



## Aggression towards clinicians within Opiate Substitution Treatment (OST) services: A survey of service providers

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### ABSTRACT

**Background:** High levels of aggression towards staff in healthcare settings have been reported. It seems likely that workers in Opioid Substitution Therapy (OST) would be at increased risk of adverse events and their consequences. **Objectives:** This study aimed to establish if practitioners who provide OST are experiencing negative outcomes, specifically aggression, distress, and burnout, and to identify if workload and professional affiliation were associated with these risks.

**Methods:** A survey was conducted of OST practitioners in a single geographical region of New Zealand (population approx. 344,000). The survey asked for demographics (including caseloads), Perception of Patient Aggression Scale New Zealand Revision (POPAS-NZ), Kessler 10 (K10), Short Post-Traumatic Stress Disorder Rating Interview (SPRINT), and Abbreviated Maslach Burnout Inventory (aMBI) and two qualitative questions asking about the best and worst aspects of working in OST.

**Results:** All recorded OST workers in the region ( $n = 181$ ) were invited to participate, 95 practitioners responded to the survey (52.4%). This group included pharmacists, doctors, nurses, social workers and addiction workers. Results indicated aggression, distress, and burnout were being experienced by practitioners. Number of patients seen by a practitioner significantly increased risk of aggression ( $F(1,90) = 14.14, p < 0.001$ ). Psychiatrists were the most at risk profession ( $p = 0.016$ ). Burnout responses were high for around 20% of practitioners, with low numbers meeting criteria for distress and PTSD. Positive things about working in OST were relationships with patients, appreciating patient outcomes and positive team environments. Negative aspects were patient behaviours, maintaining empathy, and, administration tasks.

**Conclusions:** Aggression was a workplace hazard for OST clinicians. Low rates of distress and PTSD symptoms were reported and some evidence of practitioner burnout. Practitioners reported positive relationships, making a difference and teamwork may have been improving this area of mental health work.

### Background

Aggression within health workplaces is a significant problem, both internationally<sup>1</sup> and within New Zealand.<sup>2,3</sup> There are many reasons for aggressive behaviour; commonly cited causal factors are male gender and intoxication.<sup>4</sup> This aggression occurs in a range of settings including: primary care,<sup>5</sup> hospital based care<sup>6,7</sup> towards community support workers,<sup>8</sup> medical students,<sup>9,10</sup> nurses,<sup>11</sup> physicians,<sup>12</sup> emergency room staff,<sup>13–15</sup> psychiatric ward staff, and psychiatrists in training.<sup>16,17</sup> Many of these papers have noted that aggression is correlated with (among other factors) alcohol use in both general hospital and mental health services<sup>18</sup>; however, the risk for workers in addictions, to our knowledge, has not been ascertained.

Opioid abuse causes considerable disability and mortality: this is concentrated among males in disadvantaged populations within the United States of America (USA).<sup>19</sup> There has been an increase in the prevalence of opioid abuse, particularly in the USA and Canada.<sup>20</sup> A survey of 5000 people in New Zealand in 1990 estimated that 3% of the population had used some form of opioid recreationally.<sup>21</sup> New Zealand users must usually rely on diversion of prescribed opioids.<sup>22</sup> However, there is some evidence that New Zealand does not have the same issue with an opioid epidemic as other developed countries.<sup>23</sup> Over the last four decades, opioid substitution therapy (OST) has been used in New Zealand, like many countries, to assist recovery of those who have become addicted to opioids. This was initially with Methadone, but more recently with Buprenorphine as an alternative to Methadone.<sup>24</sup> Guidelines for opioid substitution are based on a patient

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centered, recovery-based focus, and explicitly include the need for services to work with patients who exhibit challenging behaviour.<sup>25</sup>

It seems likely that in the area of OST the risk of aggressive behaviour might be elevated, similar to the increased risk of those using alcohol. The most recent inquiry found that many workers in mental health and addictions services were placing their own health at risk, from burnout and assault.<sup>26</sup>

The substance abuse workforce is diverse, including counsellors, nurses, social workers, substance abuse workers, psychologists, psychiatrists, general practitioners, and pharmacy staff.<sup>27</sup> In New Zealand the workers are commonly employed by the public health sector specialist addiction services, non-governmental organizations (NGOs), and in primary care. All of these services are provided at no charge to users. For any of these practitioners, there is no standard training in behaviour management, so their ability to prevent and manage aggression is unknown. However, to our knowledge, there is no existing research examining the experience of aggression for workers in OST.

## Materials and methods

### Study design, population and data collection

Professionals who had counselled, had prescribing authority, or dispensing authority, for OST, and that currently had OST clients were surveyed. This included: pharmacists, general practitioners, specialist addiction workers, and NGO workers within the Southern District Health Board, which geographically covers the Southern part of the South Island, with an estimated population<sup>28</sup> of around 344,000 people.<sup>29</sup>

The standardised assessment instruments used in the survey were: Perception of Patient Aggression Scale New Zealand Revision (POPAS-NZ), Kessler 10 (K10), Short Post-Traumatic Stress Disorder Rating Interview (SPRINT), and Abbreviated Maslach Burnout Inventory (aMBI). All responses were over the last month. These are described below.

### POPAS-NZ

The POPAS-NZ is a modification for the New Zealand population of the English Version of the Perception of Patient Aggression Scale.<sup>30</sup> The POPAS-NZ had 12 items, with each answer scored 0 (never) to 4 (very often) which was summed to create a final score between 0 (no aggression) and 48 (high aggression). The psychometric properties of the POPAS-NZ were assessed in two surveys: of community support workers<sup>8</sup> and hospital staff.<sup>3</sup> The scale functioned as one factor with Cronbach's alpha estimated as 0.91.

### Kessler 10 (K10)

The K10 is a measure of general psychological distress, that screens for anxiety and depressive disorders. The K10 has 10 items with each answer scored 0 (None of the time) to 4 (All of the time) which was summed to create a final score between 0 and 40.

The Kessler 10 has very good internal validity, with Cronbach's alpha estimated at 0.9.<sup>31</sup> In Te Rau Hinegaro, the New Zealand Mental Health Survey,<sup>32</sup> the cut off for low stress is less 0–5, moderate stress is 6–11, significant stress 12–19, and very high stress 20 or over.<sup>33</sup> In that survey, those with low distress had a 12 month period prevalence of any psychiatric disorder of 11%, mild distress (16% of the population) of 31.5%; high distress (7.5% of the population) of 62.6%, and very high distress (4.2% of the population) of 84.5%.

### Short Post-Traumatic Stress Disorder Rating Interview (SPRINT)

The SPRINT consists of eight Likert type questions. Four questions correspond to the four PTSD symptom clusters (intrusion, avoidance, numbing, and hyperarousal) and four additional questions assess somatic distress (being upset by stressful events, interference with work or daily activities, and relationships among family or friends). Each of the eight questions were scored 0 (Not at all) to 4 (Very much), resulting in a summed final score between 0 and 32. The Cronbach's alpha was 0.77.<sup>34</sup> A one factor

solution in exploratory factor analysis explained most of the variance. Previous research has shown that a score of over 14 had a sensitivity of 0.95, a specificity of 0.96, and a positive likelihood ratio of 23.6 when compared with clinical diagnosis.<sup>34</sup> The SPRINT shows high inter-rater reliability, with a spearman's coefficient of 0.99, and good construct validity.<sup>35</sup>

### Abbreviated Maslach Burnout Inventory (aMBI)

The aMBI is a nine item scale with three questions for each of three factors—depersonalization, exhaustion, and personal accomplishment. The nine questions were derived from the Maslach Burnout Inventory, which is longer and resolves to four factors that are somewhat concordant with the theoretical concept of Burnout proposed by Maslach.<sup>36</sup> The three positive affect questions (personal accomplishment) were each scored 0 (Every day) to 6 (Never). The six negative affect questions (three exhaustion and three depersonalization) were each scored 0 (Never) to 6 (Every day). Summed scores were created for the combined 9 items (0–54), and each of the 3 separate factors (0–18), with higher scores reflecting greater levels of burnout. It is suggested that scores of 10 or over on Emotional Exhaustion and depersonalization are associated with burnout.<sup>37</sup>

### Qualitative

We asked four questions relating to demographic status: gender, age, professional type, and number of OST patients. Lastly, there were open-ended questions asking participants to describe the three best things about working with OST clients and the three most challenging things about working with OST clients.

### Procedure

A survey was initially drafted and piloted on a convenience sample of workers which led to some modifications, in particular adding some qualitative questions, and ensuring that the language used avoided any stigma. The survey period was from December 2019 to May 2020. We used a mixed electronic/paper, multiple mailout technique. QualtricsXM, a web based platform,<sup>38</sup> was used to capture the responses. All participants had a unique tracking code, that was used both for the initial electronic survey and later paper-based survey, to track if invited participants had completed the survey. This was used so that participants who had undertaken the survey were not sent reminders. Once the survey closed, any linking information was destroyed to protect privacy.

### Data analysis

Data were exported from the Qualtrics online repository into the Microsoft Excel application for data cleaning. Data were analysed with SPSS<sup>39</sup> and R.<sup>40</sup> After cleaning, data were visualised using box and violin plots, assessed as to whether they could be transformed into a normal distribution, and if not, descriptive data were reported as median and interquartile range for each outcome. Bivariate and partial correlations between each outcome were undertaken (with all demographic variables controlled for the partial analysis). Data were then assessed via univariate analyses to identify if demographic variables significantly influenced each outcome, with those that were significant ( $p < 0.05$ ) then controlled for by both analysis of variance and linear regression methods: the latter was used to estimate the proportion of variance accounted for in the model. Qualitative responses were analysed using a Generalized Inductive Approach (GIA).<sup>41</sup>

### Ethical considerations

The study was conducted according to New Zealand National Ethical Standards for health and disability research. This study had ethical approval by the Human Subjects Ethics Committee, University of Otago (19/117). All participants gave their consent by filling in the survey and data were analysed anonymously.

## Results

### Participants

The survey was sent out via emails to 181 OST practitioners. An initial invitation email was sent on 7th November 2019 and then a reminder every 7 days (for a maximum of three reminders for those participants who had not completed the survey). The final reminder was sent on 27th January 2020. From the initial 181 survey invitations, 94 responses were received. However, four participants had responded twice so their duplicated responses were deleted (we removed the first response as each participant had only consented then discontinued the survey, thus we kept their second response as they had then completed the survey in full). Of the remaining 90 responses, eight participants did not fill in the consent to participate, and another eight consented and stated they had OST clients but did not continue with the survey. This left 72 consented responses for the on-line distribution method.

We then sent out paper versions of our survey with self-addressed return envelopes on the 3rd February 2020 to the 100 participants who had not responded (including the eight that consented but did not complete the survey). We received 23 further responses (all consented) to the paper mail-out. We closed the survey on 4th June 2020. Therefore, our final number of consented and completed surveys was 95, a response rate of 52.4%.

### Quantitative results

Pharmacists made up 67% of the respondents, followed by addiction workers (generally coded “other”) at 9.4%, general practitioners at 9.5%, nurses at 4.9%, and the remainder were psychiatrists or medical officers (Table 1). Two-thirds of the participants were female, and almost half had less than 10 patients receiving OST.

### Aggression (POPAS-NZ)

The POPAS-NZ had a reported range of 0–14, a median of 1, and an interquartile range of 0–5. The mean was 2.66, which is a low score. The item responses are shown in Table 2.

A one-way ANOVA was initially undertaken to identify which of the covariates had any significant effect on the summed POPAS-NZ score, of which only the number of patients was significant,  $F(1,90) = 14.14$ ,  $p < 0.001$ . Based upon this initial analysis, only number of patients was entered as a fixed factor in a one-way ANOVA,  $F(3,91) = 5.24$ ,  $p = 0.002$ . A post hoc Tukey Test indicated that having less than 10 patients was associated with a lower POPAS-NZ score and over 40 patients with a higher score. The correlation, however, was fairly linear, and is shown in Fig. 1. A linear regression had the same  $F$  values, and the adjusted  $R^2$  was 0.11.

**Table 1**

Demographic information of the survey sample of opioid substitution therapy (OST) practitioners ( $n = 95$ ).

Variable	Percent	Variable	Percent
Gender		Profession	
Male	35.8	Pharmacist	67.3
Female	63.1	General Practitioner	9.5
Other	1.1	Social Worker	6.4
Age ranges		Registered Nurse	4.2
18–24	3.2	Psychiatrist	3.2
25–34	25.3	Other Registered‡	9.4
35–44	16.8	Number of OST patients	
45–54	25.3	1–9	49.5
55–64	18.9	10–19	25.3
Over 65	10.5	20–29	10.5
		Over 30	14.7

‡ = These were detailed as Administration (1.1%), Alcohol and other drug (AOD) Practitioner (3.3%), Counsellor (2.2%), Occupational Therapist (1.1%), and other (1.7%).

**Table 2**

Perception of patient aggression scale (POPAS-NZ) frequencies (%).

Event experienced...	Never	Rarely	Sometimes	Often	Very often	<i>n</i>
Verbal anger	41.1	27.4	28.4	2.1	1.1	95
Verbal threat	59.6	33.0	7.4	0.0	0.0	94
Humiliation	75.8	15.8	7.4	1.1	0.0	95
Physical aggression	74.2	19.4	6.5	0.0	0.0	93
Destructive behaviour	86.2	12.8	1.1	0.0	0.0	94
Attempted assault	93.6	6.4	0.0	0.0	0.0	94
Assault	97.9	2.1	0.0	0.0	0.0	94
Injury	98.9	1.1	0.0	0.0	0.0	94
Sexual harassment	88.3	10.6	1.1	0.0	0.0	94
Sexual assault	98.9	1.1	0.0	0.0	0.0	94
Stalking	95.7	4.3	0.0	0.0	0.0	94
Litigation	86.2	10.6	3.2	0.0	0.0	94

Although profession as a category in a Kruskal Wallis test did not have a correlation with POPAS-NZ score (Kruskal-Wallis chi-squared = 5.674,  $df = 5$ ,  $p$ -value = 0.3392), the visualization indicated that psychiatrists (who were only 3.9% of the sample) had a higher score on the POPAS-NZ. A post hoc Tukey test found that there was a trend towards a significant difference for psychiatrists ( $p = 0.07$ ) and for general practitioners ( $p = 0.095$ ).

### General psychological distress (K10)

The K10 had a reported range of 0–23, with a median score of 4, and an interquartile range of 2–7. The mean was 4.93, which is a low score. Ten participants had a K10 score of over 12, indicating high distress, and three had K10 scores over 20, indicating very high distress. Table 3 shows the frequency of the types of psychological stress (K10) experienced by practitioners. There were no significant effects of the four covariates on a one-way ANOVA of the K10 summed score.

### Prevalence and pattern of PTSD-like symptoms (SPRINT)

The SPRINT had a reported range of 0–26, with a median score of 1, and an interquartile range of 0–4. The mean was 3.07, which is a low score, and the data was highly skewed (Skew: 2.48; Kurtosis: 8.14). Table 4 shows the frequency of PTSD-type symptoms experienced by participants. Responses vary from 54.3% of participants reporting being upset by events, down to 14% who have expressed losing enjoyment. Four participants had a SPRINT score of 14 or above, which is associated with clinical PTSD. There were no significant effects of the four covariates on a one-way ANOVA of the SPRINT summed score.

### Prevalence and Pattern of Burnout (aMBI)

The combined summed Abbreviated Maslach Burnout Inventory (aMBI) had a reported range of 0–31, with a median of 12, a mean of 13.18, a mid-range score, and an interquartile range of 9–18 (Skew: 0.40; Kurtosis: –0.12). The three subscales had the following results: (1) Emotional Exhaustion range 0–16, median 6, mean 6.67, interquartile range 2.75–10.25; (2) Depersonalization range 0–12, median 1, mean 2.23, interquartile range 0–3; and (3) Personal Accomplishment range 0–15, median 3, mean 4.37, interquartile range 1–7. Using a threshold of 10 per subscale for burnout, 17 participants reported burnout on the emotional exhaustion scale and three on the depersonalization scale. The responses by item are shown in Table 5.

A one-way ANOVA was initially undertaken to identify which of the covariates had any significant effect on the summed aMBI scores (total and each sub-scale), of which only the profession was significant for the personal accomplishment positive affect sub-scale,  $F(1,90) = 4.90$ ,  $p = 0.029$ . The Adjusted  $R^2$  for a univariate linear regression of profession was 5%. Satisfaction trended highest in pharmacists and psychiatrists, as shown in Fig. 2.

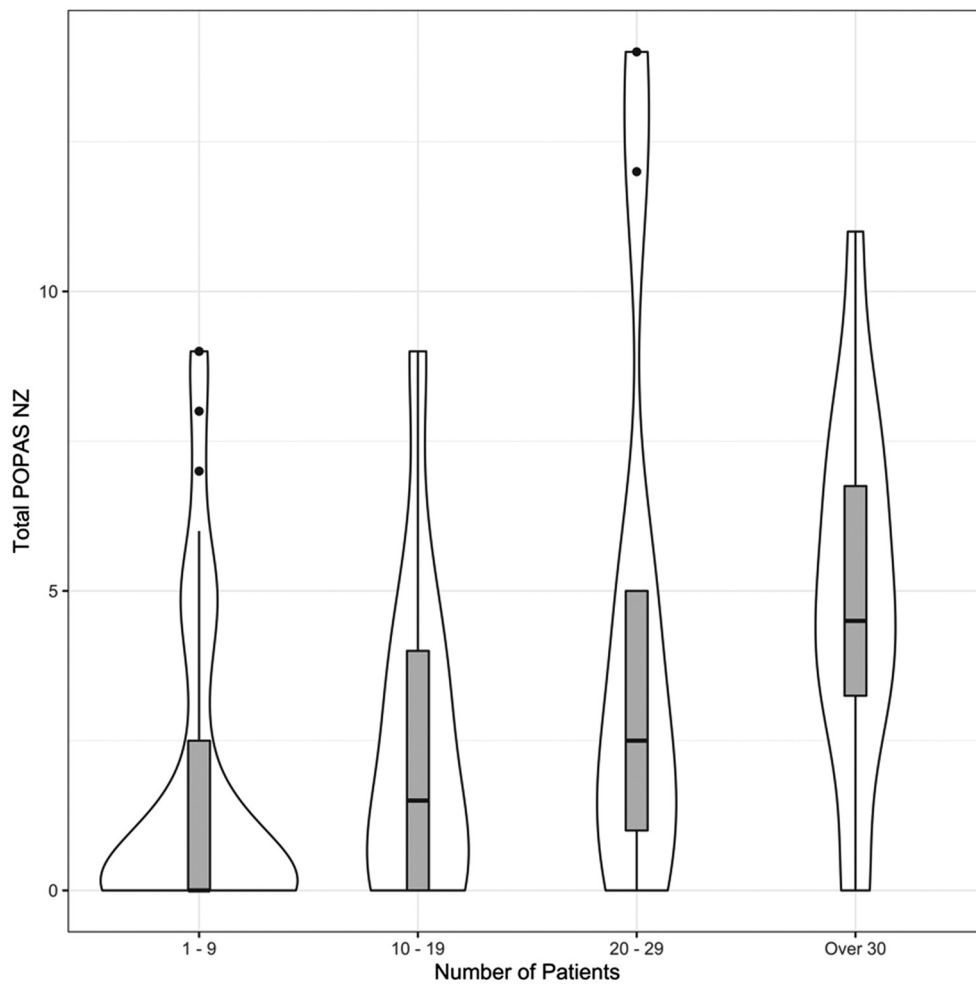


Fig. 1. Violin plot with embedded box plot of the summed POPAS-NZ score by the number of patients.

**Table 3**  
Percentage responses for Kessler psychological distress scale (K10).

How often did you feel...	None of the time	A little of the time	Some of the time	Most of the time	All of the time	n
...tired out for no good reason?	22.3	35.1	29.8	9.6	3.2	94
...nervous?	40.0	36.8	21.1	2.1	0.0	95
...so nervous that nothing could calm you down?	92.6	5.3	2.1	0.0	0.0	94
...hopeless?	76.6	17.0	5.3	1.1	0.0	94
...restless or fidgety?	66.0	23.4	9.6	1.1	0.0	94
...so restless you could not sit still?	90.4	8.5	1.1	0.0	0.0	94
...depressed?	60.6	28.7	8.5	2.1	0.0	94
...that everything was an effort?	41.9	41.9	11.8	3.2	1.1	93
...so sad that nothing could cheer you up?	84.0	11.7	4.3	0.0	0.0	94
...worthless?	79.8	13.8	5.3	1.1	0.0	94

**Table 4**  
Percentage responses from the Short Post-Traumatic Stress Disorder Rating Interview (SPRINT).

Questions	Not at all	A little bit	Moderately	Quite a lot	Very much	n
How much have you been bothered by unwanted memories, nightmares, or reminders of the event?	74.2	19.4	4.3	2.2	0.0	93
How much effort have you made to avoid thinking or talking about the event, or doing things which remind you of what happened?	79.6	16.1	2.2	0.0	2.2	93
To what extent have you lost enjoyment for things, kept your distance from people, or found it difficult to experience feelings?	86.0	9.7	3.2	0.0	1.1	93
How much have you been bothered by poor sleep, poor concentration, jumpiness, irritability, or feeling watchful around you?	74.5	17.0	3.2	4.3	1.1	94
How much have you been bothered by pain, aches, or tiredness?	69.9	16.1	8.6	3.2	2.2	93
How much would you get upset when stressful events or setbacks happen to you?	45.7	36.2	13.8	4.3	0.0	94
How much have the above symptoms interfered with your ability to work or carry out daily activities?	77.4	19.4	2.2	1.1	0.0	93
How much have the above symptoms interfered with your relationships with family or friends?	76.6	19.1	3.2	0.0	1.1	94

**Table 5**  
Percentage responses on Abbreviated Maslach Burnout Inventory (aMBI).

Questions	Never	A few times a year	Once a month or less	A few times a month	Once a week	A few times a week	Every day	n
<b>Emotional Exhaustion (Negative Affect):</b>								
I feel emotionally drained from my work.	12.8	24.5	11.7	14.9	9.6	23.4	3.2	94
I feel fatigued when I get up in the morning and have to face another day on the job.	16.0	27.7	13.8	20.2	6.4	10.6	5.3	94
Working with people all day is really a strain for me.	28.7	23.4	16	18.1	5.3	8.5	0.0	94
<b>Depersonalization (Negative Affect):</b>								
I feel I treat some patients as if they were impersonal objects.	67.0	22.3	3.2	1.1	1.1	5.3	0.0	94
I've become more callous towards people since I took this job.	54.3	23.4	4.3	11.7	2.1	2.1	2.1	94
I don't really care what happens to some patients.	63.8	24.5	4.3	5.3	0.0	0.0	2.1	94
<b>Personal Accomplishment (Positive Affect):</b>								
I deal very effectively with the problems of my patients.	0.0	7.4	1.1	8.5	1.1	17.0	64.9	94
I feel I'm positively influencing other people's lives through my work.	0.0	6.3	2.1	11.6	3.2	34.7	42.1	95
I feel exhilarated after working closely with my patients.	5.3	18.1	6.4	13.8	7.4	34.0	14.9	94

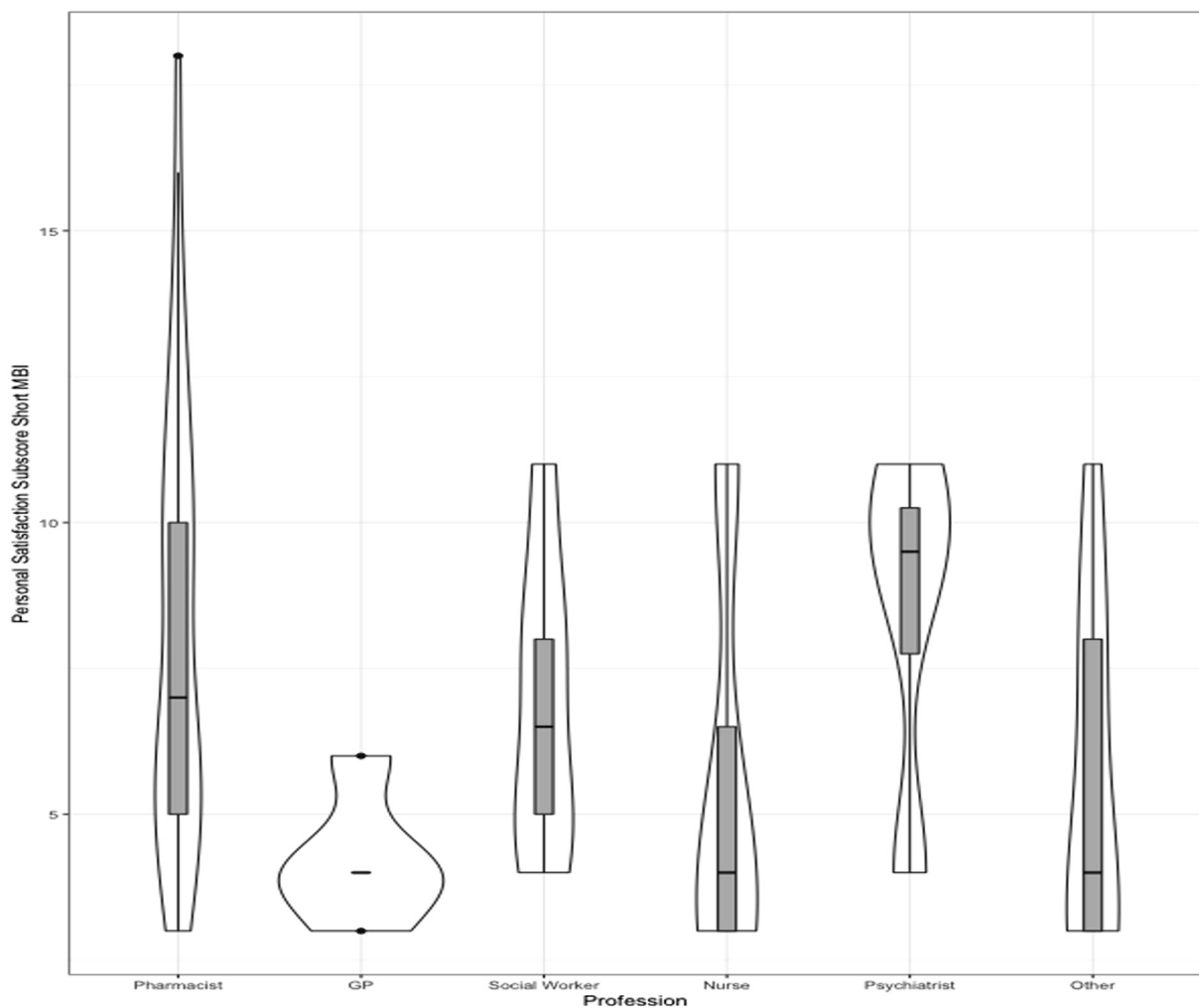
*Correlation of POPAS-NZ scores*

The correlations of all outcome tables are shown as raw data in Supplementary Table 1 and adjusted for age, gender, number of patients, and profession type Supplementary Table 2. In a post hoc multivariate analysis of variance, POPAS-NZ was highly correlated with the K10 results, with a Tukey *T*-value of 14.06 (*p* = 0.003). This model had an Adjusted *R*<sup>2</sup> of 9%. This shows when perceived aggression increases so does distress. When a multivariate correlation of the K10 with other outcomes was

performed, similarly the POPAS-NZ (*t* = 2.99, *p* = 0.004) was highly correlated, but so was the SPRINT (*t* = 2.19, *p* = 0.03) and the emotional exhaustion subscale of the aMBI (*t* = 5.74, *p* < 0.0001). This model had an Adjusted *R*<sup>2</sup> of 47%.

*Qualitative results*

All of the respondents also answered qualitative questions (*n* = 93). Three main themes were identified for the question which asked: what



**Fig. 2.** Violin Plot with Nested Box Plot. Personal Achievement (aMBI) and Profession.



were the best things about working with OST clients? These were: positive relationships with patients; appreciating patient outcomes; and, great team working environment. Further, there were three themes identified from asking: what are the worst things about working with OST clients? These were: patient behaviour; administration; and, maintaining empathy.

#### *Positive relationships with patients*

Clinicians mentioned that the long-term relationship was positive. This theme was all about relationship and trust: “daily contact and routine”; “building trust”; “building rapport”; “get to know the patient really well”. Clinicians talked about “getting to know them” and them being “lovely people” and even “friends”. Clinicians also reflected that these were interesting people: “interesting stories from other walks of life”; “never dull”; and, “colourful characters who have seen a bit of life”. They said they are: “mostly good people” and “nicer than other patients”.

#### *Appreciating patient outcomes*

Clinicians reflected on the positive impact they were able to make for their patients. They discussed: “seeing them progress”; “seeing them succeed”; “supporting them” and, “feeling like you are helping”.

#### *Team environment*

Clinicians commented that this was a good area to work in, they appreciated their teams, reflected that this work is well paid, and the patients were quick to deal with. They said one of the best aspects of working in this area was: “having a great team working with me”.

#### *Patient behaviours*

There was a range of patient behaviours that made the job difficult. These include deterioration, overdose, theft, lack of motivation and trust issues. Patients could also be “avoidant”, “unlikeable”, “lying”, “manipulative” and “unpredictable”. Patients were also called “aggressive” and were noted to have “poor personal hygiene”. They can be entitled and demanding. Some providers dealt with serious assaults between clients. Suicidal behaviour of clients and their social network was distressing, as was overdose with clients being brought in needing attention, or one provider lost two patients to overdose. There were several mentions of clients using Facebook to “abuse and intimidate” providers. There were many stories of threatening behaviour, such as “coming to their house to sort them out” and harming family members. Many shared stories of aggressive acts: “Patient had no dose available and punched a hole in a wall and broke an external window in the pharmacy. Patient was banned from coming back to our pharmacy.”

#### *Administration*

There were a range of administrative issues mentioned. These include dealing with holidays and “out of town patients”. There are issues with the correct dose and “fear of making errors”. There is a lot of associated paperwork and “it takes up a lot of time”.

### **Discussion**

Opioid use remains a continuing problem in developed nations around the world, and there is an ongoing need for OST. This study reports new evidence on risks for practitioners of client aggression involved in OST. The rates of events found in the present study were somewhat lower but concordant with similar research that used the same survey.<sup>3,8</sup> Although most participants reported little distress, three of the 95 participants had a K10 score consistent with a co-occurring anxiety or mood disorder, four of the participants had a SPRINT score consistent with PTSD, and 17 participants had

burnout scores above the usual threshold for concern on the aMBI. This might suggest the necessity of identifying staff who are experiencing issues.

The main risk for aggression was the number of patients seen, which was measured in a categorical manner to functionally censor the data. The psychiatrists in this study group manage up to 500 patients, which puts them in the highest risk category. This suggests that a minority of patients may be aggressive, so seeing large numbers will put you in contact with those who are aggressive. However, this finding does not indicate any changes to current practice.

The total aggression scores correlated with general distress and with little else on a multivariate analysis. This is unlike other surveys, where there was a high correlation with another measurement of distress, the Impact of Events Scale (IES).<sup>42</sup> The shorter and more focused SPRINT scale does not include as many generalized symptoms as the IES does, and its specificity has been brought into question.<sup>43</sup> Future studies might be advised to use the IES to detect distress.

It is not surprising that K10 scores correlate with POPAS-NZ but not with burnout and with post traumatic distress in this study. It may be that aggression is more of a risk to general psychological health than PTSD directly, and the multiple factors related to burnout may modify any correlation with aggression, not limited to the cumulative amount of aggression and recency of events,<sup>44</sup> or type of aggression.<sup>45</sup>

Qualitative analysis showed the importance of systemic factors in job satisfaction. Great team working environments were mentioned as a positive aspect of working with OST clients and paperwork and administration tasks one of the worst aspects. Relationships added to the positive aspects of the work, but poor behaviour of clients was also one of the challenges. Appreciating patient outcomes was a significant positive aspect of working in OST, while there were many stories of aggressive and threatening behaviour. These qualitative findings support the quantitative results by showing why this seemingly challenging clinical population may be positive to work with. Although the quantitative results showed a somewhat low rate of violence, there were many stories about aggression. In the survey we asked about violence over the previous 4 weeks, the qualitative results found clinicians reported violence that had occurred up to 20 years ago. So, while our study shows aggression and violence are not frequent, when it occurs it is very salient.

#### *Strengths and limitations*

This paper surveys a sample of OST practitioners in one region of New Zealand. There may be difficulties generalizing this beyond New Zealand, where there has been considerable work to ensure there is uniformity of practice and access to OST across the nation. A strength of this study was the addition of pharmacists, who are often neglected as OST clinicians. In a similar way, the ethnic makeup of the population would not be analysable given small numbers. There was a response rate of 52% despite the use of a multiple mail out electronic and paper survey, and these results should be considered with caution.

#### *Implications*

Our study found that OST workers experience aggression, stress, and burnout in their jobs. Risks for adverse outcomes increased with the number of patients seen. This might indicate management of caseloads in this field is important. Staff well-being should also be monitored, with some reporting concerning levels of distress, PTSD and burnout. The qualitative findings of this survey reveal salient work incidences could happen over very long timeframes, so this should be considered in future surveys. There were also many interesting comments on positive aspects of working with this patient group which might be considered.

### **Conclusion**

There is a risk for all people working with OST of aggression and of psychological consequences relating to aggression. Descriptive and qualitative

data show considerable experiences of aggression in the workplace. Further research to confirm these findings is required. It is recommended that practitioners working in the field of OST receive training about dealing with aggression from patients. Training about the management of violence would need to be adjusted to deal with the diverse qualifications and experience and exposure within this group of providers. Alternatively, maximum numbers of patients seen by each practitioner could safely reduce the risk of experiencing aggression, and possibly feelings of burnout.

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## Conflicts of interest

CG and MM work as psychiatrists in Addiction Services. There are no other conflicts of interest.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.rscop.2021.100100>.

## References

- Phillips JP. Workplace violence against health care workers in the United States. *N Engl J Med* 2016;374:1661–1669. <https://doi.org/10.1056/NEJMc1606816>.
- Baby M, Swain N, Gale C. Healthcare managers' perceptions of patient perpetrated aggression and prevention strategies: a cross sectional survey. *Issues Ment Health Nurs* 2016;1–10. <https://doi.org/10.3109/01612840.2016.1166300>.
- Swain N, Gale C, Greenwood R. Patient aggression experienced by staff in a New Zealand public hospital setting. *NZ Med J* 2014;127(1394):10–18. <http://journal.nzma.org.nz/journal/127-1394/6125/>.
- Duxbury J, Whittington R. Causes and management of patient aggression and violence: staff and patient perspectives. *J Adv Nurs* 2005;50:469–478. <https://doi.org/10.1111/j.1365-2648.2005.03426.x>.
- Ahmed F, Khizar Memon N, Memon S. Violence against doctors, a serious concern for healthcare organizations to ponder about. *Ann Med Surg* 2018;25:3–5. <https://doi.org/10.1016/j.amsu.2017.11.003>.
- Whittington R, Shuttleworth S, Hill L. Violence to staff in a general hospital setting. *J Adv Nurs* 1996;24:326–333. <https://doi.org/10.1046/j.1365-2648.1996.18114.x>.
- Hahn S, Hantikainen V, Needham I, Kok G, Dassen T, Halfens RJG. Patient and visitor violence in the general hospital, occurrence, staff interventions and consequences: a cross-sectional survey. *J Adv Nurs* 2012;68:2685–2699. <https://doi.org/10.1111/j.1365-2648.2012.05967.x>.
- Gale C, Hannah A, Swain N, Gray A, Coverdale J, Oud N. Patient aggression perceived by community support workers. *Australas Psychiatry* 2009;17:497–501. <https://doi.org/10.1080/10398560903287516>.
- Mackay J, Hannah A, Gale C. Medical students' experiences of patient aggression and communication style. *Australas Psychiatry* 2009;17:59–60. <https://doi.org/10.1080/10398560802422552>.
- BG McKenna, Poole SJ, Smith NA, Coverdale JH, Gale CK. A survey of threats and violent behaviour by patients against registered nurses in their first year of practice. *Int J Ment Health Nurs* 2003;12:56–63. <https://doi.org/10.1046/j.1440-0979.2003.00269.x>.
- Coverdale JH, Louie AK, Roberts LW. Protecting the safety of medical students and residents. *Acad Psychiatry* 2005;29:329–331. <https://doi.org/10.1176/appi.ap.29.4.329>.
- Carmi-iluz T, Peleg R, Freud T, Shvartzman P. Verbal and physical violence towards hospital- and community-based physicians in the Negev: an observational study. *BMC Health Serv Res* 2005;5:54. <https://doi.org/10.1186/1472-6963-5-54>.
- Pane GA, Winiarski AM, Salness KA. Aggression directed toward emergency department staff at a university teaching hospital. *Ann Emerg Med* 1991;20:283–286. [https://doi.org/10.1016/s0196-0644\(05\)80941-2](https://doi.org/10.1016/s0196-0644(05)80941-2).
- Talas MS, Kocaöz S, Akgücü S. A survey of violence against staff working in the emergency department in Ankara. *Turkey Asian Nurs Res* 2011;5:197–203. <https://doi.org/10.1016/j.anr.2011.11.001>.
- Wyatt JP, Watt M. Violence towards junior doctors in accident and emergency departments. *J Accid Emerg Med* 1995;12:40–42. <https://doi.org/10.1136/emj.12.1.40>.
- Black KJ, Compton WM, Wetzel M, Minchin S, Farber NB, Rastogi-Cruz D. Assaults by patients on psychiatric residents at three training sites. *Psychiatr Serv* 1994;45:706–710. <https://doi.org/10.1176/ps.45.7.706>.
- Coverdale J, Gale C, Weeks S, Turbott S. A survey of threats and violent acts by patients against training physicians. *Med Educ* 2001;35:154–159. <https://doi.org/10.1046/j.1365-2923.2001.00767.x>.
- Bowers L, Nijman H, Palmstierna T. The attempted and actual assault scale (attacks). *Int J Methods Psychiatr Res* 2007;16:171–176. <https://doi.org/10.1002/mpr.219>.
- Wu L-T, McNeely J, Subramaniam GA, et al. DSM-5 substance use disorders among adult primary care patients: results from a multisite study. *Drug Alcohol Depend* 2017;179:42–46. <https://doi.org/10.1016/j.drugalcdep.2017.05.048>.
- King NB, Fraser V, Boikos C, Richardson R, Harper S. Determinants of increased opioid-related mortality in the United States and Canada, 1990–2013: a systematic review. *Am J Public Health* 2014;104:e32–e42. <https://doi.org/10.2105/AJPH.2014.301966>.
- Black S, Casswell S. Recreational drug use in New Zealand. *Drug Alcohol Rev* 1993;12:37–47. <https://doi.org/10.1080/09595239300185721>.
- Gisev N, Campbell G, Lalic S, et al. Current opioid access, use, and problems in Australasian jurisdictions. *Curr Addict Rep* 2018;5:464–472. <https://doi.org/10.1111/dar.12617>.
- Wilkins C, Sweetsur P, Griffiths R. Recent trends in pharmaceutical drug use among frequent injecting drug users, frequent methamphetamine users and frequent ecstasy users in New Zealand, 2006–2009. *Drug Alcohol Rev* 2011;30:255–263. <https://doi.org/10.1111/j.1465-3362.2011.00324.x>.
- Deering D, Sellman JD, Adamson S. Opioid substitution treatment in New Zealand: a 40 year perspective. *NZ Med J* 2014;127:57–66.
- Ministry of Health. *New Zealand practice guidelines for opioid substitution treatment 2014*. Wellington, New Zealand: Ministry of Health. 2014.
- Paterson R, Durie M, Disley B, Rangihuna D, Tiatia-Seath J, Tualamali'i J. *He Ara Oranga: Report of the government inquiry into mental health and addiction*. Wellington, New Zealand: Government Inquiry into Mental Health and Addiction. 2018.
- Roche A, Kostadinov V, Braye K, et al. *The New Zealand addictions workforce: Characteristics & wellbeing*. Adelaide, South Australia: Adel Natl Cent Educ Train Addict Flinders University. 2018.
- Barnard LFT, Baker MG, Hales S, Howden-Chapman P. Novel use of three administrative datasets to establish a cohort for environmental health research. *BMC Public Health* 2015;15:1–12. <https://doi.org/10.1186/s12889-015-1580-1>.
- Ministry of Health. *Population of southern DHB*. Minist Health NZ Your Health. 2021. <https://www.health.govt.nz/new-zealand-health-system/my-dhb/southern-dhb/population-southern-dhb> (accessed June 17, 2021).
- Oud N. *The perception of prevalence of aggression scale (POPAS) questionnaire*. Amsterdam, The Netherlands: Amst Connect. 2001.
- Kessler RC, Andrews G, Colpe LJ, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med* 2002;32:959–976. <https://doi.org/10.1017/s0033291702006074>.
- Wells JE, Oakley Browne MA, Scott KM, McGeer MA, Baxter J, Kokaua J. Te Rau Hinengaro: the New Zealand mental health survey: overview of methods and findings. *Aust NZ J Psychiatry* 2006;40:835–844. <https://doi.org/10.1080/j.1440-1614.2006.01902.x>.
- Oakley Browne MA, Wells JE, Scott KM, McGeer MA, New Zealand Mental Health Survey Research Team. The Kessler psychological distress scale in Te Rau Hinengaro: the New Zealand mental health survey. *Aust NZ J Psychiatry* 2010;44:314–322. <https://doi.org/10.3109/00048670903279820>.
- Connor KM, Davidson JRT. SPRINT: a brief global assessment of post-traumatic stress disorder. *Int Clin Psychopharmacol* 2001;16:279–284. <https://doi.org/10.1097/00004850-200109000-00005>.
- Vaishnavi S, Payne V, Connor K, Davidson JRT. A comparison of the SPRINT and CAPS assessment scales for posttraumatic stress disorder. *Depress Anxiety* 2006;23:437–440. <https://doi.org/10.1002/da.20202>.
- Koeske GF, Koeske RD. Construct validity of the Maslach burnout inventory: a critical review and reconceptualization. *J Appl Behav Sci* 1989;25:131–144. <https://doi.org/10.1177/0021886389252004>.
- Shaikh AA, Shaikh A, Kumar R, Tahir A. Assessment of burnout and its factors among doctors using the abbreviated Maslach Burnout Inventory. *Cureus* 2019;11:e4101. <https://doi.org/10.7759/cureus.4101>.
- Qualtrics. *Qualtrics XM*. Qualtrics. 2020.
- IBM corporation. *IBM SPSS statistics for Windows*. Armonk, NY: IBM. 2017.
- R Core Team. *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. 2017.
- Kalish CW, Lawson CA. Negative evidence and inductive generalisation. *Think Reason* 2007;13:394–425. <https://doi.org/10.1080/13546780701273402>.
- Horowitz M, Wilner N, Alvarez W. Impact of event scale: a measure of subjective stress. *Psychosom Med* 1979;41:209–218. <https://doi.org/10.1097/00006842-197905000-00004>.
- Lees-Haley PR, Price JR, Williams CW, Betz BP. Use of the impact of events scale in the assessment of emotional distress and PTSD may produce misleading results. *J Forensic Neuropsychol* 2001;2:45–52. [https://doi.org/10.1300/J151v02n02\\_04](https://doi.org/10.1300/J151v02n02_04).
- Winstanley S, Whittington R. Aggressive encounters between patients and general hospital staff: staff perceptions of the context and assailants' levels of cognitive processing. *Aggress Behav* 2004;30:534–543. <https://doi.org/10.1002/ab.20052>.
- Deery S, Walsh J, Guest D. Workplace aggression: the effects of harassment on job burnout and turnover intentions. *Work Employ Soc* 2011;25:742–759. <https://doi.org/10.1177/0950017011419707>.