requested rides from family and friends; however, the client's social support is usually made up of individuals who enable or use substances with the client, increasing the likelihood of the client relapsing. Choi and Gonzales (2015) reported a different finding and illustrated that both urban and rural clients experience a similar level of transportation barriers, albeit in unique ways. The researchers described that even though urban residents often live in areas with public transportation, these public systems often do not have a bus stop located conveniently near the client's residents or near outpatient mental health clinics.

Transportation Assistance Programs

While some studies assessed the prevalence and severity of transportation barriers to outpatient mental health and substance abuse treatment, others purposely investigated interventions to mitigate the impact of transportation barriers. As previously mentioned, distance traveled was negatively correlated with treatment adherence and initiation (Beardsley et al., 2003; McCarthy & Blow, 2004). However, Whetten et al. (2007) found that when substance abuse and mental health treatment agencies provided clients with financial reimbursements or free carpool rides, distance was no longer a reported barrier to treatment. Friedman et al. (2001) also investigated the efficacy between different transportation initiatives. They compared the difference between clients being directly given a ride or provided a vehicle versus provisions of transportation incentives (i.e., vouchers and payments) to meet the transportation needs of disadvantaged clients. Friedman et al. found that treatment retention was significantly higher for clients who received a vehicle or were directly picked up for treatment, while provisions of

transportation incentives showed no effect. However, researchers continued to highlight the importance of transportation supports for their clients seeing mental health services. Zulman et al. (2018) interviewed clinicians and program leaders to understand strategies for improving engagement with Intensive Outpatient Programs (IOPs) for clients with a high level of mental health needs. They asserted that volunteer drivers, bus vouchers, home visits, and telehealth should be more readily available for those who struggle accessing reliable transportation.

Outcome Measurements

Some investigators operationalized transportation barriers by asking participants to respond to *yes or no* demographic questions. For instance, Bellamy et al. (2016) and Garcia et al. (2014) both asked participants to answer yes or no to, “You/I don’t have a reliable source of transportation”. For Bellamy et al. (2016), transportation (37.7%) was the most reported barrier to treatment, followed by stable housing (24.1%) and affordability (23.6%). Garcia et al. (2014), surveyed veterans seeking mental health treatment in the VA system, found that 94.2% of their participants reported experiencing difficulties securing reliable transportation, the second-highest recorded logistical barrier, second only to having poor appointment reminders (95.4%). Other researchers asked one question to evaluate structural barriers using a qualitative approach. When interviewing 28 substance abuse counselors, Pullen and Oser (2014) asked “What are the greatest obstacles counselors have to overcome?” Clinicians reported that, because of higher fuel costs and some clients losing their license due to legal issues, a lot of clients lacked the ability to attend more sessions and, thus, did not complete their treatment.

Other investigators evaluated transportation barriers using other methods. In Beardsley et al. (2003), the researchers operationalized transportation barriers by measuring the approximate distance traveled, in miles, between the participant’s residence and the treatment location. They

found that clients who traveled fewer than one mile were 50% more likely to complete substance abuse treatment than those who lived further. McCarthy and Blow (2004) used a similar methodology as they investigated the impact of distance from participants' home address to the nearest psychiatric facility. They found that the further participants were from a psychiatric facility, the less likely they were to initiate treatment.

Discussion

Through this scoping review, transportation barriers were found to impact both treatment initiation and treatment retention. The first finding suggests that different socioeconomic characteristics influence individuals' experience with transportation barriers as different social groups experienced differing levels of severity for transit barriers. Among studies selected for this thesis, many studies focused on transportation barriers specifically experienced among racial and ethnic minorities (Barrio et al., 2008; Beardsley et al., 2003; Garcia et al., 2014; Smith et al., 2006; Wechsberg et al., 2007; Wells et al., 2013; Whetten et al., 2007; Wong et al., 2007). However, socioeconomic status, regardless of one's racial and ethnic background, was evidenced to be one of the greatest factors affecting transportation barriers to utilizing mental health or substance abuse treatment services (Kuo et al., 2013). For example, 74% of individuals experiencing homelessness and were living with HIV/AIDS seeking substance abuse treatment required the assistance of public transportation or a ride from their social support due to the lack of private vehicle ownership (Smith et al., 2006). Moreover, pregnant, and postpartum women were considered one of the vulnerable groups experiencing transportation barriers (Jackson & Shannon, 2012). When Frazer et al. (2019) interviewed pregnant women, the participants reported that they could not bring essential items, such as diapers, strollers, and bags onto the bus for their children due to how much space the items took up. Because there are agencies with a

predominantly female clientele, such insights are very useful for administrators looking to provide more tailored transit assistance for their clients. When planning and providing transit assistance, it is critical for agency staff to consider their clients' individual history and current circumstances as well as their communal resources to design and provide the most appropriate services. Thus, social workers and agency administrators should routinely conduct community-based needs assessments that allow agency staff to better assess their clients' specific challenges and to address their community-level challenges as many are from marginalized groups.

Depending on their vulnerability, researchers have endorsed an increase utilization of home visits or telehealth (Pfeiffer et al., 2016; Zulman et al., 2018). For instance, home behavioral health services may benefit postpartum women who are often unable to secure affordable childcare or convenient transit options (Jackson & Shannon, 2012). As stated by the SDoH model by Schulz & Northridge (2004), different societal, economic, political, and social inequalities affect the ability of certain populations to access reliable transportation which, in turn, negatively impacts their healthcare access and overall quality of life. Therefore, it is imperative that community leaders recognize these inequalities to better address the needs of specific marginalized groups.

The results of this review indicate that individuals seeking outpatient mental health and substance abuse treatment in rural regions experience unique transportation barriers and may experience them at a higher severity and frequency. Because many rural communities lack public transportation infrastructure, agencies in these areas need to design different solutions than simply following common transportation assistance programs, such as providing bus vouchers. According to Friedman et al. (2001), agencies that offered direct pick-up services or provided a vehicle significantly improved treatment retention compared to those who were provided

stipends or vouchers. This was evident in Choi & Gonzales (2005) as their participants who lived in rural regions reported that agency van pick-up services were essential in maintaining patient attendance. A program enacted under the FAST act (49 U.S.C. 5310) gave U.S. federal funding to expand non-traditional transportation projects, such as volunteer driving programs for rural and suburban communities to access healthcare. Although these programs are often limited to older adults, local policy makers and politicians should work to lobby to expand those services for all individuals needing transit assistance to access healthcare. As for improving access to outpatient behavioral health services, legislators should consider constructing more “one-stop shop” healthcare facilities near public transit stops. For example, in Dallas, Texas, the Hatcher Station Health Center is a healthcare facility located adjacent to a public rail and bus station and offers clients behavioral health treatment, nutritional programs, women’s health, and ancillary services all in one location (Parkland, n.d.).

The third finding indicated that suggestions made for transportation assistance programs were mixed. Although many previous researchers recommended bus vouchers and other transit stipends, these solutions were also contested by other researchers who found that such provisions were not as effective under certain circumstances (e.g., people living in remote areas, postpartum women). Due to the overall scarcity in research for transit assistance programs, it is suggested that researchers analyze the efficacy of volunteer driving programs, ridesharing, carsharing, and paratransit services for mitigating the impact of transportation barriers. Such programs would be beneficial for individuals with SUD as they may be legally barred from personally driving to treatment due to having their license revoked. Another solution may be that mental health and substance abuse treatment agencies become open to working with third-party contractors to help provide readily available and convenient transportation services for their clients. For instance,

organizations, such as Uber and Lyft, have begun partnering with healthcare agencies to provide subsidized ridesharing services for those with limited access to transportation (Powers et al., 2016). According to Powers et al., (2016), Lyft successfully reduced one-third of the wait times and lowered per-ride cost by 32% when partnering with various healthcare agencies. Their services were easily usable as the healthcare agencies could set up the ride for the client and send push-notifications of the pickup time via text. This could especially be useful for regions without sufficient public transportation access or for rural individuals who depend on rides from others who enable continued substance use (Pullen & Oser, 2014).

The last finding indicated that outcome measures need to go beyond single question demographic surveys, such as “You don’t have a reliable source of transportation” (yes/no). Syed et al. (2013) conducted a systematic review that investigated transportation barriers for physical healthcare and reported that a majority of transit-related studies rely heavily on self-reported indexes and not on objective measurement (i.e., distance traveled, travel expenditures, and walking distance). Therefore, it is suggested that that future researchers investigate transportation barriers using more objective measures and to supplement their quantitative findings with qualitative interviews. As shown in the studies that utilized qualitative methodologies, there are many different reasons for individuals to experience transportation barriers: fuel cost, driving or walking distance, and poor access to public transit. For researchers who will continue to use self-reported indexes, it is suggested that future researchers add additional questions to their surveys when assessing for transportation barriers such as, “Have you ever missed/rescheduled receiving healthcare services?” “Have you ever considered giving up receiving healthcare services?” Future researchers could also refer to Locatelli et al. (2017) as they created a modified 10-item transportation index in order to standardize transportation

measures for transportation barriers impacting healthcare access. The index used questions from previous transportation literature and was non-sample dependent. However, the transportation index was made specifically for urban residents and future researchers should consider developing a transportation index tailored for rural residents. Nonetheless, asking additional questions would allow researchers and decision-makers to garner a more holistic interpretation of the relationship between transportation barriers and individuals seeking outpatient behavioral health services.

Limitations

There are some limitations to address. First, the author was unable to synthesize all common outcome variables in relation to transportation barriers that could have been possible through a systematic review with meta-analysis. Doing so would have provided readers with a more robust understanding of the statistical effect transportation barriers have on treatment initiation and continuation. Next, the Arksey and O'Malley (2005) scoping review methodology did not require a rating system which quantifies the quality of the research included in the scoping review. Instead, the author focused on identifying and providing overall information on the mere prevalence of transportation barriers for outpatient mental health and substance abuse treatment. Future researchers may wish to conduct a systematic review and incorporate meta-analytic methods to build on the current body of evidence in this area. Lastly, many articles did not include specific reasons for why and how transportation barriers acted as an obstacle for certain populations. Because there are numerous transportation related barriers, it still remains an important question for researchers to document how their participants are specifically impacted by varied transportation related obstacles.

Although the author found evidence that transportation barriers impact treatment initiation and continuation for behavioral mental health services, the articles examined seldomly analyzed how transportation barriers impact specific clinical treatment outcomes, such as depression levels or abstinence from substances. Although many studies inferred that transportation barriers negatively affected treatment outcomes (e.g., poor attendance or premature termination would lead to poorer treatment outcomes), this relationship was never firmly established. It is suggested that future work in this area assess the relationship between transportation and other structural barriers with mental health outcomes measures, such as Beck's Depression Scale and with other factors, such as treatment completion and sustained recovery. Such work would more fully establish the relationship between the impact of structural resources and behavioral health outcomes.

Lastly, the selected studies seldomly identified the specific outpatient services that their participants were trying to access, which made it difficult for the author to identify differences in transportation barriers between different types of outpatient services. According to SAMHSA (2018), there are different types of outpatient services with distinct lengths of stay, weekly visits, and hourly time commitments. For instance, someone enrolled in an IOP receives services three times a week for three hours a day for about eight weeks (SAMHSA, 2018). On the other hand, someone enrolled in a PHP meets almost daily, up to eight hours a day, and for around three weeks (SAMHSA, 2018). Due to these differences in programmatic requirements, including starting and ending times, there may also be distinct barriers related to transportation that are experienced by clients in need of these services.

Conclusion

The purpose of this manuscript was to investigate the transportation barriers and facilitators for individuals seeking outpatient substance abuse and mental health treatment. The author also sought to uncover if and which populations were most impacted by transportation barriers. The study findings suggest that transportation barriers negatively impact treatment initiation and continuation for individuals seeking substance abuse and mental health outpatient treatment. More specifically, transportation barriers are often exacerbated by comorbidities, such as HIV/AIDS, place of residence, poverty, military history, and homelessness. Although the findings suggest that transportation barriers negatively impact these groups, the articles selected for this study failed to generate conclusive transportation assistance program suggestions to mitigate such obstacles. Thus, social workers, policy makers, and agency administrators who work with individuals with mental health concerns and/or SUD should continue to create and enact efficacious modalities that help relieve the adverse consequences of transportation barriers so that vulnerable population are able to receive the valuable healthcare they need.

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49 U.S.C. § 5310

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Table 1

Search Terms

Outpatient	Mental Health Related Terms	Transportation Terminology	Barriers
Outpatient	Mental Health	Transportation	Barriers
Standard	Substance Abuse	Linkage Services	Attrition
Outpatient	Substance Use		Adherence
Program	Disorder		Dropout
			Completion
Intensive			Retention
Outpatient			Turnover
Program			Engagement
			Participation
Partial			Compliance
Hospitalization			Obstacles
Program			Access
			Availability
			Opportunity

Table 2.

Data Summarization

Authors (Year)	Purpose of Study	Sample Characteristics (Sample Size, gender, and race)	Study Design	Transportation Measure	Findings
Adler, Pritchett, Krauth, & Mott, J. (2015)	To assess the needs of rural veterans experiencing homeless seeking substance abuse and/or mental health outpatient services	254 rural behavioral health agency staff	Mixed Methods	Investigators asked: “How rural homelessness differs from urban homelessness” “What are significant areas of need for homeless rural veterans”	29% of staff stated that transportation is a different barrier that rural veterans experiencing homelessness faced compared to urban veterans. The most common non-healthcare need for rural veterans experiencing homelessness was transportation (68.2%)
Barrio, Palinkas, Yamada, Fuentes, Criado, Garcia, & Jeste (2008)	To assess the unmet needs of Latino older adults when accessing mental health services	Phase 1: 14 Latino providers, consumers, and advocates Phase 2: 28 Latino consumers (>50 years old), family members, advocates, and providers	Qualitative Study	Investigators asked, “From your perspective, what are the most important needs of older adults in San Diego County?”	A majority of the Latino consumers and family members interviewed reported transportation as a significant barrier when utilizing mental health services.
Beardsley, Wish, Fitzelle, O’Grady, & Arria (2003)	To examine the association between distance traveled and treatment completion and length of stay	1,735 clients who attended outpatient substance abuse treatment programs in Baltimore City	Quantitative Study	Investigators measured approximate distance traveled (number of miles between client residence and treatment location)	Clients who traveled less than 1 mile were 50% more likely to complete treatment. Clients who traveled more than 4 miles were significantly likely to have a shorter length of stay.
Bellamy, Flanagan, Costa, O’Connell -	Barriers to the Wellness Center for clients with mental health	204 clients from outpatient mental health and substance abuse treatment center	Quantitative	Investigators used a barrier and facilitator scale that asked for a yes or no for, “You don’t have a reliable source of transportation”	The barrier reported the most (37.7%) for low-income clients with serious mental illnesses or SUD was not having a reliable source of transportation. A regression analysis showed that

Bonarrigo, Tana Le, Guy, & Steiner, (2016)	and substance abuse issues				transportation was a barrier regardless of the clients' race, gender, education, and ethnicity.
Browne, Chen, Hundt, Hudson, Grubbs, & Fortney (2019)	Reasons for non-attendance	230 veterans	Quantitative	Participants were asked if they have access to reliable transportation	17% of individuals attending Cognitive Processing Therapy reported that they do not attend due to lack of access to transportation. Participants in PTSD-focused group psychotherapy reported that 21% due to costs associated with transportation.
Choi & Gonzalez (2005)	To explore mental health outpatient barrier to care for minority older adults	18 mental health professionals from three outpatient clinics who serve older adult clients (>55 years of age)	Qualitative	Participants were asked, "What are barriers to access care" and "what are contributors to access care?"	Both urban and rural clinicians listed "lack of reliable transportation" as a barrier for racial and ethnic minority older adults accessing specialty mental health services. Some clinicians report that elderly transportation services are unreliable.
Frazer, McConnell, & Jansson (2019)	Barriers to treatment for outpatient substance abuse treatment	20 pregnant women with substance use disorder seeking comprehensive substance abuse treatment	Qualitative	Investigators asked participants what logistic barriers they faced when accessing treatment	20% of the low-income pregnant women interviewed reported transportation as a barrier to substance abuse treatment.
Friedman, Lemon, & Stein (2001)	To determine whether certain types of transportation assistance improved outpatient treatment retention	2,031 clients in 22 outpatient drug-free programs	Quantitative Study	Whether an outpatient clinic offered one of the two types of transportation services: vouchers for public transportation or taxicabs and programmatic provisions of car, van, or contracted transportation services	Treatment retention was significantly greater for clients that were offered programmatic provisions, such as a car, van, or contracted transportation. Provisions of transportation vouchers and/or payment to individuals showed no effect for treatment retention.
Garcia, Finley, Ketchum, Jakupcak, Dassori, & Reyes (2014)	To examine logistical barriers to mental health care for U.S. veterans	608 U.S. Veterans	Quantitative	Participants answered yes or no to this question: "I do not have reliable transportation"	The lack of access to reliable transportation was a structural barrier for 409 of the 434 Vietnam, Persian Gulf, and Iraq war veterans seeking mental health treatment. It did not matter when the veteran served in the military, all generations of veterans

					reported reliable transportation as a major barrier.
Jackson & Shannon (2012)	To investigate the barriers of pregnant women seeking substance abuse treatment	85 rural pregnant women with a substance abuse disorder	Qualitative	Investigators asked three open ended questions that inquired about which barriers prevented the participants from accessing and continuing treatment	A little over 8.2 percent of pregnant women listed transportation as a barrier to accessing treatment.
Kracen, Mastnak, Loaiza, & Matthieu (2013)	To examine the perceived barriers of combat veterans accessing group therapy	110 Veterans attending group therapy for PTSD	Quantitative	Participants were asked “I don’t have adequate transportation to get to group therapy”	12% of veterans with PTSD reported transportation as a barrier to attending group therapy.
Kumar, Truss, Bauman, & Cooper (2019)	Barriers to attending services provided by a community-based outpatient mental health program	42 clients from an outpatient mental health facility	Mixed Methods	The investigators used a Structural Barriers to Clinic Attendance Scale	Long walks from the bus stop had a significant positive correlation with individuals missing mental health program sessions.
Kuo, Schonbrun, Zlotnick, Bates, Todorova, Kao, & Johnson, (2013)	Understanding factors affecting treatment outcomes and the treatment needs of depressed pregnant and postpartum substance users	18 pregnant and postpartum women	Qualitative	Intervention Structure Questions: “What gets in your way of attending? What would make it easy for you to attend these sessions?”	The women described that due to poverty they did not have access to vehicles and that vouchers would help them attend more sessions.
Lee, Morrissey, Thomas, Craig Carter, Ellis, & Carter (2006)	Illustrating barriers between outpatient substance abuse treatment centers and mental health and primary care facilities	62 outpatient substance abuse treatment agencies	Quantitative	Did an outpatient substance abuse treatment center report “transportation” to some extent as a barrier to linking services with mental health and primary care agencies	44% of outpatient substance abuse treatment centers reported transportation as a barrier to linking services with mental health agencies. 49% outpatient substance abuse treatment centers said the same for linking services with primary care agencies, stopping patients from receiving further services.

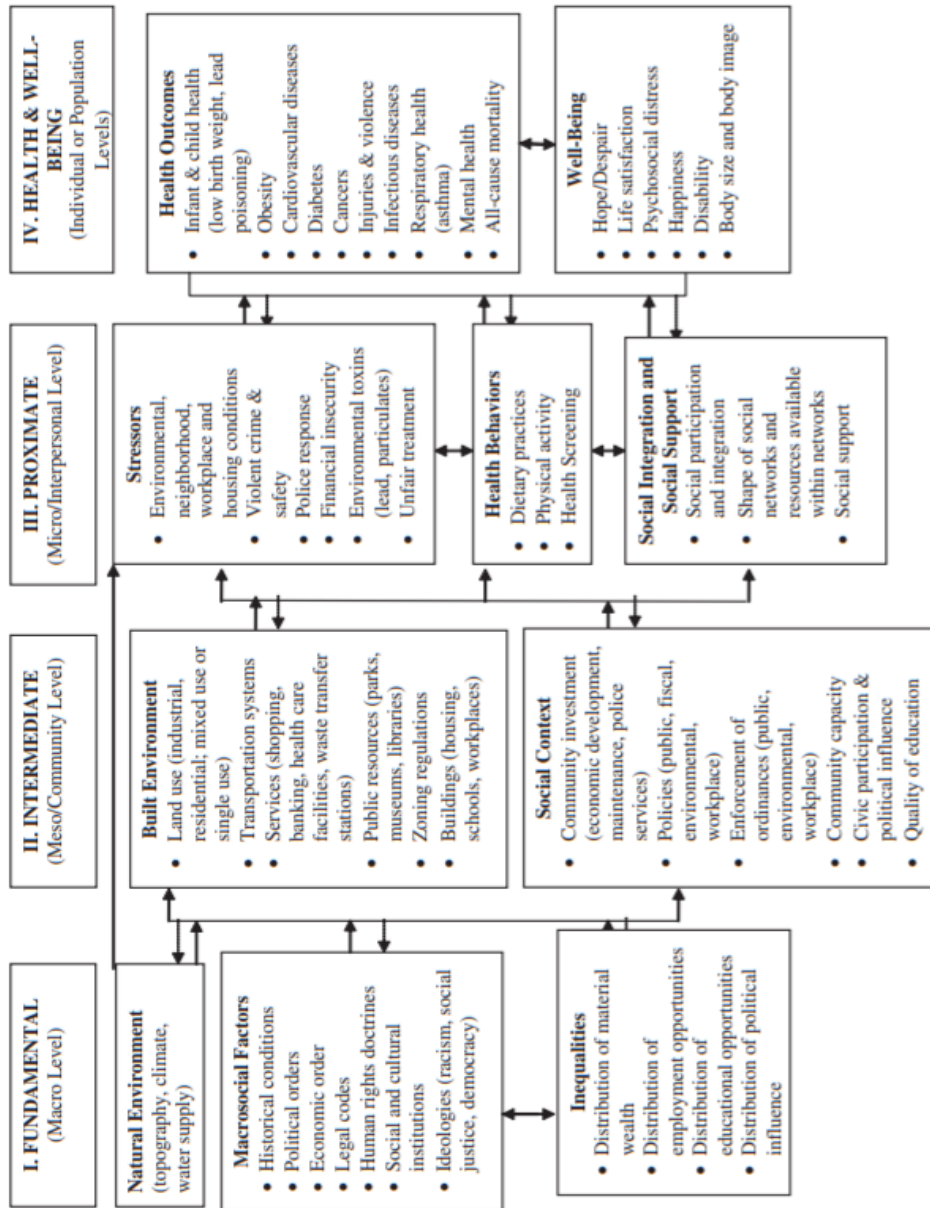
McCarthy & Blow (2004)	How patient characteristics affect sensitivity to access barriers	142,055 VA patients with serious mental health diagnoses with a median age of 54 years	Quantitative	Distance to nearest V.A. psychiatric service (miles)	Patients who live further from psychiatric services had fewer outpatient psychiatric visit days.
McCollister, French, Pyne, Booth, Rapp, Carr, McCollister, (2009)	Cost of treating addiction	138 Outpatient non-methadone and 58 IOP participants	Quantitative	Transportation Costs (direct expenditures relating to travel)	Intensive Outpatient Clients accrued a \$4.19 transportation cost per session attended.
Mellinger, Scott Winder, DeJonckheere, Fontana, Volk, Lok, & Blow (2018)	Barriers to alcohol use disorder treatment	123 participants with Alcohol use disorder (93% white) completed a survey. 22 participants completed a qualitative interview	Mixed Methods	Participants who did the qualitative interview were asked which barriers they faced for obtaining treatment	Transportation was reported as one of the most common barriers to accessing Alcohol Use Disorder for clients with Alcohol Liver Disorder
Orellana, Goldbach, Rountree, & Bagwell (2015)	Barriers and facilitators for people living with HIV/AIDS seeking mental health and substance abuse treatment	113 Case Managers	Quantitative	Common factors perceived as barriers and facilitators for access to mental and substance use services	45% of case managers referenced transportation as a barrier to accessing mental health services. 30% said making provisions for transportation services would help bolster access. Researchers suggested constructing more “one-stop-shop” facilities to minimize the number of facilities clients need to go to.
Palmer, Murphy, Piselli, & Ball (2009)	Comparing reasons for premature termination of outpatient substance user treatment	22 staff and 22 clients	Mixed Methods	Participants were asked if the reason they left treatment was for, “Transportation or financial problems”	Both clinicians and clients listed transportation as a common reason for dropping out of treatment prematurely.

<p>Pfeiffer, Bowersox, Birgenheir, Burgess, Forman, Valenstein, & Pfeiffer, (2016)</p>	<p>Barriers and facilitators for outpatient treatment following psychiatric inpatient treatment</p>	<p>291 VA clients recently discharged from inpatient care</p>	<p>Mixed Methods</p>	<p>Participants were asked the open-ended question: “What would you suggest to help Veterans after psychiatric hospitalization?”</p>	<p>6 of the 25 participants interviewed requested transportation assistance. Transportation was the most cited barrier to attending counseling (44%) after psychiatric inpatient treatment. Participants and researchers suggested providing door-to-door services to assist with transit needs.</p>
<p>Pullen & Oser (2014)</p>	<p>Comparing barriers to substance abuse treatment in both rural and urban areas</p>	<p>28 Substance abuse counselors</p>	<p>Qualitative</p>	<p>Participants were asked, “What are the greatest obstacles counselors have to overcome?”</p>	<p>Transportation was a major theme for barriers to treatment. Both urban and rural communities cited rising fuel costs as a major concern. Also, some participants have lost their driver license privileges and rely on their friends for rides.</p>
<p>Smith, DeWeaver, & Reese (2006)</p>	<p>Transportation behaviors of people living with HIV who are experiencing homelessness and not experiencing homelessness accessing mental health services</p>	<p>112 people living with HIV who are experiencing homelessness and not experiencing homelessness.</p>	<p>Quantitative</p>	<p>Participants were asked if they use public transportation or borrow a friend’s car?</p>	<p>73.7% of use a friend’s vehicle or utilize public transportation whereas 31% of did.</p>
<p>Wechsberg, Zule, Riehman, Luseno, & Lam (2007)</p>	<p>To examine the effects of pretreatment intervention to enhance treatment motivation and reduce sociocultural barriers to drug abuse treatment</p>	<p>443 African Americans with a history of crack cocaine use</p>	<p>Quantitative</p>	<p>Demographic Survey that included “transportation” as a variable</p>	<p>69.7% of African Americans in the study needed assistance with transportation to access treatment.</p>

<p>Wells, Lagomasino, Palinkas, Green, & Gonzalez (2013)</p>	<p>The aim of the study was to examine barriers and facilitators for Latino’s seeking and continuing depression treatment</p>	<p>24 (23 were Latino) ED patients who dropped out of depression treatment</p>	<p>Qualitative Interview</p>	<p>Patients were asked what barriers they faced when accessing depression treatment</p>	<p>Patients listed physical limitations (E.g., cut toe) and travel distance as transportation barriers. They also reported that they were not provided or aware of resources (e.g., bus tokens) to help them get treatment. A few patients reported that they would have attended treatment if someone picked them up at their residence.</p>
<p>Whetten, Whetten, Pence, Reif, Conover, & Bouis (2007)</p>	<p>The study examined whether distance to treatment was a barrier to receiving outpatient mental health and substance abuse care</p>	<p>140 clients living with HIV/AIDS who needed mental health and substance abuse services</p>	<p>Quantitative</p>	<p>Distance, Transportation Use (e.g., used services provided by research team), and Time cost (Travel time * Participant time)</p>	<p>Distance to treatment was not a reported barrier when the facility provided its clients with transportation or reimbursement.</p>
<p>Wong, Marshall, Shetty, Zhou, Belzberg, & Yamashita, (2007)</p>	<p>Perceived barriers to receiving psychosocial aftercare for violence-related patients who screened positive for substance use and mental illnesses</p>	<p>25 clients</p>	<p>Qualitative</p>	<p>Participants were asked if they were, “worried about transportation”</p>	<p>57% of clients, a majority being racial and ethnic minorities and unemployed, who were interested in an aftercare mental health/SUD programs reported that they were worried about transportation access.</p>
<p>Zulman, O’Brien, Slightam, Breland, Krauth, & Nevedal (2018)</p>	<p>Identify intensive outpatient program features and strategies that increase high-need patient engagement</p>	<p>20 program leaders and clinicians</p>	<p>Qualitative study</p>	<p>Whether the program leader reported transportation as a barrier to engagement for most or some patients</p>	<p>10 program leaders cited transportation as a barrier for <i>most/all</i> patients while 8 cited transportation as a barrier for <i>some</i> patients. Participants reported common strategies to combat transportation barriers such as providing transportation vouchers or offer rides from volunteers.</p>

Figure 1.

The Social Determinants of Health Model



Source: Schulz & Northridge (2004), p. 457

Figure 2.

PRISMA Illustration

