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LOOK WHAT'S COMING OVER THE HILL: DAST-10 PROBLEM SEVERITY AMONG NON-TREATMENT SEEKING YOUNG PEOPLE

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Purpose

This study provides data on substance use amongst young people in Scotland to inform policy and practice for an age group who do not access specialist alcohol and drug services. The main objectives of the study were to assess the problem severity scores of items from a modified version of the DAST-10 brief screening instrument among respondents; examine correlations between a range of variables in relation to DAST-10 problem severity scores; and explore respondent knowledge of how and where to seek help.

Design/Methodology

A fixed quantitative design methodology recruited a non-probability sample of 4501 respondents from an online survey made available by 'We are With you' Scotland.

The survey was ethically approved by the School of Education and Social Sciences, University of the West of Scotland. It consisted of 32 questions exploring substances used within the past 12 months, and 12 weeks, and included the DAST-10. We further explored help seeking, and knowledge of support available to respondents.

Findings

Substance use patterns were markedly different from people currently known to specialist alcohol and drug services. Over half of respondents were under 25, and 62% report being employed. The most commonly used substances were cannabis and cocaine. One third of respondents recorded substantial or severe problem severity scores, and reside in Scottish Local Authorities with high concentrations of socio-economic inequality.

Secure accommodation, stable relationships and being employed are protective factors in relation to reported negative health consequences associated with problem substance use.

Just under one third (27%) of respondents report knowing where to seek help for substance use problems, however are unwilling to attend existing specialist alcohol and drug services.

Research limitations

A non-probability sample of the Scottish population has a potential for response bias due to how and what way the survey was made available to respondents. It is acknowledged that while useful as a method of generating drug use data, there are limitations in how recently the substance use occurred, and in relation to the types of substances reported (cannabis, cocaine and (MDMA) or ecstasy).

Practical Implications

The study provides data to inform wider public health measures in relation to accessing support and addressing societal discrimination associated with the use of substances. The study provides data on service design for young people who do not access specialist alcohol and drug services.

Social Implications

The study informs substance use policy in the Scottish context in relation to a population of young people who use licit and illicit substances. Data contributes to evidence supporting correlations between problematic substance use and socio economic inequality. Data indicates that existing specialist services require redesign.

Originality

The study is the first to be carried within a Scottish context.

Introduction

The Scottish Government intend to implement Medicated Assisted Treatment (MAT) Standards in April 2022. These 'MAT' standards underpinned by existing legislation that includes the UK Human Rights Act 1998 requires service providers as duty bearers to deliver a minimum standard of service to all rights holders. Performance on these standards will be measured and included in government publications. These MAT standards are intended to improve service provision for Problem Drug Users (PDU) known to services, who typically present as problematic users of opiates, benzodiazepines and alcohol (Scottish Government, 2021).

An ageing cohort of individuals aged 35 and over considered a high risk for drug related death (DRD) are targeted. However the ageing cohort narrative has been successfully criticised demonstrating additional risk factors for DRD require consideration in service planning (McPhee, Sheridan, & O'Rawe, 2018; MCPhee & Sheridan, 2020; Cousins & Bennet, 2022).

There is a distinct lack of consistency in how problematic substance use is understood and defined in the United Kingdom. In Scotland, the prevalence of problem drug use (PDU) is conducted every 5 years and collates information from more than **one** sources to provide an estimation of opiate and benzodiazepine use. The *estimated* numbers known to use substances in a problematic manner range from 57272 to 89000, based on 3 definitions of problematic substance use (Public Health Scotland, 2021).

The most recent data from Public Health Scotland indicates that among the cohort 18-64 age range 68% male, 32% female referrals were made to specialist alcohol and drug treatment services (PHS, 2021). Less than 20% of this PDU cohort are employed. 72% of PDU in contact with existing services report no employment and includes individuals over 18 in receipt of means tested benefits or long term sickness benefits (Public Health Scotland, 2021).

Research on the prevalence of problematic drug use by geographical location is published by Public Health Scotland. The 2015-16 data indicates that four NHS Scotland Health board area with high concentrations of multiple deprivation report higher prevalence rates of PDU compared to other health board areas in Scotland (PHS, 2021). At local authority level there are robust data indicating that residing in areas categorised as deprived is correlated with higher prevalence rates of PDU, drug related hospital admissions and incidence of drug related death (DRD) compared to the Scottish average (McPhee, Sheridan, O'Rawe, 2018; National Records of Scotland, 2020).

There is emerging evidence of an increase in both availability and purity of powder cocaine and in the use of crack, and an increase in intravenous injection of cocaine has also been reported in European countries. These developments resulted in increased cocaine related hospital emergencies and deaths (EMCDDA, 2018). Drug trends in Europe indicate that disruption as a result of lockdown restrictions and seizures by drug enforcement agencies appear to have little impact on reported use of cocaine. Government restrictions on movement as a consequences of COVID 19 lockdown have increased solitary (and thus riskier) use of drugs occurring (EMCDDA, 2021).

In the UK there has been a marked increase in recent years in the number of deaths with cocaine present, and in the prevalence of cocaine injecting reported by clients attending needle and syringe exchange services (Office of National Statistics, 2020; EMCDDA, 2021).

Over 8200 deaths involving one or more illicit drugs were reported in 2017 in the European Union. These excess deaths were of people in their thirties and forties (EMCDDA, 2019). Overdoses typically account for between one third and half of the deaths among high-risk drug users (EMCDDA, 2019). An important limitation of cohort studies is the fact that causes of death are often non-specifically coded. This may result in an underestimation of the true proportion of deaths caused by a range of factors including solitary substance use and poly substance use (EMCDDA, 2019).

Males consistently account for just under 70% of the drug-induced deaths that occur in Scotland. Comparing the annual average for 2013-17 with that for 2003-07, the percentage increase in the number of drug-induced deaths increased by 203% for females, and 68% for males (National Records Scotland, 2020).

The 2019 drug death statistics of under 34 age groups (age bands 15-24 & 25-34) account for 23% of the total number of deaths (NRS, 2020). Drug deaths in 2019 in the 15-24 (under 25) age group increased by 60%. In the same time period DRD in the 25-34 (under 35) age group increased by 26% (NRS, 2020). 38% of drug deaths occurred in the under 25 cohort, and 46% of people aged 25-34 had evidence of use of cocaine at time of death.

Risk and protective factors

In England, as part of a drug-induced deaths inquiry the most commonly observed characteristics as risk factors for DRD included, although not necessarily in combination, being male, white, single or divorced, unemployed, and living alone. The 'deep dive' study in England also noted the risk of using drugs while alone or consuming drugs at the same time as drinking alcohol (EMCDDA, 2021).

Two important studies describe protective factors in preventing substance use problems (Haase & Pratschke, 2010, Rudzinski, et al., 2017). However, there is a paucity of research in Scotland that provides empirical evidence on protective factors in relation to prevalence of problematic substance use. Hawkins et al., (1992) noted that protective factors moderate the effect of risk factors to reduce risk for subsequent substance use. In a study of changing drug use patterns, Newcomb and Felix-Ortiz (1992) followed adolescent boys and girls into adulthood. They advanced the Hawkins et al. framework by operationalising the concept of vulnerability to account for risk and protective factors in negative outcomes for substance use. Newcomb and Felix-Ortiz statistically distinguish risk from protective factors to demonstrate empirically that protective factors moderate risk factors.

Two reviews of the literature in the 1990's summarise what is known about risk and protective factors. Clayton's (1995) review recognises the 'drug, set, and setting' model of drug risk posited by Zinberg (1984) who describes risk as a combination of individual attributes, individual characteristics and situational and environmental contexts that increase the probability of problematic substance use (Zinberg, 1984; Clayton, 1995).

Alcohol and Drugs Service provision

At the onset of austerity in the UK, alcohol and drug partnerships in Scotland were expected to deliver essential services with significantly reduced annual budgets. NHS Scotland Health board areas with high rates of DRD experienced the severest impact from centralising services and closures of third and voluntary sector treatment services (McPhee & Sheridan, 2020). A

key policy area impacted by these changes to funding arrangements were prevention services crucial in working with young people at risk of developing problems. Due to these budgetary pressures, statutory and non-statutory services have been unable to fully develop services for younger substance users unwilling to engage with specialist alcohol and drug services offering treatment for problematic opiate and benzodiazepine use. The development of a national mission by Scottish Government in 2021 to tackle the drug death crisis provided additional monies for Alcohol and Drug Partnerships to design and deliver services. However, it is too early to assess what impact this has achieved in developing services aimed at young people who do not access specialist alcohol and drug services (Audit Scotland, 2022).

In response to a call for action by researchers across the UK to address the issue of rising drug related deaths and associated drug use problems in Scotland, this study explores the use of substances focusing on a population who do not attend existing services for help and support (Nicholls, et al., 2019).

Methods

This study provides data on substance use amongst young people in Scotland to inform policy and practice for an age group who do not access specialist alcohol and drug services. The main objectives of this study were (1) to assess the problem severity scores from a modified version of the DAST-10 brief screening instrument among respondents, and (2) examine correlations between a range of variables in relation to DAST-10 problem severity score (3) explore respondent knowledge of how and where to seek help.

The University of the West of Scotland approved this study in June 2020. A non-probability sample quantitative survey design recruited respondents using social media, and the 'We Are with You' website provided a link to the survey from their live chat facility from July to August 2020. Respondents were informed at the outset that their name and location were anonymous. Adverts for the survey were placed throughout social media, using the titles "Help us help more people," "Class A or classy?," 'Sniff or Spliff,' "Worried about your drug use." The campaign generated 9092 enquiries, with 4501 completed survey responses.

This type of survey method was employed as similar methods have been shown to be feasible for research on the use of alcohol and other drugs among young people (McCabe, Boyd, Couper, Crawford, & d'Arcy, 2002). McCabe et al., (2006) recruited 4500 mid-western USA college undergraduate students aged 18-24 using a survey incorporating the DAST-10. Males reported higher levels of drug use than females, and 23% of respondents reported the use of more than one drug. 10% of respondents scored 3 out of 10 in problem severity. Polydrug use is correlated with higher DAST-10 scores compared to other respondents. However only 6% of this group of respondents accessed treatment services, which presents a challenge to how and in what way services offer support pathways (McCabe et al., 2006).

The Drug Abuse Screening Test, Short Form (DAST-10), is a brief screening instrument used in non-clinical settings to detect potential problems associated with the use of a wide variety of substances. The adapted version of the DAST-10 allows a measure of drug problem severity. The DAST 10 problem severity scores are 0 = no problem, 1-2 low problem severity, 3-5

medium problem severity, 6-8 substantial problem severity, and 9-10 severe problem severity.

Respondents were asked to indicate which of the 32 local authorities they resided allowing in depth analysis of responses using multiple variables, substance use patterns, and DAST-10 problem severity scores. On completion of the online survey, respondents were provided with pre-programmed harm reduction advice relevant to their problem severity scores (PSS) and information on how and where to seek support.

Data

Over half of respondents 56% (n=2532) were aged 18-24. 18% (n=804) of respondents were in the 25-34 age category. 9% (n=423) of respondents were aged 35-44. The remaining age group categories account for 16% of respondents.

63% (n=2835) of respondents identified as male and 33% (n=1512) identified as female. The number of respondents who identified as non-binary or transgender were negligible.

78% (n=3590) of respondents were White Scottish. 11% (n=501) of respondents White British, White English, or White Irish ethnic categories, and 2% identified as 'White Other'. The remaining 5% of respondents identified as mixed ethnic.

62% (n=2769) respondents were employed. 17% (n=746) of respondents were students. 12% (n=530) respondents report no employment.

67% (n=3020) of respondents were single. 26% (n=1175) were married or in long term relationship. 4% (n=189) divorced or separated, and 2% (n=105) widowed.

28% (n=1245) of respondents report living with a partner, 39% (n=1732) of respondents report living with parents, 18% (n=790) live alone, 9% (n=399) respondents report living with friends, 4% (n=172) were single parents, and 0.1% (n=5) reported living in student accommodation. 2% (n=67) reporting living with other family members (not parents).

Reported drug use at 12 months and 12 weeks

64% (n=2880) of respondents report using cocaine (including crack) in the previous 12 months. 74% (n=3322) report the use of cannabis, 46% (n=2086) report the use of MDMA, 33% (n=1505) report the use of Ketamine, 25% (n=1107) report the use of LSD, 21% (n=942) report the use of medications not prescribed to them specifically, and 19% (n=862) report the use of a benzodiazepine.

In the previous 12 weeks, 63% (n=2816) of respondents report the use of cannabis, 48% (n=2166) cocaine (inc. crack), 18% (n=789) used Ketamine, 11%, (n=509) report the use of MDMA. 3% (n=134) of respondent report the use of non-prescribed medications in the past 12 weeks. In relation to the use of non-prescribed drug by age category, one fifth (20%) across all age categories report use of medications not prescribed to them.

Table 1: DAST-10 item scores	
DAST-10 items	Total sample (%) (n=4501)
Q11: Have you used drugs other than those required for medical reasons?	65
Q12: Do you take more than one drug at a time?	54
Q13: Are you able to stop using drugs when you want to?	18
Q14: Have you ever had blackouts or flashbacks as a result of drug use?	39
Q15: Do you ever feel bad or guilty about your drug use?	50
Q16: Has your partner/parents/friends ever complained about your involvement or use of drugs?	46
Q17: Have you ever missed work/school/college/university as result of drug use?	39
Q18: Have you engaged in illegal activities in order to obtain drugs?	28
Q19: Have you ever experienced withdrawal symptoms when you stopped taking drugs?	30
Q20: Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, seizures, bleeding, paranoia, panic attack, palpitations)?	35

Table 1 indicates that poly drug use and using drugs for non-medical reasons is a norm in this sample. Reporting negative legal, health and social consequences as a result of the use of substances is also common among respondents in the sample.

Each question of the DAST-10 was coded and the total score calculated out of 10. A score of 3-5 indicates low problem severity, 6-8 substantial and 9-10 severe problem severity. The percentage of substantial and severe Problem Severity Scores are represented in Figure 1.

DAST 10 Problem Severity Scores

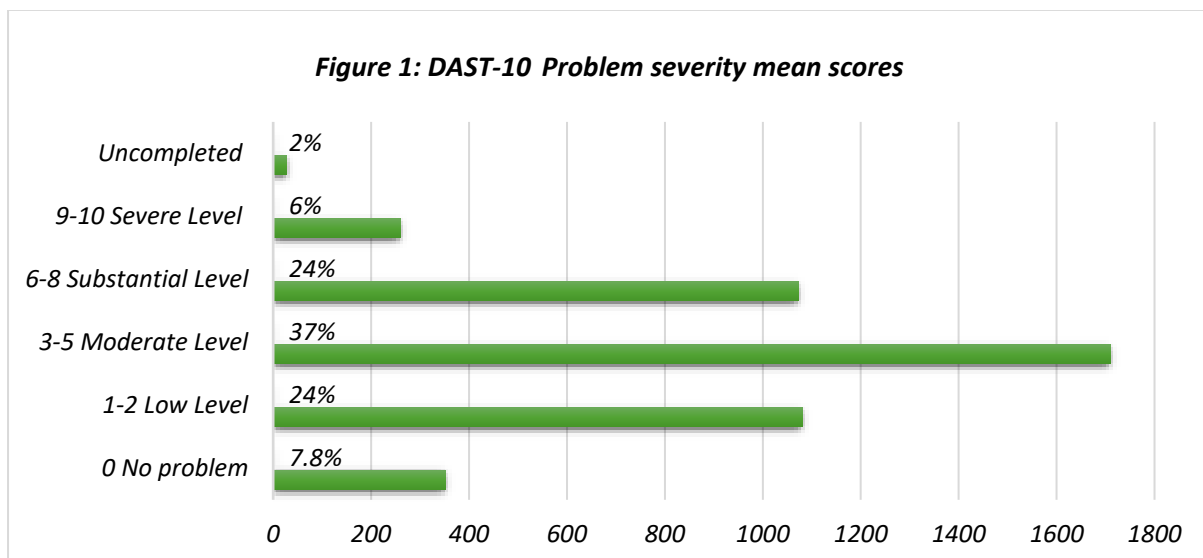


Figure 1 indicates 24% (n=1081) respondents report low-level problem severity. 37% (n=1710) respondents report moderate problem severity; 24% (n=1072) respondents scored substantial problem severity. Finally, 6% (n=260) report severe problem severity DAST-10 scores. Substantial and severe scores are indicators of requiring specialist help and support.

DAST 10 problem severity scores by Age Category

Age Category	Total Sample (%) N=4501	Substantial DAST-10 Scores (6-8)	Severe DAST-10 Scores (9-10)
18-24	2532 (56%)	653 (26%)	127 (5%)
25-34	804 (18%)	224 (28%)	61 (8%)
35-44	423 (9%)	109 (26%)	39 (9%)
45-54	265 (6%)	46 (17%)	18 (7%)
55-64	234 (5%)	23 (10%)	06 (3%)
65-74	138 (3%)	07 (5%)	02 (1%)
75+	60 (1%)	07 (12%)	02 (3%)

DAST-10 problem severity scores by Local Authority

DAST 10 problem severity scores were calculated by Scottish local authorities. Local authorities are the governance arrangements used to assess, plan and deliver specialist alcohol and drug service provision within Scotland that meet local needs within a specific geographical area. Table 3 indicates a large geographical spread of respondents by local authority area. Glasgow City local authority area, Edinburgh, Dundee and North Lanarkshire Council areas have high responses rates, and corresponding high rates of DAST 10 problem severity scores. These are local authority areas with high incidence of reported socio economic inequalities, and higher rates of PDU and DRD relative to the Scottish average (McPhee & Sheridan, 2020).

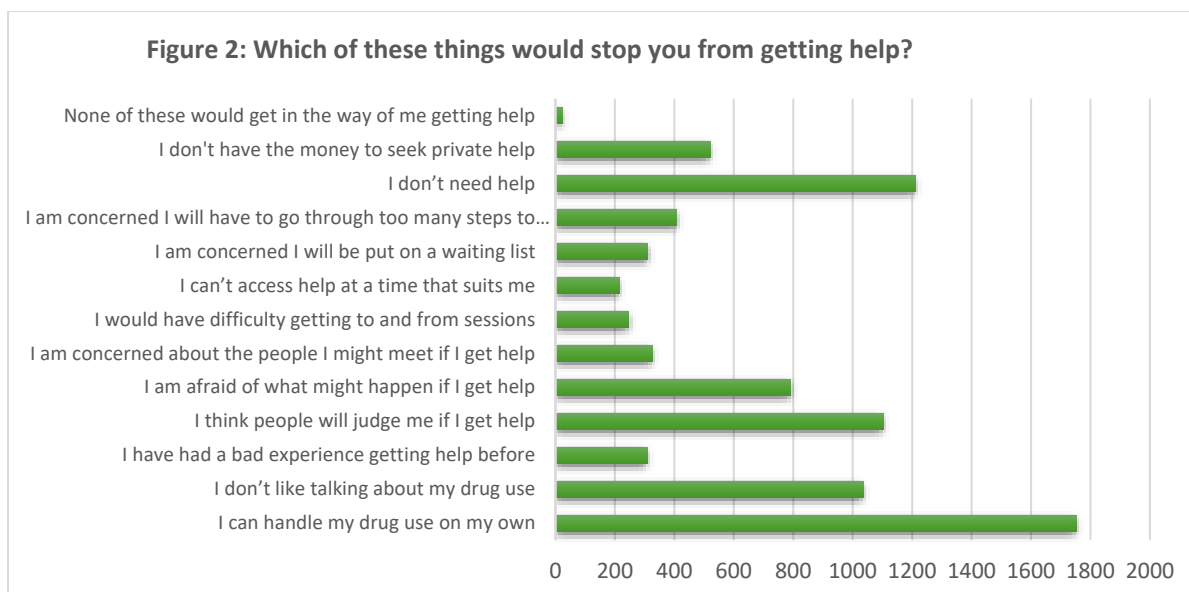
Local Authority area	Total Sample (%) N=4501	Substantial D-10 Scores 6-8: N, %	Severe D-10 Scores 9-10: N, %
Aberdeen	227 (5%)	65 (29%)	12 (5%)
Aberdeenshire	143 (3%)	32 (2%)	6 (4%)
Angus	106 (2%)	26 (24%)	3 (3%)
Argyll and Bute	70 (2%)	14 (20%)	6 (9%)
Clackmannanshire Council	45 (1%)	08 (18%)	1 (2%)
Comhairle nan Eilean Siar	27 (1%)	06 (22%)	3 (11%)
Dumfries and Galloway Council	123 (3%)	23 (19%)	4 (15%)
Dundee City Council	162 (4%)	34 (21%)	9 (6%)
East Ayrshire Council	144 (3%)	37 (26%)	8 (6%)
East Dunbartonshire Council	50 (1%)	10 (20%)	2 (4%)
East Lothian Council	97 (2%)	24 (25%)	6 (6%)
East Renfrewshire Council	51 (1%)	17 (33%)	5 (10%)
Edinburgh Council	250 (6%)	62 (25%)	11 (4%)
Falkirk Council	124 (3%)	30 (25%)	4, (3%)
Fife Council	291 (7%)	74 (25%)	13, (5%)
Glasgow City Council	725 (16%)	177 (22%)	40 (5%)
Inverclyde Council	62 (1%)	14 (23%)	2,(3%)
Midlothian Council	101 (2%)	22 (22%)	3 (3%)
North Ayrshire Council	118 (3%)	29 (25%)	8 (7%)
North Lanarkshire Council	298 (7%)	70 (24%)	29 (10%)

Orkney Islands Council	19 (0.4%)	06 (32%)	3 (16%)
Perth and Kinross Council	103 (2%)	30 (29%)	8 (8%)
Renfrewshire Council	137 (3%)	33 (24%)	7 (5%)
Scottish Borders Council	88 (2%)	24 (28%)	8 (9%)
Shetland Islands Council	26 (1%)	05 (19%)	2 (8%)
South Ayrshire Council	115 (3%)	25 (22%)	1 (10%)
South Lanarkshire Council	213 (5%)	49 (23%)	14 (7%)
Stirling Council	82 (2%)	21 (26%)	5 (6%)
The Highland Council	181 (4%)	38 (21%)	12 (7%)
The Moray Council	60 (1%)	12 (20%)	4 (7%)
West Dunbartonshire Council	69 (2%)	19 (28%)	3 (4%)
West Lothian Council	136 (3%)	31 (23%)	10 (7%)
No LA Provided	58 (1%)	-	-

In table 4 we reproduce the DAST-10 problem severity scores for gender reporting on substantial and severe (scores ranging from 6-10). Data from table 4 indicates that 33% (n=937) of males and 23% (n=346) of females based on their DAST-10 problem severity score require assistance from specialist alcohol and drug services.

Gender Category	Total Sample N=4501, 100%	Substantial DAST-10 Scores	Severe DAST-10 Scores
Man	2835 (63%)	757 (27%)	180 (6%)
Woman	1512 (33%)	280 (18%)	66 (4%)
Non-Binary	56 (1%)	14 (25%)	07 (12%)
Transgender Woman	25 (1%)	06 (24%)	03 (12%)
Transgender Man	17 (0.4%)	04 (23%)	01 (6%)
unspecified	42 (0.9%)	-	-

Respondents were asked if they would seek help for their drug use, and from where they would seek assistance. Figure 2 indicates that 38% (n=1752) of respondents report that they 'can handle their drug use on their own'. 26% (n=1102) would not access help, believing that they will be judged (experience stigma and discrimination). 23% (n=1035) state that they would not want to speak to anyone about their use of substances. 27% (n=1198) of respondents report not knowing where to find help.



The data in Figure 2 suggests that over a quarter of respondents are reluctant to discuss their drug use. Around a quarter would feel judged or afraid to seek help. These findings indicate that fear of discrimination is a barrier to seeking help for problem substance use.

Service	Number of responses
12 step group of peer support group	182
a friend	911
Health charity	28
Recovery community	76
GP	1221
Online advice	625
Would not seek help	211

Of the 48% (n=2136) of respondents who answered yes to knowing where to seek help, Table 5 indicates that 38% (n=1221) would seek help from a GP, 28% (n=911) would seek help from a friend, 19% (625) would seek help from an online source, 6% (n=182) would seek help from a 12-step group, and less than 2% (n=76) would seek help from a recovery community.

DAST-10 Multi Variate Analysis

A one way between groups analysis of variance was conducted to explore the relationship between age category and the mean DAST-10 problem severity scores. Respondents were divided into seven age group categories with the p value (0.000). Using the Welsh test $F(6, 474) = 54.1, p=0.000$ difference in mean scores between age groups was medium. The effect size calculated used eta squared was 0.07. Post hoc comparisons using the Tukey HSD Test indicated that the DAST-10 mean scores between age groups were significantly different.

The DAST-10 mean scores are statistically significant within the 18-24 age group (4.3, SD=2.4, p=0.000) 45 -54 age group (3.6, SD=2.4, p=0.000), 65-74 age group (1.5, SD=1.9, p=0.000) 75 years plus age group (2.5, SD=2.6 p=0.000).

The DAST-10 mean score are statistically significant within the 25-34 age group (4.4, SD=2.6, p=0.000), the 45-54 age group (3.6, SD=2.8, p=0.000), 55-64 age group (1.5, SD=1.9, p=0.0000), 65-74 age group (1.5, SD=1.9, p=0.000), and the 75 plus age group (2.5, SD 2.6, p=0.000).

The DAST-10 mean score are statistically significant within the 35-44 age group (4.4, SD=2.7, p=0.0000), 45-54 age group (3.6, SD=2.8, p=0.000), 55-64 age group (1.5, SD=1.9, p=0.0000), 65-74 age group (1.5, SD=1.9, p=0.000), and the 75 plus age group (2.5, SD 2.6, p=0.000).

Table 6: Multi Variate Analysis of DAST 10 Mean Scores by Age Category*							
DAST 10 Mean Score By Age Category	18-24	25-34	35-44	45-54	55-64	65-74	75 +
18-24 DAST-10 Mean 4.3, SD=2.4,				p=0.000		p=0.000	p=0.000
25-34 DAST-10 Mean 4.4, SD=2.6				p=0.000	p=0.000	p=0.000	p=0.000
35-44 DAST 10 Mean 4.4, SD 2.7				p=0.000	p=0.000	p=0.000	p=0.000
45-54 DAST 10 Mean 3.6 SD 2.8	p=0.000	p=0.000	p=0.000				
55-64 DAST-10 Mean 1.5, SD 1.9		p=0.000	p=0.000				
65-74 DAST-10 Mean 1.5 SD 1.9	p=0.000	p=0.000	p=0.000				
75+ DAST-10 Mean 2.5, SD 2.6	p=0.000	p=0.000	p=0.000				
*p=0.000 is statistically significant							

The cross table provides multi variate analysis with the DAST 10 mean score as dependent variable and age category as independent variable. The DAST 10 mean scores are higher in the younger age categories (under 45) compared to older age categories (over 45). The DAST 10 mean scores within age categories were statistically significant between younger and older age categories.

A one way between groups analysis of variance was conducted to explore the influence of sex and gender on DAST-10 problem severity scores. There was a significant difference at the p value (0.05) between groups. $F(5, 4455) = 23.332, p = 0.0000$. Despite statistical significance, the actual difference in mean scores between the two groups are small, confirmed by the effect size (0.02) calculated using eta squared. Post Hoc comparisons using the Tukey HSD test indicated that DAST-10 mean scores for men (4.4, SD=2.6, $p=0.000$) were significantly different from women (3.5, SD= 2.6, $p=0.000$).

DAST 10 Mean Score By Sex	Male	Female
<i>Male DAST 10 Mean 4.4, SD=2.6</i>		$p=0.000$
<i>Female DAST 10 Mean 3.5, S=,2.6</i>		$p=0.000$
* $p=0.000$ is statistically significant		

Table 7 provides multi variate analysis with the DAST 10 mean score as dependent variable and sex category as independent variable. The results indicate that the DAST 10 mean scores were higher for males than females.

Employment

A one way between groups analysis of variance was conducted to explore the impact of employment on DAST-10 scores. There are significant differences between groups $F(4, 4452) = 64.6, (p = 0.000)$. The statistical significance difference in mean scores is medium. The effect size calculated using eta squared was 0.05. Post hoc comparisons conducted using the Tukey HSD test indicated that mean scores were significantly different. The DAST-10 mean scores are significantly different between respondents reporting no employment (4.8, SD=2.8, $p=0.000$), and those employed (4.0, SD=2.5, $p=0.0000$).

Living Situation

A one way between groups analysis of variance was conducted to explore the impact of living situation on the DAST-10 scores. Respondents were divided into reported living situation category. There are significant differences between groups $F(8, 4449) = 9.2 (p=0.000)$. Despite reaching statistical significance, the actual difference in mean scores between the groups is small. The effect size calculated using eta squared was 0.02. Post Hoc comparisons using the Tukey HSD test indicated that the DAST-10 mean scores are significant.

The DAST-10 mean scores were significantly different between respondents living with a partner (3.6, SD=2.6, $p=0.0000$), other household (4.8, SD=2.8, $p=0.000$), respondents staying with friends (4.3, SD=2.4, $p=0.0000$) single person households (4.2, SD=2.9, $p=0.000$).

Table 8: Multivariate Analysis of DAST 10 Mean Scores by Living Situation*				
DAST 10 Mean Scores by Living Situation	Single Person	Living with Partner	Other	Staying with Friends
Single Person DAST 10 Mean 4.2 SD 2.9		p=0.000		
Living with Partner DAST 10 Mean 3.6, SD 2.6			p=0.000	p=0.000
Other DAST 10 Mean 4.8, SD 2.8		p=0.000		
Staying with Friends DAST 10 Mean 4.3, SD 2.4		p=0.000		
*p=0.000 is statistically significant				

Table 8 provides multi variate analysis with the DAST 10 mean score as dependent variable and living situation as the independent variable. The results indicate that DAST 10 mean scores are higher for people who live alone, compared to people living with a partner, or with friends. When comparing DAST 10 mean scores the data indicates living with a partner is statistically significant compared to other living situations.

A one way between groups analysis of variance was conducted to explore the effect of marital status on DAST-10 scores. Respondents were divided into marital status categories. There are significant differences between groups $F(3, 46.5, p=0.000)$. Despite reaching statistical significance, the actual difference in mean scores between groups were small. The effect size calculated using eta squared was 0.03.

Post Hoc comparisons using the Tukey HSD test indicate that the DAST-10 mean scores are significantly different between widowed respondents (2.7, $SD=2.7, p=0.000$), single (4.4, $SD=2.5, p=0.000$), and married or with a partner (3.6, $SD=2.6, p=0.000$). The DAST-10 mean scores are significantly different between respondents who were single (4.4, $SD=2.5, p=0.000$), and those who were married or with a partner (3.6, $SD=2.6, p=0.000$), or divorced or separated (3.2, $SD=2.8, p=0.000$).

Discussion

The main objectives of this study were (1) to assess the problem severity scores of items from a modified version of the DAST-10 brief screening instrument among respondents, (2) examine correlations between a range of variables in relation to DAST-10 problem severity scores (3) explore respondents knowledge of how and where to seek help. The data provides evidence of changes in patterns of drug use and consequences, and identifies substances of concern that increase risk for negative legal, health and social outcomes.

Validation studies on the use of surveys on self-reported drug use indicate three general conclusions: (a) how recent the drug use occurred (b) the social desirability of the substance, (c) the nuances of data collection methodology (Harrison, 1995).

We acknowledge that a non-probability sample of the Scottish population is a potential for response bias due to how and what way the survey was made available to respondents. However, this survey data provides useful evidence on drug use patterns to develop an understanding of the potential unmet service needs of individuals not captured in existing surveys. An additional limitation is the over representation of male respondents.

Respondent data indicates that 64% report using cocaine (including crack) in the last 12 months, while 48% report the use of cocaine (inc. crack) in the last 12 weeks. This data support findings from toxicology reports that indicate increased use of cocaine in the most recent drug related deaths figures across the UK (Office of National Statistics, 2020; NRS 2020). This is an indicator that drug patterns are changing across the younger population, and is a clear indicator of unmet need among a group of young people unknown and unwilling to attend existing specialist alcohol and drug services.

62% of respondents in this study report being employed. This is in contrast to 72% of PDU known to services that do not have employment (Public Health Scotland, 2021).

The gender breakdown of the sample is broadly similar to individuals known to present to specialist addiction service providers in Scotland (Public Health Scotland, 2021). The gender profile of the sample reporting high DAST-10 scores indicates that problem severity is consistent with the gender ratio (70% male, 30% female) who present at specialist alcohol and drug service providers (ISD, 2019). Based on aggregated problem severity scores by gender, one third of males and just under a quarter of females require **specialist** assistance for the use of substances.

Examining the DAST-10 mean scores as an indicator of problem severity, the data reveals statistically significant differences between age group categories. One third of respondents aged under 45 who score substantial or severe DAST-10 scores may require a tier 2 or 3 treatment service intervention. This indicates a need for specialist alcohol and drug services to recognise changing drug use patterns and develop interventions to address the problematic use of cocaine and cannabis, and episodic (non-habitual) poly substance use.

Data in Table 5 indicates that a quarter of respondents note that they would seek help from their GP. The data indicates that respondents do not consider existing service provision meets their needs as they are unwilling to seek help from specialist alcohol and drug services. Just under one fifth of respondents suggest that they would seek help from friends.

85% of respondents indicate that they have never sought help for their substance use, fearing that they will be judged for doing so. Over half of respondents in employment indicated that they would not seek help in relation to an alcohol or drug problem. A key aspect of employment support is being able to access occupational health support. However there is a risk that employers rather than providing help and support may seek to dismiss an employee, particularly if the employee is on a short term, fixed term, or zero-hour contract.

Stigma is a barrier to seeking help, and for non-problematic users (who are often otherwise law-abiding) being known as a user of illegal substances can result in unfair discrimination, considered a criminal, with the additional risk of dismissal from employment, and a limiting of future educational or employment opportunities (Bauld et al., 2010).

As there is recent evidence of cocaine use and poly substance use as a norm reported in toxicology reports at time of death, more research is required to explore this as an additional risk factor for problematic (PDU) and drug related death (DRD) (ONS, 2020).

Scottish local authorities with high concentrations of socio-economic inequalities, and a high incidence of PDU are correlated with high problem severity mean scores. Analysis outlined in table 8 indicates that an unsettled living situation or living alone is associated with higher DAST 10 mean scores. The protective factors (as indicated by low DAST-10 problem severity scores) include being in a significant relationship, having secure employment or accessing further or higher education, and a secure living arrangement.

Services that provide support for opiate and benzodiazepine users could benefit from service redesign to provide services to substance users unknown to services who in a climate of legal and moral condemnation wish to remain anonymous (McPhee, Sheridan & O’Rawe, 2018).

Recommendations/Conclusions

The data reveals that those respondents with substantial or severe DAST-10 scores would benefit from an intervention. However respondents are unwilling to reveal their problem use to their employer or educational establishment, or if they indicate they need help, do not know where to seek it out. Those who do indicate knowledge about seeking help, indicate that they would attend their GP. However a GP may refer them to existing specialist alcohol and drug services, or an abstinence based recovery service which may be unsuitable to their needs.

The respondent data reveals significant barriers to seeking help from employers and therefore we recommend a government intervention that supports employers to develop inclusive Human Resource practices to offer support to employees who may have substance use problems.

In addition, we recommend an education or a whole population approach which does not unintentionally stigmatise young people as addicts or offenders in waiting, providing harm reduction (rather than anti-drug) advice on the safe use of substances, and targeted services aimed at young people who do not use opiates or benzodiazepines. These targeted services aimed at young adults should focus on prevention and early intervention with a clear emphasis on increasing provision of psychosocial interventions.

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