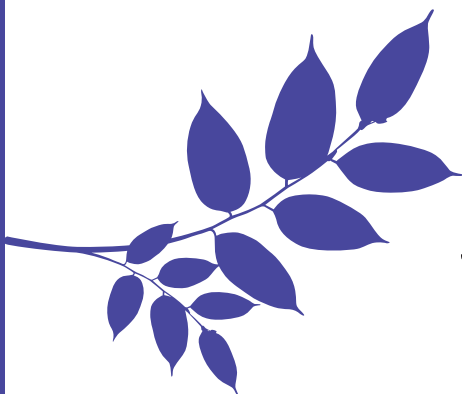


# Psychotherapy co-provision by peers and healthcare workers for substance use disorders in Indonesia

Chika Yamada  
Youdiil Ophinni



Japan-ASEAN Transdisciplinary Studies Working Paper Series No.16  
March 2022

**Psychotherapy co-provision by peers and healthcare workers  
for substance use disorders in Indonesia**

Chika Yamada  
Youdiil Ophinni

## Psychotherapy co-provision by peers and healthcare workers for substance use disorders in Indonesia

Chika Yamada <sup>\*1</sup>, Youdiil Ophinni <sup>2,3</sup>

### Abstract

For many decades, the infringement of the autonomy of people who use drugs has permeated many levels in Indonesia. Drug use has been disparaged as a moral issue, marginalised by the public, and criminalised by authoritative governing bodies. For people who develop substance use disorders (SUD), healthcare services also commonly enact compulsory treatment that disregards clients' autonomy seeking help. However, in recent decades, there has been a growing movement of people who use drugs to regain autonomy in attaining health rights. In this chapter, we first describe the lack of autonomy experienced by people with SUD, particularly in regard to their health rights. We then outline roles of peer counsellors through direct observations of psychotherapy co-provision by both peer counsellors and healthcare workers (HCWs) in a novel SUD psychotherapy module we designed ourselves, termed Indonesia Drug Addiction Relapse Prevention Program (Indo-DARPP). We observed various peer counsellors' roles, including diversification of the knowledge taught in the sessions. We also report the preliminary results of the pilot study of Indo-DARPP, which showed that participants who received Indo-DARPP for three months reported good acceptability and usability. Finally, the design of a randomised controlled trial for Indo-DARPP evaluation is presented. Ultimately, we hope to present insights reinforcing peer involvement into formal SUD care, with the aim of helping people with SUD to regain their autonomy in healthcare.

**Keywords:** autonomy, substance use disorder, peer involvement, lived experience, psychotherapy, Indonesia.

---

<sup>1</sup> Department of Environmental Coexistence, Center for Southeast Asian Studies, Kyoto University, Kyoto, Japan \*E-mail: [chika128@cseas.kyoto-u.ac.jp](mailto:chika128@cseas.kyoto-u.ac.jp)

<sup>2</sup> Ragon Institute of MGH, MIT and Harvard, Cambridge, Massachusetts, USA

<sup>3</sup> Immunology Frontier Research Center, Osaka University, Osaka, Japan

## 1. Introduction

*“My parents forcefully took me to a rehabilitation centre. [...] I was locked up in the isolation room for my withdrawal symptoms, for 2 weeks. I was using heroin, so it was very hard. I felt very sick when I (was going through) withdrawal. They didn’t understand, so they just put me into a locked room, without any medicine or anything, for two weeks in the room with my pain. I was so angry with that so I didn't want to listen to anything they thought about drugs.*

*After I came out of that place, I started using crack again. My parents then took me to a place in Kalimantan to a psychic to get hypnotised to eliminate my desire for drugs. [...] In that place, they tied my arms and legs to each tree. I tried to get them to let me out because it hurts. I was very sad and got mad at my parents. Why did you treat me like this? I'm not a bad person. I just need help for my addictions. But they didn't listen.*

*[...] My parents thought drugs were a moral issue not a health problem. This is the problem in Indonesia. Most people think that addiction is about morals, not a health problem...”*

Transcript from a podcast interview with Rosma Karlina, a person recovering from substance use disorder, from IDPC-UNAIDS podcast, August 2020 (UNAIDS Asia-Pacific 2020).

\*\*\*

The excerpt above vividly illustrates the arduous experience of people with substance use disorder (SUD) in Indonesia. Rosma eventually went through 17 drug rehabilitation programmes—both formal and informal—almost all against her will, including two years in prison for drug possession. Nevertheless, she survived, and finally managed to attain recovery for her addiction through the aid of a non-compulsory counselling program. Currently, she heads a peer-run organisation representing people who use drugs in the criminal justice system. Rosma’s story might have been one of the better ones. A brief observation of the daily news program would yield many such cases of mistreatment toward people who use drugs. Even very recently - a private jail complex in North Sumatra was used as a 'rehabilitative treatment centre' for people who use drugs, running openly for a decade under approval from surrounding residents, with a total lock count of over 600 people, until being exposed by the National Commission in Human Rights in January 2022 as a form of illegal slavery for a nearby palm plantation (“District Head’s Private Prison Cell Claims Lives: Rights Commission” n.d.). Indeed, people who actively use drugs in Indonesia are perpetually being put in a precarious position: being threatened with heavy criminalisation, while at the same time facing an infringement of their most basic human rights, i.e., the rights to health and autonomy, or the freedom to make informed decisions regarding their own healthcare.

One form of activism aiming to represent the autonomy of those who are marginalised from societal rights is the full and direct involvement in policy decisions of those affected by the policy themselves—*‘nothing about us without us’* (Latin: *‘Nihil de nobis, sine nobis’*). Within the realm of healthcare for SUD, the slogan can be interpreted as the involvement of individuals recovered from SUD in the care provision of people with the same condition yet still needing help for their recovery. Autonomy is a core principle of bioethics taught to healthcare professionals, but as has long been described in observations of physician-patient encounters (Rendtorff 2008), overemphasis on a physician’s own expertise may override the autonomy of clients or even other co-providing professionals such as nurses (Kenny and Adamson 1992). Here, it is important for medical providers to step outside of their authoritative

zone and reach out for active participation from other disciplines. Indeed, the most complex challenges relating to health problems necessitate a transgression over the boundaries of a single health-related discipline, and even the scope of healthcare professionals and medical academia. In the field of public health, transdisciplinary research and practice can be defined as ‘an integrative process whereby scholars and practitioners from both academic disciplines and non-academic fields work jointly to develop and use novel conceptual and methodological approaches that synthesise and extend discipline-specific perspectives, theories, methods, and translational strategies to yield innovative solutions to particular scientific and societal problems’ (Haire-Joshu and McBride 2013). The sheer complexity of the health and societal issue leading to the autonomy deprivation of people with SUD can be regarded as one ‘wicked problem’ necessitating a transdisciplinary approach, involving not only clinical professionals and academia, but also non-academia: people with SUD themselves, persons who help and advise them, i.e., counsellors, the governing sectors, private stakeholders, and more.

In the following, we first describe the lack of autonomy experienced by people with SUD, particularly in regard to their health rights. We then outline roles of peer counsellors through direct observations of psychotherapy co-provision by both peer counsellors and healthcare workers (HCWs) in a novel SUD psychotherapy module we designed ourselves, termed Indonesia Drug Addiction Relapse Prevention Program (Indo-DARPP). Finally, we will present the preliminary results of the pilot clinical study of Indo-DARPP. Ultimately, we hope to present insights reinforcing peer involvement into formal SUD care, with the ultimate aim of helping people with SUD to regain their autonomy in healthcare.

## **2. Autonomy for people with substance use disorders**

### **2-1. Global context**

Substance use disorder (SUD) is defined as an uncontrollable use of psychoactive substances which disrupts daily living. While 5.2% of the world population have used an illicit substance at least once in the past year (Peacock et al. 2018), around 10% of that, or 35 million people globally, have developed SUD. In 2018, SUD contributed to 131 million years or 5.5% of all disability-adjusted life years (DALY) of all diseases (GBD 2016 Alcohol and Drug Use Collaborators 2018), and is related to 11.8 million worldwide deaths annually (Ritchie and Roser 2019). One frequently overlooked problem is the disproportionate burden put on low- and middle-income countries (LMICs). While substance use prevalence itself is higher in high-income countries (HICs), absolute deaths due to SUD is higher in populous LMICs (Peacock et al. 2018), and merely 1% of people with SUD have access to formal treatment services (Degenhardt et al. 2017).

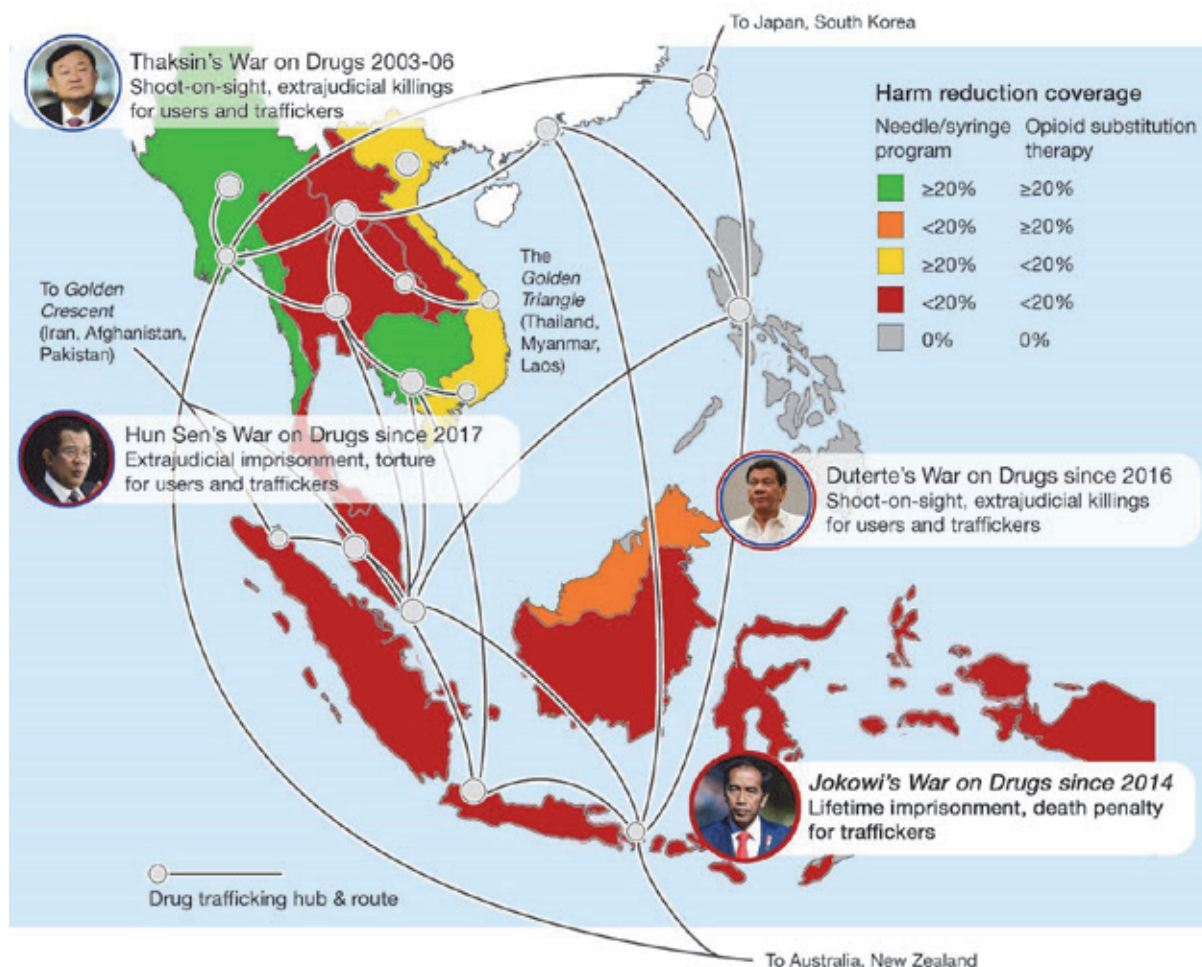
A long history of studies has reported that people with mental health conditions are oftentimes not treated as persons with full autonomy (Brekke et al. 2001; Hiday et al. 2001). It is not uncommon for health institutions to enforce compulsory inpatient care toward them, with isolation, physical restraint, and sedation (Newton-Howes et al. 2020; Steinert et al. 2010; Yamada, Ophinni, and Diatri 2020). Such treatment is even more pronounced when dealing with people with SUD, where care services are dictated by views often unreconciled with their own. The biomedical model of addiction (O’Brien and McLellan 1996) emphasises compulsion and uncontrollability due to altered brain functions, which may advocate a position of non-autonomy or, at best, reduced autonomy (Koopmans and Sremac 2011). Subsequently, healthcare workers are prone to believe that individuals under the influence of addiction are not capable of making independent and trustworthy decisions (van Boekel et al. 2015), thus disregarding the conditions in which the individual wants to achieve improvements. Furthermore, healthcare professionals tend to work to stop or reduce drug use based upon a

scientific notion that it is harmful to the body, and thus, the final goal of abstinence was imposed (Anderson, McGovern, and DuPont 1999). Objective measurements of drug concentration such as urine tests were prioritised—often compulsorily. The context of why a person wants to continue using drugs is neglected.

## **2-2. Criminalisation of drug use in Indonesia**

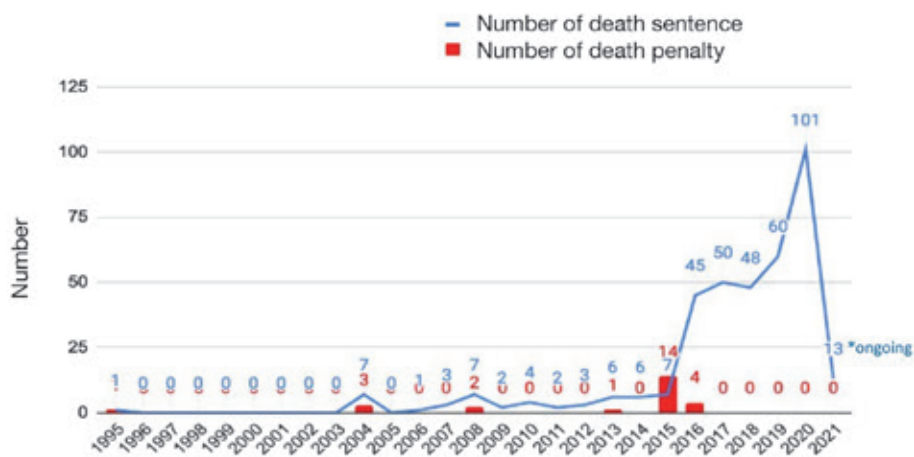
Even more pertinent to the infringement of rights of people who use drugs is the fact that drug use has been heavily criminalised. Public sentiment against drug use started in the colonial period and continued to grow after Indonesian independence, greatly influenced by the globalisation of a prohibitionist -and racially motivated- anti-drug regime born in the US (Musto 1999). Following the Single Convention on Narcotic Drugs by the United Nations, Indonesia enacted their first-ever Narcotics Law in 1976, banning the use of opium, coca, and cannabis products. These substances were freely used and traded in Indonesia for centuries before, even openly distributed by the Dutch regime (the *Opium Regie*) (Hefner and Rush 1991). Such cultural and sociohistorical aspects of drug use were ignored. Ever since the Law ratification, people who use drugs have been treated as ‘perpetrators of crime’, and hundreds of thousands have been sent to prison for personal drug use (Putri and Blickman 2016). The Law revision in 1997 widened regulated substances and introduced more extended imprisonment for drug possession, and soon after in the early 2000s, the ‘*War on Drugs*’ was formally declared to ‘eradicate drug use and trafficking’ for a utopian ‘drug-free society,’ leading to the establishment of the National Narcotics Board (*Badan Narkotika Nasional*, BNN) (Honna 2010; Fransiska 2019). Concerningly, as shown in **Figure 1**, such punitive anti-drug stances have been trending recently in several countries in Southeast Asia (Lindsey, Nicholson, and Nicholson 2016).





**Figure 1.** Recent trend of hardline anti-drug policies in Southeast Asia, overlaid with the nationwide coverage of harm reduction services and drug trafficking routes through the region.

The persecutory environment surrounding people who use drugs still permeates throughout Indonesia, and has been intensified by the current administration (**Figure 2**). As of December 2021, prisons nationwide were operating at 336 per cent overcapacity, and almost half of them (about 135,000 persons) were detained for drug offences (UNAIDS & UNODC 2021). Socioeconomically disadvantaged people are being disproportionately targeted as they are more identifiable and ‘arrestable.’ Numerous reports have acknowledged the lack of distinction in the judicial practice between drug use and drug possession or dealing, and each is punished differently, either with mandatory rehabilitation to a maximum of four years prison for the former, and four years prison to lifetime or the death penalty for the latter. Here, poor people may find their cases being altered from drug use to possession, i.e., going to prison instead of only rehabilitation, as they are unable to ‘offer’ anything. From the perspective of law enforcement, especially under the ‘War on Drugs’ directives, the number of arrests are directly linked to performative success, that is meeting a ‘quota,’ and drug use cases are inevitably being used as exploitable sources of incentives (Mustafa, Malloch, and Hamilton Smith 2020).



**Figure 2.** Number of death sentence (blue line) and death penalty (red line) ever since the first drug-related capital punishment was enacted in Indonesia in 1995. The current administration oversaw a striking increase in the number of death sentences, peaking to 101 in 2020.

### 2-3. Mandated care services in Indonesia

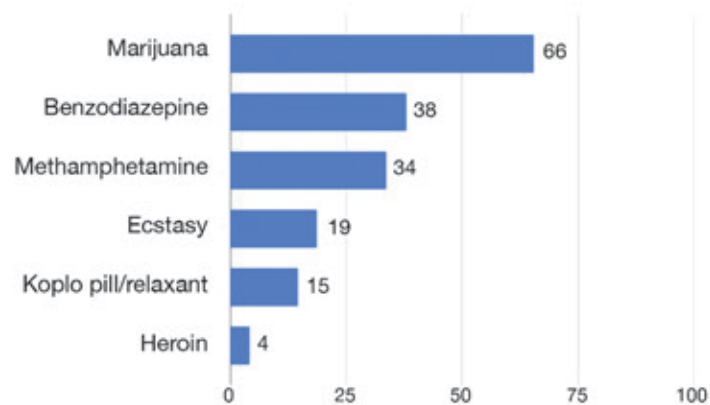
Nevertheless, the latest 2009 Narcotics Law revision brought a significant improvement by introducing the eventuality of rehabilitation for people caught by the law, and elevated the roles of the health sector as well as the rehabilitative division of BNN to better the condition of people with SUD. This also led to a new government program in 2012 called the Mandatory Report Recipient Institution (*Institusi Penerima Wajib Laport*, IPWL), launched by the Ministry of Social Welfare together with the Ministry of Health and BNN (Ministry of Health 2013). IPWL are government-accredited facilities, e.g. BNN-owned inpatient facilities, hospitals, community health centres (*Pusat Kesehatan Masyarakat*, Puskesmas), private rehabilitation services, as well as prisons, intended to connect people who use drugs to medical or social rehabilitation. However, mandatory still means the absence of autonomy; people who use drugs have to report themselves as a service recipient at IPWL or otherwise be prosecuted by law enforcement. A study reported that although the majority of IPWL users claimed that they joined ‘voluntarily,’ around 60% of them were not well informed of the kind of treatment on offer (Wirya and Misero 2016). Furthermore, the IPWL system provides services in exchange for release from punishment, and thus some choose to register out of fear of prosecution. Monetary incentives are also being used for recruitment: 14.4% of respondents were asked to bring another person in return for money. These episodes suggest that the focus still lies on the quantity of IPWL mandatory registrants, which may not help much to improve the autonomy of people who use drugs in regards to which service they receive, and whether they want to receive it in the first place.

### 2-4. Care system for substance use disorder in Indonesia

In Indonesia, the world’s third most populous LMIC, the national prevalence of psychoactive substance use was estimated to be 1.8% or 3.3 million people, with the most used substance being marijuana (Puslitdatin Badan Narkotika Nasional 2019, 2017) (**Figure 3**). The past two decades has seen a substantial decrease in injecting heroin use of about 80% (Puslitdatin Badan Narkotika Nasional 2017), but otherwise a marked increase in psychoactive medications use without prescriptions, particularly benzodiazepine sedatives and muscle relaxant, or colloquially known as ‘*koplo* pills’. Alcohol consumption is comparatively low in Indonesia most likely due to its Muslim-majority population; prevalence estimate of alcohol



use disorder was 0.8% in 2016, which is much lower than the average rate of that among countries in SEA (3.9%) (World Health Organization 2019).



**Figure 3.** Prevalence by types of substance, based on the government national representative survey in 2019 ( $N=28,842$  respondents).

In Indonesia, the current treatment options for SUD in formal health services include supportive psychotherapy, symptomatic pharmacotherapy, and opioid substitution therapy (OST). OST is effective in reducing withdrawal symptoms, cravings, and the risk of blood-borne infections for people with injected heroin use disorder (Lawrinson et al. 2008), and has been available in Indonesia from Puskesmas since 2006 under government subsidies. The treatments are provided by HCWs, namely, psychiatrists, psychologists, general practitioners, and nurses. The overall principle of formal medical care for SUD in Indonesia mainly follows the perspective of evidence-based knowledge, such as basing it on international treatment guidelines (Kleber et al. 2007). Here, SUD conditions mandated detoxification during acute episodes of withdrawal, and in the longer term to reduce dose or frequency of use to achieve abstinence. A typical endpoint of treatment and rehabilitation is remission, which is defined as a condition of no longer meeting the criteria for SUD, or simply abstinence, for twelve months consecutively. Such a set of rules are closely followed as well by the Ministry of Health and BNN, which in 2020 outlined the standard rehabilitation procedure as 3-6 months inpatient phase and long term outpatient phase, with frequent monitoring (twice a week) and urine test (Ministry of Health 2020).

### **3. Peer involvement in medical care for substance use disorders**

#### **3-1. Recovery-oriented movement at global stage**

However, over the past two decades, on the global stage, a more comprehensive approach has been adopted from care services provided for general mental conditions. Here, treatment is aimed more toward a holistic recovery, i.e., improving the health and wellbeing of those affected, as well as their capability to strive to achieve their full potential via self-directed processes (Whitley and Drake 2010). This recovery-oriented approach is considered to be best served by peers—people with actual field expertise and personal experience in recovering from SUD themselves, who truly understand the importance of holistic recovery, what path is needed to attain it, and the various practical details and nuances encountered in their journey. Here, knowledge gained from ‘lived experience’, or *experience-based knowledge*, should deservedly be held in the same regard as medical expertise or *evidence-based knowledge* (Byrne, Happell, and Reid-Searl 2015). People with lived experiences of a health condition are considered *experts by experience* (Vojtila et al. 2021), i.e., possessing practical know-how in how to treat themselves based on first-hand involvement in everyday events, and thus collectively

contribute to a constructivist paradigm on how to achieve recovery. Such experience-based knowledge may counterpoise the positivist approach of evidence-based knowledge, i.e., how to efficiently establish a true diagnosis and systematic treatment algorithm based on evidence yielded from medical clinical trials. Notably, the distinction between experience- and evidence-based knowledge, particularly in the field of mental health, draws parallel to the perpetual debate of particularism vs universalism. Indeed, the overwhelming majority of medical evidence on mental health treatment is based on clinical trials held in industrialised countries of the West, which commonly brought over and introduced as is to the countries of the global South - critics have called it as a form of cultural imperialism (Sax and Lang 2021). Here, experience-based knowledge may more closely follow the local sociocultural settings, compared to evidence-based knowledge derived from Western medical textbooks and journals.

In healthcare provision, involving peers may enable outreach to potential clients in the community who tend to avoid formal healthcare. In a clinical setting, peers may alleviate power imbalances in clinical settings between healthcare professionals and clients (as will be discussed below in Part 4), and enhance trust and rapport between them. Peers may also conduct knowledge transfer and act as an educator of constructivism-based approach to healthcare professionals. At a larger level, peers may navigate the legislation, healthcare system and programs, providing empowerment as peer workers and advocacy in regulation regarding people who use drugs, as reflected in the slogan '*Nothing About Us Without Us.*' Lastly, involving peers in research can increase the appropriateness and effectiveness of treatments, thereby improving the potential of future healthcare services.

### **3-2. Peer-run services for substance use in Indonesia**

An appreciable number of peer-run drug-related services have been increasing in Indonesia, especially over the past two decades. The actual contributions of peers in Indonesia may encompass many needs of the client—many peers may specialise in a specific role or two—including but not limited to the following:

- Elicit what clients want to be and help them make realistic plans to achieve it
- Connect clients to community resources e.g., welfare, employment, legal, and medical services, and self-help groups.
- Assist transitions between levels of care, especially from inpatient to outpatient
- Facilitate clients' long-term engagement with treatment services
- Community outreach for those not yet connected to services
- Harm reduction programs, e.g., needle distribution
- Helping HIV and hepatitis C prevention, e.g., voluntary counselling and testing
- Training interested clients to become addiction counsellors, and train counsellors to improve their capability
- Addiction education for the general public, e.g., information booths in schools and universities

The roles of peer counsellors significantly differ across facilities, even within the same healthcare system in a country (Salzer, Schwenk, and Brusilovskiy 2010), and such differences might be greater across countries. Concerningly, peer counsellors have been reported to have been misunderstood by HCWs and treated as if they were in an inferior position, as those who were supposed to only assist HCWs' duties (Almeida et al. 2020). Greater emphasis should be put on the indispensable role held by peer counsellors, who can engage with clients outside the limits of formal healthcare and fill in critical gaps within the holistic care practices for people with SUD.

In Southeast Asia, the practices of collaborative services provision between healthcare professionals and peers, however, are largely limited within the scope of harm reduction

services. A recent systematic review (Satinsky et al. 2021) found 12 articles that reported about five peer-delivered services for substance use related problems in the Southeast Asia region. Four of these services focused on harm reduction programs aimed to reduce HIV and sexually transmitted infections (STI) transmission among people who inject drugs. Those programs include peer-outreach for distribution of sterile needles and syringes, education, and advocacy to stakeholders in Vietnam (Walsh, Gibbie, and Higgs 2008; Ngo et al. 2009) and China-Vietnam borderland (Des Jarlais et al. 2007; Hammett et al. 2006; Des Jarlais et al. 2018; Hammett et al. 2012), as well as peer-education small-group sessions for improving communication skills related to sexual and injection practices in Vietnam (Go, Minh, et al. 2013; Go, Frangakis, et al. 2013) and Thailand (Latkin et al. 2009; Sherman et al. 2009; German et al. 2012). In Indonesia, as well, PLES has been playing significant and active roles to design and implement harm reduction services (Rigoni, Woods, and Brecksema 2019). These programs have been reported to be effective to increase the accessibility of services, reducing societal stigma towards people who inject drugs, and preventing HIV transmissions.

Meanwhile, only a few studies have been focusing on SUD treatment, which reported the feasibility of training and preliminary effectiveness of peer-delivered psychotherapy in Malaysia (Rashid et al. 2014) and Indonesia (Busse, Kashino, Suhartono, Narotama, Campello, et al. 2021). Considering the possible competency of peer counsellors in enhancing the autonomy of clients in therapy as well as exerting influence to HCWs, as promoted in the mental healthcare system in general in Indonesia (Irmansyah et al. 2020), it is of interest to develop a therapy where peers and conventional HCWs work together in providing treatment for people with SUD.

### **3-3. Psychotherapy co-provided by peer counsellors and healthcare workers in Indonesia**

In 2020, we developed the Indonesia Drug Addiction Relapse Prevention Program (Indo-DARPP), which is group psychotherapy provided jointly by a peer counsellor and a HCW (Yamada et al. 2021; Siste et al. 2021). The contents of Indo-DARPP are based on the relapse prevention model, where participants are guided to learn high-risk situations for substance use and coping strategies. The structure of the module is group therapy, using a workbook complete with explanations, figures, and exercise questions, in both open-ended and multiple-choice answers. Indo-DARPP itself was based on the Serigaya Methamphetamine Relapse Prevention Program (SMARPP), a relapse prevention therapy in Japan (Matsumoto et al. 2009) that is facilitated by HCWs, peer counsellors, and even non-healthcare professionals such as probation officers. The adaptations from SMARPP, in particular the workbook contents, were done via focus group discussions involving researchers, Indonesia-based psychiatrists, general practitioners, and peer counsellors.

Indeed, the most important feature of Indo-DARPP is that the sessions are provided by a peer counsellor and a HCW working together; such co-provisioning of psychotherapy hand-in-hand is a novel concept in Indonesia. While HCWs are in charge of facilitating the sessions, peer counsellors are expected to actively share their own experiences related to the sessions. In hospitals, the HCWs will be psychiatrists, and in puskesmas will be general practitioners or mental health nurses. While the group sessions were planned to be in-person meetings, in response to the Covid-19 pandemic, they were changed to a telemedicine-based online psychotherapy using videoconferencing. Importantly, efforts were made to create an ‘safe space’ for clients to increase their autonomy. This can be reflected in four points (out of seven) of the main principles created specifically for Indo-DARPP and are written on the first page of the workbook:

1. Participants can freely join even if they continue substance use;

2. Providers should guarantee their safety and comfort (physical wellness, emotional comfort, privacy) so that they can tell the truth;
3. Providers should not judge or negatively react to participants even if they have been using substances.
4. Providers should not put heavy expectations or force behavioural changes on participants.

### **3-3-1. Roles performed by peer counsellors in Indo-DARPP**

To more clearly elaborate on how peer counsellors and HCWs can work hand-in-hand in an SUD psychotherapy provision, we turn to our newly-developed psychotherapy module, Indo-DARPP. Here, our specific purpose is to seek to answer the following question from a perspective of peer counsellors themselves: 'what *roles* do peer counsellors perform, in a clinical setting where they co-provide psychotherapy for SUD together with HCWs?' We qualitatively interpreted peer counsellor's roles in Indo-DARPP based on our observation of Indo-DARPP sessions, conversations and interviews with peer counsellors, healthcare workers, and clients who have been participating in the Indo-DARPP pilot and clinical trial studies. In the following section, we show interpretations based on discussions between the two authors and the peer-counsellors who joined Indo-DARPP, followed by examples of our observations which were used as one of the bases of the interpretation.

#### (1) Closing the emotional distance with the clients

In this first role, peer counsellors acted to emotionally approach the clients by sympathising with their experiences and creating a 'soft and free' atmosphere, which also helped HCWs build trust with them.

#### *Sympathising toward the clients' experiences*

When clients shared their feelings, thoughts, and symptoms, peer-counsellors responded with sympathy by saying things like 'we can understand,' reflecting and rearticulating what they have said, and confirming if our experience resembles theirs. In response to sympathy, the clients further described their experiences in greater detail. An example of this role can be observed in the exchange below.

**Client:** *I used heroin on Saturday. On Sunday I tried to hold myself back. Monday was the same, but not fully the same. I used ... I don't know if it's an addiction or not but I drank Kratom at night. All I needed was something that made me calm. That's why I drank that. Wednesday I still couldn't work, I fell again. Now, today, I try to endure it again.*

**Healthcare provider:** *Bro [the client's name] has tried. You fought it back so you did not fall again. You already tried that. Am I right, Bro [peer counsellor's name]?*

**Peer counsellor:** *That's right, Doc. That's right. We can understand what Bro feels. Maybe one or two days feels like the body is in a state of chaos, right, Bro?*

**Client:** *That's right. In the afternoon, if there is still sun, it's not comfortable. Finally I can calm down at night, when I want to sleep but I still need Kratom so I can sleep easily.*

**Peer counsellor:** *Yes. It is indeed a very uncomfortable situation. [...] you feel destroyed. Everything feels wrong, doesn't it? The body feels sweaty, not good. It's not good to feel cold either.*

**Client:** *Nausea, sweating.*

**Peer counsellor:** *Nausea, sweating, tears came out. Isn't it?*

**Client:** *I'm feeling it now, honestly.*

### *Read and navigate the atmosphere*

Peer-counsellors read the situation and momentum of the session, before flexibly managing them to be more appropriate and comfortable for clients. If the atmosphere was too heavy, sad, or boring, peer-counsellors improvised as needed to try to break the ice and turn the atmosphere to be ‘soft’ and ‘free’, so that they gave more space for the clients to share their thoughts and feelings. This was perceived by peer counsellors as necessary since interactions between HCWs and clients may tend to be ‘stiff’ and ‘rigid.’ Indeed, the Indo-DARPP participants described the overall atmosphere of the sessions as ‘light’ and ‘fun.’

On the other hand, if the atmosphere was too playful or noisy, peer-counsellors tried to bring the discussion back on track. As such, peer-counsellors balanced the atmosphere, controlled the session and directed the group to come to a fruitful discussion without having to be too strict or tough.

### (2) Showing how to handle medical knowledge

Peer-counsellors showed the clients how to handle medical knowledge through reifying concepts into relatable stories and diversifying the taught knowledge.

#### *Reifying abstract concepts into relatable stories*

There are several abstract concepts within the module that are presented in jargon (*trigger*, *craving*, etc.). Use of these terms was intended to make the concepts applicable to many clients. However, the more abstract a concept is, the more difficult for clients to associate it with their everyday experiences, and thus peer-counsellors reified these abstract concepts into relatable stories using realistic experiences to enhance the relatability of such terms.

*[After a client read texts about triggers and cravings]*

**Peer counsellor:** *Now for us, maybe we don't see the substance or the drug in front of us, but because there are certain situations, certain people, certain objects, or certain places that remind us of our drug use, the urge to use drugs increases. For example, in the past, I used to be... this is like a classic Korean drama, so every time I had a fight with my lover, the urge to use drugs increased. I fought with my lover, which made me sad, and then I used drugs. Finally, once the situation with my lover continued to heat up a bit, or tense a bit, what came to my mind was 'use drugs.' I ended up using drugs. Even though, before that, there was no thought at all to use it. Now, those situations, then the people, the location, the object, that's what is called the trigger. Thus causing, even though we do not see it, a desire to rise within us which is called craving.*

#### *Diversifying the knowledge taught in the session*

A peer counsellor can position self independently from HCWs who promote evidence-based knowledge, which as explained above, exists alongside the experience-based knowledge possessed by peers and clients alike. Peer-counsellors avoided over-emphasising the correctness of evidence-based knowledge to clients, and instead encouraged them to remain open-minded and value their own experiences.

*[After everyone discussed how they can apply certain techniques to distract oneself from craving, such as relaxation]*

**Peer counsellor:** *Actually, these techniques... These are not must-use techniques. You actually have the right to choose which one is the most effective for you. So, do not be burdened by these techniques. Because maybe there are other techniques that have*



*worked for you. These can be used as an addition for you—if the other skills suddenly stuck or fail, this might be useful.*

Knowledge diversification particularly becomes crucial when there are discrepancies between medical evidence-based information taught in sessions and the peer counsellor's experience. For instance, in a session, the doctor explained the effectiveness of methadone maintenance therapy, where methadone is less addictive than heroin. The peer counsellor followed suit to criticise the therapy, stating that people who have started it would not be able to get out—he has seen people using methadone every day for more than a decade, and thus he does not believe it can alleviate addiction. The doctor then argued, referring to evidence of methadone therapy from clinical trials in Indonesia. Their arguments remained throughout the session. Finally, the doctor complained that the peer counsellor had spread false information, brought negative influence to clients, and thus was not suitable to provide psychotherapy. Meanwhile, a nurse who had observed the same discussion, opined that *'The doctor is right, but, what the peer counsellor said is also true. Methadone is an important treatment option, but it is far from perfect. The clients themselves are already on methadone and so they are more likely already knew the good and the bad aspects. Hiding such facts, or being biased, would only erode their trust in us.'*

Here, we observed that a peer counsellor's knowledge challenged a healthcare provider's knowledge. Healthcare providers might perceive such situations as uncomfortable, but at the same time, peer counsellors may provide a diversified knowledge, and thus the overall information can become more relevant for clients, whose thoughts may very well align more with peer counsellors' outlook.

### (3) Creating a safe and comfortable environment

Peer-counsellors contributed to building a safe and comfortable environment by ensuring safety for being honest and accommodating a comfortable platform for all.

#### *Ensuring safety for honest disclosures*

Peer-counsellors explicitly stated from the start, that the providers would never negatively react to the clients even if they keep using drugs. They also repeatedly expressed gratitude to the clients who have honestly shared their drug use behaviours and related experiences.

**Healthcare worker:** *Okay, yes, everyone has shared their experience this week. Maybe Bro [peer counsellor's name] can give some input?*

**Peer counsellor:** *Yes, thanks Doc. First of all, I want to thank you guys again, because you were willing to share your experiences. This is very valuable information for us. For the Doctor and for myself too. [...] My hope is to encourage you all to continue to share if you use narcotics in the future. Because whatever the condition is, I and Doc will still accept you all with open arms. [...] Even if there is a [substance] use, that's okay, that is indeed the purpose of this session.*

Ensuring safety was aimed to enable clients to feel comfortable in disclosing things they would otherwise hesitate to do. Honest disclosures were valued foremost, as it is vital for building a trusting relationship with the clients.

*'One of the clients first used heroin but changed it to kratom. He tried to stop using heroin. But then, he tried to go through the withdrawal symptoms with kratom. And he told us he continued using kratom. In my opinion, the positive side is that he told us the*



*truth about the cross-addiction. That is a very important thing for me as a counsellor. The client freely told us about the situation, and he admitted that he had a cross-addiction. That is the most important thing as a counsellor. He trusts us. He is comfortable to open up.’ (Interview with a peer counsellor)*

#### *Accommodating a comfortable platform for all*

Flexibility was perceived by peer-counsellors to be important; peer-counsellors adapted and compromised with many situations, and to an extent tinker with the group rules and schedules to accommodate everyone in the group as much as possible.

**Healthcare worker:** *There was a question, maybe Bro [peer counsellor’s name] can also give input. ‘Is it okay to smoke during this meeting, Sir?’*

**Peer counsellor:** *For me, Doc, since this meeting is via Zoom, and all of us are in our own places, maybe it's okay to smoke. But if, for example, we are in the same room, maybe that will be a problem because it can disturb others.*

#### *(4) Sharing practical knowledge*

Peer-counsellors shared practical knowledge by indicating a reasonable timeframe and connecting clients with community resources.

#### *Indicating a reasonable timeframe*

Peer-counsellors helped clients reconsider the timeframe they were in for specific situations, and thus give them ideas to reasonably adjust their perceived elapsed time. For example, clients who relapsed after a long abstinence period tend to blame themselves. Peer-counsellors suggested to them to widen their perception of elapsed time by saying that ‘*it is part of a long process of recovery.*’ Meanwhile, to a client who feels disheartened every time they suffer from withdrawal symptoms, peer-counsellors suggested focusing their time frame into a short period, so that the client would not perceive the suffering period to be too long to endure.

*[To a client who are experiencing withdrawal symptoms of heroin]*

**Peer counsellor:** *I recommend trying it every two hours, Bro. Try not to use it for the next two hours. If you keep doing that, you won’t feel the time has stopped. Suddenly it will be already time to sleep. Tomorrow when you wake up, you realise one more day has passed.*

#### *Connecting clients with community resources*

Peer-counsellors recommended resources related to addiction recovery in the community, such as self-help groups and addiction clinics nearby, for clients to sustain their recovery effort especially when the Indo-DARPP sessions have come to an end.

*[After reading texts about self-help group]*

**Peer counsellor:** *I just want to add a little. Maybe just a little information for you guys. What is meant by self-help groups is, for example, Narcotics Anonymous or NA Meeting, then Alcohol Anonymous too or AA Meeting. So there really are some support groups for AA, that’s Alcohol Anonymous, that’s for people who use alcohol. Then Narcotics Anonymous is for people who use other substances besides alcohol. So, maybe if you guys are interested in joining a self-help group like that, you can just contact me or ask*

*questions in the group. I might be able to share some information, location, or contact person for this self-help group.*

#### (5) Helping build self-confidence

Peer-counsellors helped the clients to build self-confidence by reconstructing their experiences as positive stories and celebrating self as what they are.

##### *Reconstructing experiences as positive stories*

When the clients shared experiences, peer-counsellors identified positive aspects within the experiences and informed them as compliments. Such reconstruction is thought by peer counsellors as especially important when their experience is seen as a drawback from the medical perspective, such as continuing using drugs or changing one drug to another.

[The below is the conversation following the above-quoted conversation in 'Sympathising toward the clients' experiences']

**Peer counsellor:** *Wow! What time did you use it last time, Bro?*

**Client:** *Yesterday, at seven o'clock.*

**Peer counsellor:** *Seven o'clock? That means almost twenty-four hours have passed, right?*

**Client:** *Yes, it is true.*

**Peer counsellor:** *That's quite a long time, Bro. You can stay clean for almost twenty-four hours. It is already cool for me. If I may tell you, in the past, I couldn't even resist for more than two hours.*

##### *Celebrating clients as they are*

No matter in what conditions the clients were, regardless of whether they showed changes or not, peer-counsellors expressed acceptance in a delightful way. Such encouraging feedback brightened the HCW's way of talking as well and lightened the mood of the entire group.

**Peer-counsellor:** *I really appreciate it even though you guys are not using drugs a day or two and then fall again. Some have fallen even after being eight months clean, but for me, personally, I only have one word: keren ['cool' in Bahasa Indonesia]. It actually shows that you guys have real abilities to stop. That's keren, doc. You guys are keren.*

**Healthcare provider:** *Right, even though there were difficulties, you still tried to fight back. Yes, the keyword was five letters like Bro [peer-counsellor's name] said: keren. Is that so Bro?*

**Peer-counsellor:** *Keren, doc. Keren. Everyone is keren.*

**Healthcare provider:** *Okay.*

**Peer-counsellor:** *Not five letters, doc. But ten. Because the last 'e' is long. That's kereeeeeen.*

**Everyone:** *[Laughing]*

#### (6) Sharing the art and skills with healthcare workers

Finally, peer-counsellors shared art and skills related to care provisions with healthcare workers. Peer-counsellors helped HCWs to look at things from the clients' perspective and showed skills to communicate more effectively.

##### *Helping healthcare workers to look from clients' perspective*

Peer-counsellors showed HCWs how to empathise, get emotionally close to, acknowledge, listen to, and enhance knowledge sharing with the clients. By observing such engagements, as

well as being directly exposed to honest stories from the clients, HCWs themselves reflected on how they had interacted with the clients before, reduced feelings of blaming and distrust with people who use drugs, and learned to be in the position of clients.

[Interview with a nurse]

*“I learned so many things from the peer counsellor. One, I learned that patients want to be appreciated, and we have to be sensitive to their feelings. Two, I personally have never used any substances myself. So sometimes I feel as if I am a know-it-all when I try to correct them, like, ‘No, it’s not like that!’ But what do I know? it is them who felt the symptoms. Sometimes, I even underestimate and blame them, like, ‘Oh, you’re lying to me right? You’re being manipulative—I don’t believe you.’ But the things that they are saying are authentic; that is actually what they are, and we have to accept them. If we don’t believe what they say, then how on earth could they trust us?”*

#### *Showing skills to communicate with the clients*

HCWs also appreciated peer counsellors as they could learn practical conversational techniques to be applied toward clients that may be uncommon in the medical parlance. For instance, peer counsellors commonly converse with the clients using street slang. By working together with a peer counsellor, a psychiatrist acknowledged that they learn those vocabularies and how to use them. They stated that such communication techniques can work like a ‘glue,’ connecting clients and providers instantly.

Through the observation of actual psychotherapy co-provisioning by peer counsellors and HCWs it can be said that peer counsellors have the potential to positively transform the formal mental health care provision. All counsellors involved in the Indo-DARPP are BNN-certified, and we observed that in general, counsellors strove towards symmetric relationships with clients. They also importantly diversified the evidence-based knowledge, helped HCWs to have clients’ perspectives, which was indeed acknowledged by some HCWs as improving their communication skills. However, we also observed when peer counsellors challenged HCW’s knowledge, and in some cases such confrontational stances led to arguments. Previous studies also reported that peer counsellors encountered situations that contradicted their values (Wyder et al. 2020), and they needed to ‘fit’ with existing beliefs and values in the mental health care services to be regarded as legitimate team members (Ehrlich et al. 2020). Nevertheless, variation in perspective, approach, and experience surely exists, either on the part of peer counsellors or HCWs.

### **3-3-2. Pilot test of Indo-DARPP**

In the following, we report the preliminary results of Indo-DARPP. Our research question here was: will such a program with peer involvement become effective, acceptable and usable for the people with substance use disorder who participate in it? Based on the results, we aimed to refine the program as needed to increase the effectiveness and feasibility of implementation.

#### **Methods**

##### **a) Design and setting**

We conducted a pilot study, employing a non-randomised controlled before-and-after design. The location for the pilot study was Cipto Mangunkusumo General Hospital, the

university hospital of Universitas Indonesia and simultaneously holds the status as the largest nationwide referral hospital in Indonesia.

### b) Recruitment

Recruitment was done in a convenience sampling from the outpatient psychiatric clinic. The inclusion criteria were those who met all five of these: 1) age 18-65 years old, 2) diagnosed with drug or alcohol use disorders in the Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5), 3) have used the primary drug at least once in the past year, 4) have a device capable of a video call with Internet access, and 5) proficient in Indonesian. Exclusion criteria were those who: 1) have a severe physical or mental disability that hinders informed consent or data collection, or 2) use inpatient or residential services.

### c) Treatment

Participants were allocated to either intervention or control arms. Participants in the intervention arm received tele-Indo-DARPP, online provision of Indo-DARPP through videoconferencing in response to the Covid-19 pandemic, in addition to treatment as usual (TAU), those in the control arm received TAU-only. The structure of the tele-Indo-DARPP was weekly CBT in a group (maximum 5 people) for a total of 12 sessions or 3 months, ~2 hours per session, through an online video conferencing via the application Zoom. The providers were healthcare workers from the Department of Psychiatry, University of Indonesia and peer counsellors from a peer-run NGO providing services for people with substance use disorders.

### d) Data collection

Structured interviews were conducted to assess participant characteristics and outcome measurements before and after the treatment provided. **Table 1** shows the outcomes and their measurements. Semi-structured interviews were also conducted after the end of treatment to ask about the acceptability and usability of the tele-Indo-DARPP, and audio recordings were made with the participants' permission.

**Table 1.** Outcomes and measurements

Outcome	Measurement	Data for analysis	Type and score range	Hypothesis for intervention (vs control)
Primary substance use	Timeline follow-back (TLFB) for the past 30 days	Number of days using the primary substance.	Continuous, 0 (no use) to 30 (used everyday).	More decrease
Addiction severity	Addiction Severity Index (ASI)	7 composite scores: medical, employment, alcohol use, drug use, legal, family/social, and psychiatric status. Each composite score is calculated using a standard formula.	Continuous, 0 (no problems) to 1 (severe problems).	More decrease
Quality of life	World Health Organization Quality of Life Brief Version (WHOQOL-BREF)	4 domain scores: physical health, psychological health, social relationships, environment. Each domain score is calculated using a standard formula.	Continuous, 0 (impaired health) to 100 (full health).	More increase

Motivation to change	University of Rhode Island Change Assessment (URICA)	Action stage subscale, sum of 8 items.	Continuous, 8 (not active in behavioural change) to 40 (highly active in behavioural change).	More increase
Coping strategies	Brief-Coping Orientation to Problems Experienced (Brief COPE)	Sum of substance use coping (2 items)	Continuous, 2 (low substance use coping) to 8 (high substance use coping)	More decrease
Psychiatric symptoms	Symptom Checklist-90 Revised (SCL-90-R)	Global Severity Index (GSI), average of 90 items. 9 dimension scores: somatisation, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, average of items.	Continuous, 0 (no symptoms) to 4 (severe symptoms).	More decrease
Cognitive function	Rey Auditory Verbal Learning Test (RAVLT)	3 test results; immediate, learning, and recalling.	Continuous, 0 (low functioning) to 15 (high functioning).	More increase
Internalised stigma	Internalized Stigma of Mental Illness (ISMI)	Total score, average of 29 items. 5 subscale scores: alienation, stereotype endorsement, discrimination experience, social withdrawal, stigma resistance, average of items.	Continuous, 0 (low internalised stigma) to 4 (high internalised stigma)	More decrease

### e) Data analysis

Descriptive statistics were calculated for participants' characteristics and changes in outcomes. The interview recordings were transcribed verbatim, translated into English, and then subjected to thematic analysis to identify positive/negative aspects of acceptability and usability.

### f) Ethical considerations

Potential participants were informed of the purpose of the study, the methods, the burdens and expected risks/benefits of participation, the voluntary nature of consent, and that consent could be withdrawn at any time. Participation is only acknowledged if informed consent was obtained. All study participants were asked to sign a pledge regarding group therapy participation, such as to keep discussion confidential and not to share any information about other participants to any third party. This study protocol was approved by the Ethics Review Committees of the Faculty of Medicine, Universitas Indonesia, and the Graduate School of Medicine, Kyoto University.

## Results

### a) Study participants

We approached nine participants for recruitment and all of them provided informed consent. One retracted his consent prior to the completion of pre-treatment assessment. Among the eight who participated in the study, four preferred to and thus were allocated to the Indo-DARPP+TAU arm and four to the TAU-only arm. One of the participants allocated to the TAU-only arm did not complete post-treatment assessment due to lost contact—the participant was determined as 'dropped out' and thus not included in outcome analysis.

Demographics of the participants at pre-treatment are shown in **Table 2**. The mean age was 37 years old and all of them were male. The majority of them completed high school or higher education (87.5%), had a part-time job (75%), were widowed/separated or never married (75%), in a household with three persons or more (75%), were Muslim (87.5%), and were belong to an ethnic group rooted in Java island (75%). The mean time and cost needed for one-way transportation to the nearest health care facility were 80 minutes and 36.9 thousand rupiahs, respectively. Half of the participants had been arrested due to drug charges. Sedatives were reported by seven participants (87.5%) as their primary drug of concern, while one reported amphetamines. Sedatives, alcohol, and methadone were reported to have been used in the past 30 days.

**Table 2.** Participant demographics at pre-treatment

	Total		Indo-DARPP + TAU		TAU-only	
	n = 8		n = 4		n = 4	
Age, Mean (SD)	37.0	(12.8)	39.3	(5.5)	34.8	(18.4)
Male gender, n (%)	8	(100.0)	4	(100.0)	4	(100.0)
Education completed, n (%)						
Junior high	1	(12.5)	1	(25.0)	0	(0.0)
High	4	(50.0)	2	(50.0)	2	(50.0)
Vocational	3	(37.5)	1	(25.0)	2	(50.0)
Employment status, past 3 months, n (%)						
Full-time job	1	(12.5)	1	(25.0)	0	(0.0)
Part-time job	6	(75.0)	2	(50.0)	4	(100.0)
Disabled	1	(12.5)	1	(25.0)	0	(0.0)
Marital status, n (%)						
Married	2	(25.0)	1	(25.0)	1	(25.0)
Widowed/ separated	2	(25.0)	1	(25.0)	1	(25.0)
Never married	4	(50.0)	2	(50.0)	2	(50.0)
Household size, n (%)						
Living alone	0	(0.0)	0	(0.0)	0	(0.0)
2 persons	2	(25.0)	0	(0.0)	2	(50.0)
3 persons or more	6	(75.0)	4	(100.0)	2	(50.0)
Religion, n (%)						
Islam	7	(87.5)	3	(75.0)	4	(100.0)
Christianity	1	(12.5)	1	(25.0)	0	(0.0)
Ethnicity, n (%)						



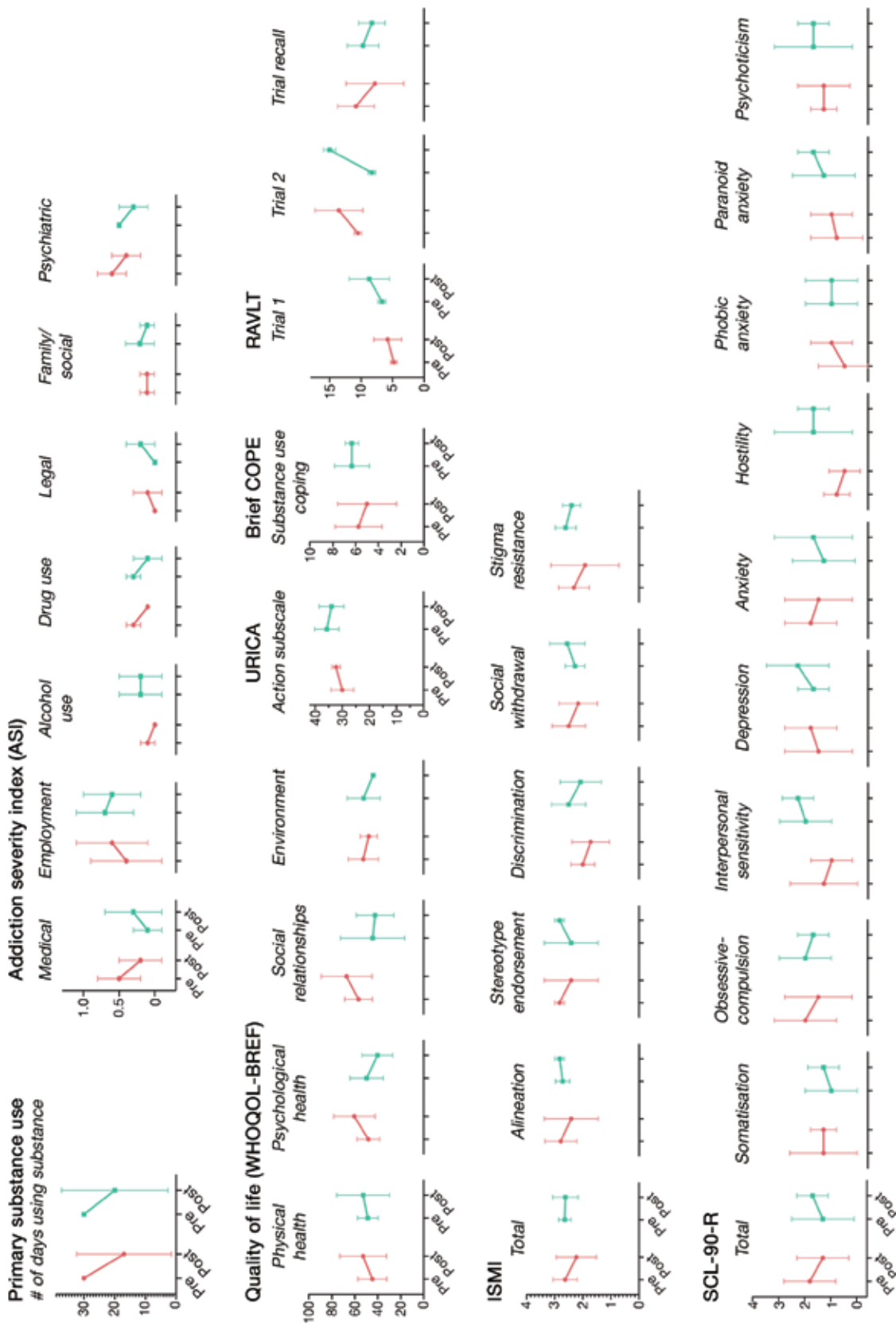
Jawa	3	(37.5)	1	(25.0)	2	(50.0)
Sunda	2	(25.0)	0	(0.0)	2	(50.0)
Betawi	1	(12.5)	1	(25.0)	0	(0.0)
Minang	1	(12.5)	1	(25.0)	0	(0.0)
East Nusa Tenggara	1	(12.5)	1	(25.0)	0	(0.0)
Transportation to the nearest healthcare facility, one-way trip, Mean (SD)						
Time in minutes	80	(39.6)	81.3	(37.5)	80	(46.9)
Cost in thousand Rupiah	36.9	(18.3)	32.5	(20.6)	41.2	(17.5)
Number of arrests due to drug charges, n (%)						
Never	4	(50.0)	1	(25.0)	3	(75.0)
1- 2 times	2	(25.0)	2	(50.0)	0	(0.0)
3 times or more	2	(25.0)	1	(25.0)	1	(25.0)
Primary drug of concern, n (%)						
Sedatives	7	(87.5)	4	(100.0)	3	(75.0)
Amphetamines	1	(12.5)	0	(0.0)	1	(25.0)
Drug type used in the past 30 days, n (%)						
Alcohol	3	(37.5)	2	(25.0)	1	(25.0)
Heroin	0	(0.0)	0	(0.0)	0	(0.0)
Methadone	2	(25.0)	1	(25.0)	1	(25.0)
Other opioids	0	(0.0)	0	(0.0)	0	(0.0)
Barbiturates	0	(0.0)	0	(0.0)	0	(0.0)
Sedatives	8	(100.0)	4	(100.0)	4	(100.0)
Cocaine	0	(0.0)	0	(0.0)	0	(0.0)
Amphetamines	0	(0.0)	0	(0.0)	0	(0.0)
Cannabis	0	(0.0)	0	(0.0)	0	(0.0)
Inhalants	0	(0.0)	0	(0.0)	0	(0.0)

**b) Indo-DARPP session attendance**

Among the four participants allocated to the Indo-DARPP+TAU arm, two participants joined all twelve Indo-DARPP sessions, one participant attended 11, and one joined 9 sessions. Collective attendance was 91.7% (44 out of 48 sessions).

**c) Outcome changes**

**Figure 4** shows means and standard deviations of the outcome measurements at pre- and post-treatment, stratified by the Indo-DARPP+TAU arm and the TAU-only arm. The corresponding details can be found in **Table S1**.



**Figure 4.** Difference between pre- and post-intervention measurements of primary (primary substance use) and secondary outcomes (ASI, WHOQOL-BREF, URICA, Brief COPE, RAVLT, ISMI, and SCL-90-R) in the pilot study. Mean and standard deviations in error bar for each measurement are shown. Results of the Indo-DARPP group are shown in the red line, and the TAU group in the green line.

### *Primary substance use*

Both arms showed a mean decrease in the number of days of using the primary substance in the past 30 days, with a greater decrease by 3 days in the Indo-DARPP+TAU arm.

### *Addiction severity*

The IndoDARPP+TAU arm showed a decrease in ASI composite scores of the medical, psychiatric, alcohol use, drug use, and psychiatric domains. Of these, the reduction found in the medical and alcohol use domains were the most prominent, as the TAU-only arm exhibited an increase or no change instead. The composite score of the legal domain increased in both arms. The employment and family/social domains among the Indo-DARPP+TAU arm showed an increase and no change, respectively, while those among the TAU-only group showed a decrease.

### *Quality of life*

Scores of the physical health, psychological health, and social relationships domains of WHOQOL-BREF increased among the Indo-DARPP+TAU arm, contrasting with the results of the TAU-only arm which showed decreases or no change. The environment domain score, however, decreased in both arms.

### *Motivation to change*

There is an increase in the URICA action stage score in the Indo-DARPP+TAU arm. This was in contrast with the TAU-only group, which showed a decrease.

### *Coping strategies*

Substance use coping score of Brief COPE decreased among the Indo-DARPP+TAU arm, while that among the TAU-only arm increased.

### *Psychiatric symptoms*

The GSI score of SCL-90-R showed a decrease among the Indo-DARPP+TAU arm, while that of the TAU-only arm increased. The scores of the Indo-DARPP+TAU arm were reduced in the following domains: obsessive-compulsion, interpersonal sensitivity, anxiety, and hostility. Among these, the reductions observed in the interpersonal sensitivity and hostility were noticeable as the scores in said dimensions rose or did not change in the TAU-only arm. In contrast, the scores of the depression, phobic anxiety, and paranoid dimensions increased and that of the psychoticism dimension did not change in the Indo-DARPP+TAU arm. Nevertheless, these patterns were also found in the respective dimensions among the TAU-only arm.

### *Cognitive function*

The Indo-DARPP+TAU arm exhibited an increase in the trial 1 and 2 and a decrease in the recall trial, all of which were in line with the results among the TAU-only arm.

### *Internalised stigma*

The total score of ISMI dropped in the Indo-DARPP+TAU arm, while it remained unchanged in the TAU-only group. All five subscales decreased among the Indo-DARPP+TAU arm, and the decreases were noteworthy especially in the subscales of alienation, stereotype endorsement, social withdrawal, and stigma resistance, as the scores of these subscales in the TAU-only arm rose or did not change.

#### d) Results of feed-back interviews with the participants

The participants who joined the Indo-DARPP reported that, in general, the module had a good acceptability in terms of being able to open up on their personal matters, receive helpful counsellor's advice, learn new things, feel support from other participants, and broaden their view by listening and sharing to other participants in various stages of recovery from SUD. On the other hand, participants expressed complaints regarding the Indo-DARPP contents, where some of its terminologies were confusing and did not adhere to the actual colloquial terms commonly used in the streets, and some of the medical information was too complicated for lay people and not accessible enough. Examples of interview data are provided in **Table 3**.

In terms of usability, the participants felt the convenience of joining from home, without any wasted time or cost for transportation, and felt good pacing between sessions. However, participants sometimes felt frustrated with technical issues and unstable Internet connection, and wanted more time to share their story. In the end, 75% (3 out of 4) participants expressed their preference for online telemedicine compared to face-to-face meeting.

No adverse effects of Indo-DARPP were reported. We confirmed with participants that they did not perceive that Indo-DARPP negatively affected any of their physical, psychological, and social conditions.

**Table 3.** Themes and example interview raw data on acceptability and usability of tele-Indo-DARPP

---

#### Acceptability

---

##### Well-accepted

###### Able to open up personal matters

*'Talking about my meth use reminded me of all the things, like my ex-girlfriend and my old friends who died of AIDS. I had never talked about it with anyone before. I never thought of sharing it because nobody would understand me anyway. But in the program, others also shared similar things and I felt accepted.'*

###### Found advices from peer counsellors relatable

*'I learnt the meaning of one day at a time from him [Peer counsellor]. Even if I used drugs yesterday, it's important to start another new day there and try to live better at least on that day. Repeat and build on it. That sort of thinking helps a lot.'*

###### Learned new things from texts

*'Making a schedule was new to me. Keeping myself busy can distract me from things I want to forget.'*

###### Felt others supporting me

*'I thought no one would care about me, but that's not true when I was in the program. I could complete the program because everyone, I mean other patients too, supported me.'*

###### Mutually learned

*'It was very interesting to hear the various viewpoints from the others here, some of whom have already battled addiction for 20 years. I am eager to join future sessions so I can hear more and more stories from anyone among different stages in their path to recovery, including new patients, whom I can help by teaching my own experiences as well.'*

Poorly accepted

Terminologies used in the workbook not close enough to reality

*'Sometimes the workbook content felt a bit distant from the reality in the streets. I hope there can be content revision to make us feel more familiar, such as adding brand names for prescription drugs, and street names for illicit drugs.'*

Explanation on medical and statistical information are not accessible enough

*'Sometimes I couldn't really understand the medical explanation or study graphs, and tend to just skim them.'*

---

Usability

---

Usable

Convenient to join from home

*'I really like that I could join it from home, even right after taking a nap. Going to the hospital is such a hassle.'*

No wasted time/cost for transportation

*'If I go to the hospital, it will take up my half-day because of the terrible traffic jam and I need to take off from my job.'*

Good pacing between sessions

*'One session per week was the best frequency for me. I could remember what we learnt in the last session.'*

Poorly usable

Frustrated with technical issues

*'I could not use my video sometimes, which was so frustrating. I couldn't keep up with the discussion because of the technical problems, and then I lost the motivation I had before.'*

Wanted more time to share

*'I wanted more time to share. Because it's a group session, time for each of us is more limited compared to one on one sessions.'*

---

## **Discussion**

Our preliminary results of the pilot study showed that participants who received Indo-DARPP+TAU were more able to reduce their number of days using primary substance use, compared with those receiving TAU only. Among the Indo-DARPP+TAU arm, the reduction was also observed in the composite scores of drug and alcohol use domains of ASI, which measured not only the use of primary substance but also various types of psychoactive substances. These scores also reflect how troubled the participants were in regards to psychoactive substance use, and how important it is for them to receive treatment for such troubles. The observed reductions in substance use and its related troubles are in line with the positive changes of the process measurements among the Indo-DARPP+TAU arm, namely, the increased score of the URICA action stage scale and the decreased score of the Brief COPE substance use coping scale. These might suggest that those who received Indo-DARPP increased their motivation to actively engage in changing their substance use behaviour, as well as make choices of strategies other than substance use to cope with their stress in everyday life. Indeed, the interview revealed that Indo-DARPP participants were able



to maintain their motivation thanks to the peer counsellor's knowledge which was based on his own experiences, and learned new practical skills to avoid triggers for substance use (e.g., schedule making).

Among those who received the Indo-DARPP+TAU, we also observed some improvements in outcomes regarding psycho-social aspects, i.e., increase in the domain scores of psychological health and social relationships in WHOQOL-BREF, decrease in the interpersonal sensitivity and hostility dimension scores of SCL-90-R, and decrease in the subscales of alienation, stereotype endorsement, social withdrawal, and stigma resistance of ISMI. It could be inferred that gaining a supportive group therapy environment from Indo-DARPP alleviated psychological suffering and enhances mutual social support. As shown in the interviews, participants were able to disclose private issues during the Indo-DARPP sessions to the extent that they shared about their illegal activities and bereavement of persons significant to them. Previous studies showed that psychotherapies via online technologies faced challenges in building rapport between clients and therapists, compared to when being provided in-person (Backhaus et al. 2012). Our success in building a safe and private environment as a SUD treatment setting may not have been possible without the involvement of peer counsellors, as well as the establishment of common understanding of the group rule, i.e., to not disclose any information discussed in sessions to any third party outside the group. The interview also showed that the Indo-DARPP worked as an interactive platform of mutual sharing and learning, instead of a conventional treatment setting where knowledge is unidirectionally given from therapists to clients. As reflected in the observed reduction in internalised stigma, the format of group therapy with abundant open discussions in Indo-DARPP might have helped lessen some negative affect, including shame, guilt, and loneliness, and enhance self-worth and sense of belonging (Yalom 1995). Another possible interpretation is that reduced psychoactive substance use in itself may have led to improvement in psychiatric symptoms.

Furthermore, Indo-DARPP was perceived as time-efficient by the participants of our pilot study whose residence is located in Jakarta, whose city traffic is inconvenient and heavily congested. Indeed, Indo-DARPP could save over two hours of roundtrip transportation time to visit an outpatient clinic.

Nevertheless, our results also showed that people who received Indo-DARPP did not show improvements in the employment and family/social domains of ASI. Previous surveys reported that having a full-time job and good family relationships (i.e. cohabitation with parents and family cohesion) were important protective factors for the well-being of people who use substances in Indonesia (Li et al. 2014; Natakusumah et al. 1992). More detailed field observation in Makassar, Sulawesi, reported that employment enables young men who use drugs to gain *halal* (legitimate) income, acquire *rewa* (local masculine identity), be *gaul* (sociable), as well as able to rebuild good relationships with their families and social networks with a wider community (Nasir, Rosenthal, and Moore 2011). Widening of these social networks is surely difficult without alleviating societal discrimination towards people with SUD. Indeed, the Indo-DARPP participants showed a relatively limited reduction in the discrimination experience score of ISMI. In this current module, Indo-DARPP does not comprehensively address the needs of people with SUD, especially in employment and family/social aspects, indicating a need for concurrent complementary programs. For instance, local NGOs including several rehabilitation centres are providing job finding assistance and skill training, and the national government has a welfare program of conditional cash transfer for unemployed people with SUD (Hatta and Sarkawi 2011). There are also ongoing efforts in Indonesia to implement family interventions for SUD

(Busse, Kashino, Suhartono, Narotama, Pelupessy, et al. 2021). Furthermore, peer-run NGOs are playing key roles in stigma reduction, via education, story sharing, and creation of media. It might be recommended to amend Indo-DARPP contents to meet a wide range of needs, as well as provide the program in combination with existing resources.

The interview results revealed several other issues regarding the usability and acceptability of Indo-DARPP. For example, the participants reported that they were not familiar with some terminologies, especially substance names used in the workbook. Also, some participants had difficulties in comprehending medical and statistical information. Although the workbook contents were carefully developed to increase clarity and comprehensibility, further considerations are necessary, given the relatively low educational backgrounds of people with SUD. Some examples include the addition of colloquial street names of substances, adding explanatory pictures, and presenting heavier knowledge with simpler and easy-to-understand texts. Further, the participants felt frustrated when having technical issues related to unstable internet connections or smartphone devices. This is another obstacle to the widespread implementation of telemedicine. Nevertheless, it is hoped that this infrastructural obstacle can be gradually overcome following the rapidly expanding use of the internet in Indonesia, where smartphone use itself is estimated to increase from 74% in 2019 to as high as 89% by 2025 (The Mobile Economy 2020). The COVID-19 pandemic has turned telemedicine from an alternative feature to a core necessity, and thus opening novel ways to do online group communication (via software, application, and social networks) and also pushing the local policymakers to put more investment in infrastructure relating to Internet access.

Altogether, our pilot result gave an encouraging look into how peer counsellors can be involved within a formal psychotherapeutic session for clients with SUD. While we measured the duration of abstinence as the primary outcome, it is emphasised in the Indo-DARPP sessions themselves that participation is welcomed, regardless of one's own status of substance use. Summarily, we put the following points as the purpose of Indo-DARPP:

1. Instil internal motivation instead of forced, external pressure
2. Implement community-based approach or outpatient, not prison-like inpatient institution
3. Value autonomy of clients: to achieve abstinence or not, at what pace, with what method.
4. Create a safe place for clients to discuss freely and honestly, together with peers who also have substance-related issues

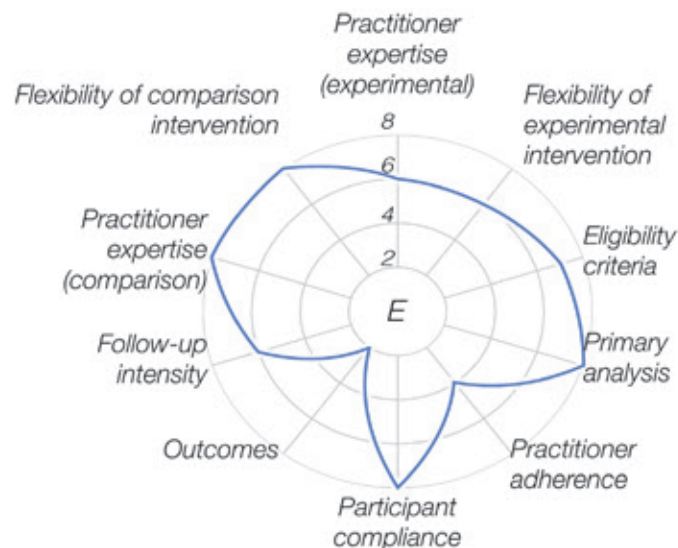
Nonetheless, the results should be interpreted with caution. This pilot study is of exploratory and preliminary nature with a very limited sample size without any statistical tests—being the first to try out the newly developed psychotherapy in Indonesia—and was not meant to determine clinical effectiveness akin to those in interventional studies employing more rigorous design such as randomised controlled trial with a large enough sample size predetermined by a sample size calculation.

### 3-3-3. Designing evaluation study of Indo-DARPP

Although the pilot study showed well acceptability and usability of the Indo-DARPP program, the fact remains that there is a scarcity of evidence in terms of peer involvement in formal psychotherapy for SUD, not only in Indonesia but also in Southeast Asia in general. Thus, we are running a large-scale, multicenter randomised controlled trial recruiting people with SUD across Indonesia, done in multiple settings including in referral hospitals, Puskesmas, as well as private peer-run rehabilitation NGOs, with several combination duets of peer counsellor and HCW as the session providers. The detailed protocol has been peer-reviewed and published (Yamada et al. 2021).

Features of the study design can be described in terms of the pragmatic-explanatory multidimensional continuum. Here, pragmatic trials mainly aim to investigate the effects of an intervention under the usual circumstances where it will be applied. Meanwhile, explanatory trials mainly aim to determine the effects of an intervention under ideal conditions (Thornicroft and Patel 2014; Schwartz and Lellouch 1967). When designing a clinical trial, researchers need to make a wide range of decisions, each of which would determine the degree of how pragmatic (or explanatory) the corresponding dimension of the trial will be. Those dimensions include, for example, the eligibility criteria for trial participants, the flexibility with which the experimental intervention is applied, and the degree of practitioner expertise in applying and monitoring the experimental intervention. Therefore, each trial usually has both pragmatic and explanatory aspects to an extent, and can be described in a multidimensional continuum instead of a binary categorisation.

**Figure 5** depicts the features of the Indo-DARPP evaluation trial using the pragmatic-explanatory continuum indicator summary (PRECIS) wheel (Thorpe et al. 2009). Within the 10-dimensions of the PRECIS wheel, the outer markers denote more pragmatic elements, while inner markers of the blue line denote more explanatory elements.



**Figure 5.** Features of the Indo-DARPP clinical trial, as described using the pragmatic-explanatory continuum indicator summary (PRECIS) wheel.

In the case of the Indo-DARPP evaluation trial, we generally designed the study to be closer to the pragmatic poles, as we would like to see whether the intervention may work in the local everyday reality, rather than in highly controlled conditions. As can be seen in the blue line within the PRECIS wheel, we took a pragmatic outlook in terms of, for example, the flexibility of comparison intervention and the practitioner expertise of comparison group, i.e., control conditions were set as treatment as usual, which greatly varies and were provided in the usual care without any additional training for this research purpose. Another is in participant compliance, where the program is designed as community-based, as opposed to institution-based, with emphasis on the autonomy of clients. The eligibility criteria for participants were also set to be rather pragmatic; one of the inclusion criteria was 'drug use for at least once in the past year', even though other similar studies employ more strict criteria (e.g., frequent drug use in the past month). One of the reasons is that, based on our experience at collaborating clinical sites, patients under treatment include people who are abstinent for more than a month but still experience cravings, and they indeed show interest in receiving relapse prevention psychotherapy. We thus preferred such broader criteria, which more closely represent a population seen in a real world clinical practice in the Indonesian context. Meanwhile, in some of the dimensions, we designed the trial as relatively explanatory. For instance, we measure various outcomes, including those not necessarily assessed in usual clinical practices, thus pushing the outcome dimension toward the explanatory pole.

#### **4. Conclusion**

As observed in psychotherapy sessions, experience-based knowledge is important to maintain a horizontally close relationship between providers and clients. As discussed in this paper, people with SUD have not only been frequently targeted by the criminal justice system, but also deprived of their autonomy in healthcare settings. Here, peer counsellors with experience-based knowledge have the potential to enact critical roles, to bring about transformation in the current healthcare practices and systems. The existence of professional peer counsellors naturally elevates the status of people who use drugs in the eyes of society, while at the same time elevating the autonomy of actual clients seeking healthcare.

Through observation, we can infer many dynamics existing in psychotherapy provision between different combinations of providers. It is hoped that after the current trial is complete, we can obtain more data to clearly elucidate the roles of peer counsellors within a psychotherapy co-provision with HCWs and effects on autonomy and clinical outcomes of people with SUD. In the future, if psychotherapy co-provision such as that found in Indo-DARPP is to be implemented widely, a broader scope of understanding regarding the positionality of peer counsellors is necessary.

#### **Acknowledgement**

The research for this article received funding from the Japan-ASEAN Platform for Transdisciplinary Studies project of the Center for Southeast Asian Studies of Kyoto University. Other funding sources were the Japan Society for the Promotion of Science (JSPS) Grants-in-Aid for Scientific Research (KAKENHI) (Grant number JP19K24256) and the Research Unit for Development of Global Sustainability of Kyoto University.

Some parts of this article are reports of the Indo-DARPP study which we are conducting in collaboration with Universitas Indonesia, and in partnership with Karisma Foundation, Kapeta Foundation, Duren Sawit Special Regional Hospital, Aceh Mental Hospital, Puskesmas Jatinegara, Puskesmas Gambir, and HIV/AIDS Research Center of Atma Jaya Catholic University in Indonesia, as well as Tokyo University of Science and the National Center of Neurology and Psychiatry in Japan. The authors are immensely grateful to the collaborators, partners, and participants of the Indo-DARPP study. For this article, we especially acknowledge Mr. Rahadianto Purnomo for sharing his indispensable insights with the authors. We would like to thank the Japan-ASEAN Platform for Transdisciplinary Studies project team for all the supports they provided. Special thanks go to Dr. Ryota Sakamoto and Dr. Mario Ivan Lopez for their valuable comments on the study and this manuscript. We also wish to thank the members of the Field Medicine Seminar of Kyoto University for giving us important inputs for the study. The contents within are solely the responsibility of the authors and should not be attributed to any other agency or individuals.

## References

- Almeida, Margaret, Annie Day, Bret Smith, Cynthia Bianco, and Karen Fortuna. 2020. "Actionable Items to Address Challenges Incorporating Peer Support Specialists within an Integrated Mental Health and Substance Use Disorder System: Co-Designed Qualitative Study." *Journal of Participatory Medicine* 12 (4): e17053.
- Anderson, D. J., J. P. McGovern, and R. L. DuPont. 1999. "The Origins of the Minnesota Model of Addiction Treatment - a First Person Account." *Journal of Addictive Diseases* 18 (1): 107–14.
- Backhaus, Autumn, Zia Agha, Melissa L. Maglione, Andrea Repp, Bridgett Ross, Danielle Zuest, Natalie M. Rice-Thorp, James Lohr, and Steven R. Thorp. 2012. "Videoconferencing Psychotherapy: A Systematic Review." *Psychological Services* 9 (2): 111–31.
- Boekel, Leonieke C. van, Evelien Pm Brouwers, Jaap van Weeghel, and Henk Fl Garretsen. 2015. "Comparing Stigmatising Attitudes towards People with Substance Use Disorders between the General Public, GPs, Mental Health and Addiction Specialists and Clients." *The International Journal of Social Psychiatry* 61 (6): 539–49.
- Brekke, J. S., C. Prindle, S. W. Bae, and J. D. Long. 2001. "Risks for Individuals with Schizophrenia Who Are Living in the Community." *Psychiatric Services* 52 (10): 1358–66.
- Busse, Anja, Wataru Kashino, Sanita Suhartono, Narendra Narotama, Giovanna Campello, Irwanto, Dicky Pelupessy, Fred P. Piercy, and Cecilia A. Essau. 2021. "Fidelity Assessment of the Treatnet Family (TF): A Family-Based Intervention for Adolescents with Substance Use Disorders and Their Families." *Addictive Behaviors Reports* 14 (December): 100363.
- Busse, Anja, Wataru Kashino, Sanita Suhartono, Narendra Narotama, Dicky Pelupessy, Annafi Avicenna Fikri, and Cecilia A. Essau. 2021. "Acceptability and Feasibility of Using Digital Technology to Train Community Practitioners to Deliver a Family-Based Intervention for Adolescents with Drug Use Disorders during the COVID-19 Pandemic." *Addictive Behaviors Reports* 14 (December): 100357.
- Byrne, Louise, Brenda Happell, and Kerry Reid-Searl. 2015. "Recovery as a Lived Experience Discipline: A Grounded Theory Study." *Issues in Mental Health Nursing* 36 (12): 935–43.
- Degenhardt, Louisa, Meyer Glantz, Sara Evans-Lacko, Ekaterina Sadikova, Nancy Sampson, Graham Thornicroft, Sergio Aguilar-Gaxiola, et al. 2017. "Estimating Treatment



- Coverage for People with Substance Use Disorders: An Analysis of Data from the World Mental Health Surveys.” *World Psychiatry: Official Journal of the World Psychiatric Association* 16 (3): 299–307.
- Des Jarlais, Don C., Theodore M. Hammett, Binh Kieu, Yi Chen, and Jonathan Feelemyer. 2018. “Working With Persons Who Inject Drugs and Live in Rural Areas: Implications From China/Vietnam for the USA.” *Current HIV/AIDS Reports* 15 (4): 302–7.
- Des Jarlais, Don C., Ryan Kling, Theodore M. Hammett, Doan Ngu, Wei Liu, Yi Chen, Kieu Thanh Binh, and Patricia Friedmann. 2007. “Reducing HIV Infection among New Injecting Drug Users in the China-Vietnam Cross Border Project.” *AIDS* 21 Suppl 8 (December): S109–14.
- “District Head’s Private Prison Cell Claims Lives: Rights Commission.” n.d. Jakarta Globe. Accessed February 7, 2022. <https://jakartaglobe.id/news/district-heads-private-prison-cell-claims-lives-rights-commission>.
- Ehrlich, C., M. Slattery, G. Vilic, P. Chester, and D. Crompton. 2020. “What Happens When Peer Support Workers Are Introduced as Members of Community-Based Clinical Mental Health Service Delivery Teams: A Qualitative Study.” *Journal of Interprofessional Care* 34 (1): 107–15.
- Fransiska, Asmin. 2019. “Racism and Social Injustice in War on Drugs Narratives in Indonesia.” In *The War on Drugs and the Global Colour Line*, edited by Kojo Koram, 177–95. Pluto Press.
- GBD 2016 Alcohol and Drug Use Collaborators. 2018. “The Global Burden of Disease Attributable to Alcohol and Drug Use in 195 Countries and Territories, 1990–2016: A Systematic Analysis for the Global Burden of Disease Study 2016.” *The Lancet. Psychiatry* 5 (12): 987–1012.
- German, D., C. G. Sutcliffe, B. Siroj, S. G. Sherman, C. A. Latkin, A. Aramrattana, and D. D. Celentano. 2012. “Unanticipated Effect of a Randomised Peer Network Intervention on Depressive Symptoms among Young Methamphetamine Users in Thailand.” *Journal of Community Psychology* 40 (7): 799–813.
- Go, Vivian F., Constantine Frangakis, Nguyen Le Minh, Carl A. Latkin, Tran Viet Ha, Tran Thi Mo, Teerada Sripaipan, et al. 2013. “Effects of an HIV Peer Prevention Intervention on Sexual and Injecting Risk Behaviors among Injecting Drug Users and Their Risk Partners in Thai Nguyen, Vietnam: A Randomized Controlled Trial.” *Social Science & Medicine* 96 (November): 154–64.
- Go, Vivian F., Nguyen Le Minh, Constantine Frangakis, Tran Viet Ha, Carl A. Latkin, Teerada Sripaipan, Wendy Davis, Carla Zelaya, Nguyen Phuong Ngoc, and Vu Minh Quan. 2013. “Decreased Injecting Is Associated with Increased Alcohol Consumption among Injecting Drug Users in Northern Vietnam.” *The International Journal on Drug Policy* 24 (4): 304–11.
- Haire-Joshu, Debra, and Timothy D. McBride. 2013. *Transdisciplinary Public Health: Research, Education, and Practice*. John Wiley & Sons.
- Hammett, Theodore M., Don C. Des Jarlais, Ryan Kling, Binh Thanh Kieu, Janet M. McNicholl, Punneeporn Wasinrapee, J. Stephen McDougal, et al. 2012. “Controlling HIV Epidemics among Injection Drug Users: Eight Years of Cross-Border HIV Prevention Interventions in Vietnam and China.” *PloS One* 7 (8): e43141.
- Hammett, Theodore M., Ryan Kling, Patrick Johnston, Wei Liu, Doan Ngu, Patricia Friedmann, Kieu Thanh Binh, et al. 2006. “Patterns of HIV Prevalence and HIV Risk Behaviors among Injection Drug Users prior to and 24 Months Following Implementation of Cross-Border HIV Prevention Interventions in Northern Vietnam and Southern China.” *AIDS Education and Prevention: Official Publication of the International Society for AIDS Education* 18 (2): 97–115.
- Hatta, Zulkarnain A., and Djuni Thamrin Sarkawi. 2011. “The Poverty Situation in Indonesia: Challenges and Progress of the Marginalized Group.” *Asian Social Work and Policy Review* 5 (2): 92–106.
- Hefner, Robert W., and James R. Rush, eds. 1991. *Opium to Java: Revenue Farming and Chinese Enterprise in Colonial Indonesia, 1860-1910*. Vol. 96. Cornell University Press.

- Hiday, V. A., J. W. Swanson, M. S. Swartz, R. Borum, and H. R. Wagner. 2001. "Victimisation: A Link between Mental Illness and Violence?" *International Journal of Law and Psychiatry* 24 (6): 559–72.
- Honna, Jun. 2010. "Orchestrating Transnational Crime: Security Sector Politics as a Trojan Horse for Anti-Reformists." In *The State and Illegality in Indonesia*, edited by E. Aspinall and G. van Klinken, 261–79. Brill.
- Irmansyah, Irman, Herni Susanti, Karen James, Karina Lovell, Sri Idaiani, Soimah Imah, Giur Hargiana, et al. 2020. "Civic Engagement and Mental Health System Strengthening in Indonesia: A Qualitative Examination of the Views of Health Professionals and National Key Stakeholders." *BMC Psychiatry* 20 (1): 172.
- Kenny, D., and B. Adamson. 1992. "Medicine and the Health Professions: Issues of Dominance, Autonomy and Authority." *Australian Health Review: A Publication of the Australian Hospital Association* 15 (3): 319–34.
- Kleber, Herbert D., Roger D. Weiss, Raymond F. Anton Jr, Tony P. George, Shelly F. Greenfield, Thomas R. Kosten, Charles P. O'Brien, et al. 2007. "Treatment of Patients with Substance Use Disorders, Second Edition." *The American Journal of Psychiatry* 164 (4 Suppl): 5–123.
- Koopmans, Frans, and Srđan Sremac. 2011. "Addiction and Autonomy: Are Addicts Autonomous?" *Nova Prisučnost* 9 (1): 171–88.
- Latkin, Carl A., Deborah Donnell, David Metzger, Susan Sherman, Apinun Aramrattana, Annet Davis-Vogel, Vu Minh Quan, et al. 2009. "The Efficacy of a Network Intervention to Reduce HIV Risk Behaviors among Drug Users and Risk Partners in Chiang Mai, Thailand and Philadelphia, USA." *Social Science & Medicine* 68 (4): 740–48.
- Lawrinson, Peter, Robert Ali, Aumphornpun Buavirat, Sithisat Chiamwongpaet, Sergey Dvoryak, Boguslaw Habrat, Shi Jie, et al. 2008. "Key Findings from the WHO Collaborative Study on Substitution Therapy for Opioid Dependence and HIV/AIDS." *Addiction* 103 (9): 1484–92.
- Lindsey, Tim, Pip Nicholson, and Penelope Nicholson. 2016. *Drugs Law and Legal Practice in Southeast Asia: Indonesia, Singapore and Vietnam*. Bloomsbury Publishing.
- Li, Yi, Ronald Hershow, Irwanto, Ignatius Praptoraharjo, Made Setiawan, and Judith Levy. 2014. "Factors Associated with Symptoms of Depression among Injection Drug Users Receiving Antiretroviral Treatment in Indonesia." *Journal of AIDS & Clinical Research* 5 (5): 303.
- Matsumoto Toshihiko, Imamura Fumi, Kobayashi Ohji, Chiba Yasuhiko, and Wada Kiyoshi. 2009. "[Development and evaluation of a relapse prevention tool for drug-abusing delinquents incarcerated in a juvenile classification home: a self-teaching workbook for adolescents, the 'SMARPP-Jr']." *Nihon Arukoru Yakubutsu Igakkai zasshi = Japanese journal of alcohol studies & drug dependence* 44 (3): 121–38.
- Ministry of Health. 2013. *Peraturan Menteri Kesehatan Republik Indonesia Nomor 37 Tahun 2013 Tentang Tata Cara Pelaksanaan Wajib Laporan Pecandu Narkotika [Decree of the Indonesian Ministry of Health Number 37 Year 2013 Regarding the Method of Implementation of Mandatory Reporting by People with Narcotics Addiction]*. Ministry of Health.  
[http://hukor.kemkes.go.id/uploads/produk\\_hukum/PMK%20No.%2037%20ttg%20Tata%20Cara%20Pelaksanaan%20Wajib%20Lapor%20Pecandu%20Narkotika.pdf](http://hukor.kemkes.go.id/uploads/produk_hukum/PMK%20No.%2037%20ttg%20Tata%20Cara%20Pelaksanaan%20Wajib%20Lapor%20Pecandu%20Narkotika.pdf).
- . 2020. *Peraturan Menteri Kesehatan Republik Indonesia Nomor 4 Tahun 2020 Tentang Penyelenggaraan Institusi Penerima Wajib Laporan [Decree of the Indonesian Ministry of Health Number 37 Year 2013 Regarding the Effectuation of Mandatory Report Recipient Institution]*.  
[http://hukor.kemkes.go.id/uploads/produk\\_hukum/PMK\\_No\\_\\_4\\_Th\\_2020\\_ttg\\_Penyelenggaraan\\_Institusi\\_Penerima\\_Wajib\\_Lapor.pdf](http://hukor.kemkes.go.id/uploads/produk_hukum/PMK_No__4_Th_2020_ttg_Penyelenggaraan_Institusi_Penerima_Wajib_Lapor.pdf).
- Mustafa, Cecep, Margaret Malloch, and Niall Hamilton Smith. 2020. "Judicial Perspectives on the Sentencing of Minor Drug Offenders in Indonesia: Discretionary Practice and Compassionate Approaches." *Crime, Law, and Social Change* 74 (3): 297–313.



- Musto, David F. 1999. *The American Disease: Origins of Narcotic Control*. Oxford University Press.
- Nasir, Sudirman, Doreen Rosenthal, and Timothy Moore. 2011. "The Social Context of Controlled Drug Use amongst Young People in a Slum Area in Makassar, Indonesia." *The International Journal on Drug Policy* 22 (6): 463–70.
- Natakusumah, Anya, Irwanto, Fred Piercy, Robert Lewis, Douglas Sprengle, and Terry Trepper. 1992. "Cohesion and Adaptability in Families of Adolescent Drug Abusers in the United States and Indonesia." *Journal of Comparative Family Studies* 23 (3): 389–411.
- Newton-Howes, G., M. K. Savage, R. Arnold, T. Hasegawa, V. Staggs, and S. Kisely. 2020. "The Use of Mechanical Restraint in Pacific Rim Countries: An International Epidemiological Study." *Epidemiology and Psychiatric Sciences* 29 (December): e190.
- Ngo, Anh D., Lucina Schmich, Peter Higgs, and Andrea Fischer. 2009. "Qualitative Evaluation of a Peer-Based Needle Syringe Programme in Vietnam." *The International Journal on Drug Policy* 20 (2): 179–82.
- O'Brien, C. P., and A. T. McLellan. 1996. "Myths about the Treatment of Addiction." *The Lancet* 347 (8996): 237–40.
- Peacock, A., J. Leung, S. Larney, S. Colledge, M. Hickman, J. Rehm, Giovino Ga, et al. 2018. "Global Statistics on Alcohol, Tobacco and Illicit Drug Use: 2017 Status Report." *Addiction* 113 (10): 1905–26.
- Puslitdatin Badan Narkotika Nasional. 2017. "Ringkasan Eksekutif Hasil Survei BNN Tahun 2016 [Executive Summary of Survey Result by BNN in 2016]." Jakarta: Badan Narkotika Nasional. <https://www.issup.net/files/2017-10/penelitian%20prevelansi%20UI%20dan%20BNN.pdf>.
- . 2019. "Indonesia Drugs Report 2019." Jakarta: Badan Narkotika Nasional.
- Putri, Dania, and Tom Blickman. 2016. *Cannabis in Indonesia: Patterns in Consumption, Production, and Policies*. Transnational Institute.
- Rashid, Rusdi Abd, Khosrow Kamali, Mohammad Hussain Habil, Mohamed Hatta Shaharom, Tahereh Seghatoleslam, and Majid Yoosefi Looyeh. 2014. "A Mosque-Based Methadone Maintenance Treatment Strategy: Implementation and Pilot Results." *International Journal of Drug Policy* 25 (6): 1071–75.
- Rendtorff, Jacob D. 2008. "The Limitations and Accomplishments of Autonomy as a Basic Principle in Bioethics and Biolaw." In *Autonomy and Human Rights in Health Care: An International Perspective*, edited by David N. Weisstub and Guillermo Díaz Pintos, 75–87. Dordrecht: Springer Netherlands.
- Rigoni, Rafaela, Sara Woods, and Joost J. Brecksema. 2019. "From Opiates to Methamphetamine: Building New Harm Reduction Responses in Jakarta, Indonesia." *Harm Reduction Journal* 16 (1): 67.
- Ritchie, Hannah, and Max Roser. 2019. "Drug Use." *Our World in Data*, December. <https://ourworldindata.org/drug-use>.
- Salzer, Mark S., Edward Schwenk, and Eugene Brusilovskiy. 2010. "Certified Peer Specialist Roles and Activities: Results from a National Survey." *Psychiatric Services* 61 (5): 520–23.
- Satinsky, Emily N., Mary B. Kleinman, Hannah M. Tralka, Helen E. Jack, Bronwyn Myers, and Jessica F. Magidson. 2021. "Peer-Delivered Services for Substance Use in Low- and Middle-Income Countries: A Systematic Review." *The International Journal on Drug Policy* 95 (September): 103252.
- Sax, William, and Claudia Lang. 2021. *The Movement for Global Mental Health: Critical Views from South and Southeast Asia*. Amsterdam University Press.
- Schwartz, D., and J. Lellouch. 1967. "Explanatory and Pragmatic Attitudes in Therapeutical Trials." *Journal of Chronic Diseases* 20 (8): 637–48.
- Sherman, Susan G., Catherine Sutcliffe, Bangorn Siroj, Carl A. Latkin, Apinun Aramratanna, and David D. Celentano. 2009. "Evaluation of a Peer Network Intervention Trial among Young Methamphetamine Users in Chiang Mai, Thailand." *Social Science & Medicine* 68 (1): 69–79.

- Siste, Kristiana, Chika Yamada, Enjeline Hanafi, Ryota Sakamoto, Youdiil Ophinni, Fumi Imamura, and Toshihiko Matsumoto. 2021. *Indonesia Drug Addiction Relapse Prevention Program (Indo-DARPP)*. Jakarta: UI Publishing.
- Steinert, Tilman, Peter Lepping, Renate Bernhardsgrütter, Andreas Conca, Trond Hatling, Wim Janssen, Alice Keski-Valkama, Fermin Mayoral, and Richard Whittington. 2010. "Incidence of Seclusion and Restraint in Psychiatric Hospitals: A Literature Review and Survey of International Trends." *Social Psychiatry and Psychiatric Epidemiology* 45 (9): 889–97.
- The Mobile Economy. 2020. "The Mobile Economy Asia Pacific 2020." {The Mobile Economy}. <https://www.gsma.com/mobileeconomy/asiapacific>.
- Thornicroft, Graham, and Vikram Patel. 2014. *Global Mental Health Trials*. Oxford University Press.
- Thorpe, Kevin E., Merrick Zwarenstein, Andrew D. Oxman, Shaun Treweek, Curt D. Furberg, Douglas G. Altman, Sean Tunis, et al. 2009. "A Pragmatic-Explanatory Continuum Indicator Summary (PRECIS): A Tool to Help Trial Designers." *CMAJ: Canadian Medical Association Journal = Journal de l'Association Médicale Canadienne* 180 (10): E47–57.
- UNAIDS Asia-Pacific. 2020. "Reality Bytes: On Drugs in Southeast Asia." UNAIDS Asia-Pacific. August 21, 2020. <https://unaids-ap.org/2020/08/21/podcast-reality-bytes-on-drugs-in-southeast-asia/>.
- UNAIDS & UNODC. 2021. "Compulsory Drug Treatment and Rehabilitation in East and Southeast Asia." <https://unaids-ap.org/ccdu/drug-compulsory-treatment-resources/>.
- Vojtila, Lenka, Iqra Ashfaq, Augustina Ampofo, Danielle Dawson, and Peter Selby. 2021. "Engaging a Person with Lived Experience of Mental Illness in a Collaborative Care Model Feasibility Study." *Research Involvement and Engagement* 7 (1): 5.
- Walsh, Nick, Tania M. Gibbie, and Peter Higgs. 2008. "The Development of Peer Educator-Based Harm Reduction Programmes in Northern Vietnam." *Drug and Alcohol Review* 27 (2): 200–203.
- Whitley, Rob, and Robert E. Drake. 2010. "Recovery: A Dimensional Approach." *Psychiatric Services* 61 (12): 1248–50.
- Wirya, Albert, and Yohan Misero. 2016. "The Trip to Nobody Knows Where: Examining the Effectiveness of Indonesia's Compulsory Report Program for Drug Users and Its Compliance to the International Human Rights Standards." Lembaga Bantuan Hukum Masyarakat. 2016. <https://lbhmasyarakat.org/en/the-trip-to-nobody-knows-where/>.
- World Health Organization. 2019. *Global Status Report on Alcohol and Health 2018*. World Health Organization.
- Wyder, Marianne, Helena Roennfeldt, Stephen Parker, Gabrielle Vilic, Karen McCann, Carolyn Ehrlich, and Frances Louise Dark. 2020. "Diary of a Mental Health Peer Worker: Findings from a Diary Study into the Role of Peer Work in a Clinical Mental Health Setting." *Frontiers in Psychiatry / Frontiers Research Foundation* 11 (December): 587656.
- Yalom, Irvin D. 1995. *The Theory and Practice of Group Psychotherapy: Fourth Edition*. Basic Books.
- Yamada, Chika, Youdiil Ophinni, and Hervita Diatri. 2020. "Social Exclusion among People with Mental Health Conditions in Indonesia." In *Handbook of Social Inclusion: Research and Practices in Health and Social Sciences*, edited by Pranee Liamputtong, 1–33. Cham: Springer International Publishing.
- Yamada, Chika, Kristiana Siste, Enjeline Hanafi, Youdiil Ophinni, Evania Beatrice, Vania Rafelia, Peter Alison, et al. 2021. "Relapse Prevention Group Therapy via Video-Conferencing for Substance Use Disorder: Protocol for a Multicentre Randomised Controlled Trial in Indonesia." *BMJ Open* 11 (9): e050259.

## Supplementary file

**Table S1.** Comparison of changes in outcomes between Indo-DARPP + TAU and TAU only

		Indo-DARPP + TAU		TAU only	
		n = 4		n = 3	
		Mean	(SD)	Mean	(SD)
Number of days using primary drug					
	Pre	30.0	(0.0)	30.0	(0.0)
	Post	17.0	(15.4)	20.0	(17.3)
	Post-Pre	-13.0	(15.4)	-10.0	(17.3)
ASI					
Medical	Pre	0.5	(0.3)	0.1	(0.2)
	Post	0.2	(0.3)	0.3	(0.4)
	Post-Pre	-0.3	(0.3)	0.1	(0.5)
Employment	Pre	0.4	(0.5)	0.7	(0.4)
	Post	0.6	(0.5)	0.6	(0.4)
	Post-Pre	0.2	(0.5)	-0.1	(0.2)
Alcohol use	Pre	0.1	(0.1)	0.2	(0.3)
	Post	0.0	(0.0)	0.2	(0.3)
	Post-Pre	-0.1	(0.1)	0.0	(0.1)
Drug use	Pre	0.3	(0.1)	0.3	(0.1)
	Post	0.1	(0.0)	0.1	(0.2)
	Post-Pre	-0.2	(0.1)	-0.1	(0.1)
Legal	Pre	0.0	(0.0)	0.0	(0.0)
	Post	0.1	(0.2)	0.2	(0.2)
	Post-Pre	0.1	(0.2)	0.2	(0.2)
Family/ social	Pre	0.1	(0.1)	0.2	(0.2)
	Post	0.1	(0.1)	0.1	(0.1)
	Post-Pre	0.0	(0.1)	-0.1	(0.1)
Psychiatric status	Pre	0.6	(0.2)	0.5	(0.0)
	Post	0.4	(0.2)	0.3	(0.2)
	Post-Pre	-0.1	(0.2)	-0.2	(0.2)
WHOQOL-BREF					
Physical health	Pre	44.8	(12.6)	48.7	(9.1)
	Post	52.8	(20.3)	52.7	(23.1)
	Post-Pre	8.0	(13.0)	4.0	(15.7)
Psychological health	Pre	48.3	(10.0)	49.7	(14.4)

	Post	60.5	(18.0)	40.3	(13.4)
	Post-Pre	12.3	(9.5)	-9.3	(2.3)
Social relationships	Pre	48.0	(14.4)	33.3	(33.5)
	Post	60.5	(26.6)	30.7	(19.6)
	Post-Pre	12.5	(14.2)	-2.7	(19.3)
Environment	Pre	52.5	(13.2)	52.3	(14.4)
	Post	47.8	(7.5)	44.0	(0.0)
	Post-Pre	-4.8	(11.6)	-8.3	(14.4)
URICA					
Action	Pre	30.0	(4.2)	35.7	(4.5)
	Post	32.3	(1.5)	34.0	(4.6)
	Post-Pre	2.3	(5.7)	-1.7	(5.5)
Brief-COPE					
Substance use coping	Pre	5.8	(2.1)	6.3	(1.5)
	Post	5.0	(2.6)	6.3	(0.6)
	Post-Pre	-0.8	(1.5)	0.0	(2.0)
SCL-90-R					
GSI	Pre	1.8	(1.0)	1.3	(1.2)
	Post	1.3	(1.0)	1.7	(0.6)
	Post-Pre	-0.5	(0.6)	0.3	(0.6)
Somatisation	Pre	1.3	(1.3)	1.0	(1.0)
	Post	1.3	(0.5)	1.3	(0.6)
	Post-Pre	0.0	(0.8)	0.3	(0.6)
Obsessive-Compulsion	Pre	2.0	(1.2)	2.0	(1.0)
	Post	1.5	(1.3)	1.7	(0.6)
	Post-Pre	-0.5	(0.6)	-0.3	(1.2)
Interpersonal sensitivity	Pre	1.3	(1.3)	2.0	(1.0)
	Post	1.0	(0.8)	2.3	(0.6)
	Post-Pre	-0.3	(0.5)	0.3	(0.6)
Depression	Pre	1.5	(1.3)	1.7	(0.6)
	Post	1.8	(1.0)	2.3	(1.2)
	Post-Pre	0.3	(0.5)	0.7	(0.6)
Anxiety	Pre	1.8	(1.0)	1.3	(1.2)
	Post	1.5	(1.3)	1.7	(1.5)

	Post-Pre	-0.3	(0.5)	0.3	(0.6)
Hostility	Pre	0.8	(0.5)	1.7	(1.5)
	Post	0.5	(0.6)	1.7	(0.6)
	Post-Pre	-0.3	(0.5)	0.0	(1.0)
Phobic anxiety	Pre	0.5	(1.0)	1.0	(1.0)
	Post	1.0	(0.8)	1.0	(1.0)
	Post-Pre	0.5	(0.6)	0.0	(0.0)
Paranoid ideation	Pre	0.8	(1.0)	1.3	(1.2)
	Post	1.0	(0.8)	1.7	(0.6)
	Post-Pre	0.3	(0.5)	0.3	(0.6)
Psychoticism	Pre	1.3	(0.5)	1.7	(1.5)
	Post	1.3	(1.0)	1.7	(0.6)
	Post-Pre	0.0	(0.8)	0.0	(1.0)
RAVLT					
Trial 1	Pre	4.8	(0.5)	6.7	(0.6)
	Post	5.8	(2.2)	8.7	(3.2)
	Post-Pre	1.0	(2.2)	2.0	(2.6)
Trial 2	Pre	10.5	(0.6)	8.3	(0.6)
	Post	13.5	(3.8)	15.0	(1.0)
	Post-Pre	3.0	(4.2)	6.7	(0.6)
Recall	Pre	10.8	(2.9)	9.7	(2.5)
	Post	7.8	(4.6)	8.3	(2.1)
	Post-Pre	-3.0	(5.0)	-1.3	(4.5)
ISMI					
Total	Pre	2.6	(0.4)	2.6	(0.2)
	Post	2.2	(0.7)	2.6	(0.5)
	Post-Pre	-0.4	(1.0)	0.0	(0.3)
Alienation	Pre	2.8	(0.6)	2.7	(0.3)
	Post	2.4	(1.0)	2.8	(0.2)
	Post-Pre	-0.4	(1.0)	0.1	(0.2)
Stereotype endorsement	Pre	2.8	(0.2)	2.4	(1.0)
	Post	2.4	(1.0)	2.8	(0.2)
	Post-Pre	-0.6	(1.1)	0.0	(0.6)
Discrimination experience	Pre	2.5	(0.5)	3.1	(0.8)
	Post	2.2	(0.8)	2.6	(0.9)
	Post-Pre	-0.35	(1.0)	-0.5	(0.5)

Social withdrawal	Pre	2.5	(0.6)	2.3	(0.3)
	Post	2.2	(0.7)	2.6	(0.6)
	Post-Pre	-0.3	(1.0)	0.3	(0.7)
Stigma resistance	Pre	3.0	(0.3)	3.1	(0.2)
	Post	2.7	(0.8)	3.0	(0.2)
	Post-Pre	-0.3	(1.1)	-0.1	(0.1)

---

ASI, Addiction Severity Index; WHOQOL-BREF, World Health Organization Quality of Life Brief Version; URICA, University of Rhode Island Change Assessment; Brief COPE, Brief-Coping Orientation to Problems Experienced; SCL-90-R, Symptom Checklist-90 Revised; GSI, Global Severity Index; RAVLT, Rey Auditory Verbal Learning Test; ISMI, Internalized Stigma of Mental Illness.