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What are the risk and protective factors for drug misuse? What attitudes and beliefs do people hold about the development of drug misuse?

Summary of findings from two systematic reviews

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Trawsnewid **data** a **thystiolaeth** i **ddeallusrwydd iechyd cyhoeddus**

Transforming **data** and **evidence** into **public health intelligence**

1 Introduction

This report provides a summary of the findings from two systematic reviews produced by the Public Health Wales Observatory Evidence Service. Commissioned by the Public Health Wales Substance Misuse Programme Board, these reviews look at risk and protective factors for misuse[1] and the perceptions that people hold about why individuals do and do not use drugs. The full technical reports of the reviews should be consulted to inform decisions about action. The quantitative and qualitative technical reports are available via these links.

2 Background

Globally drug misuse is an important public health problem. An estimated 275 million people aged 15 to 64 worldwide reported using drugs at least once during 2016 (United Nations Office on Drugs and Crime, 2018). Worldwide, cannabis is the most commonly used illicit drug, followed by cocaine and 3, 4-methylenedioxy-methamphetamine (MDMA). However, the nonmedical use of prescription opioids is also becoming a major threat (United Nations Office on Drugs and Crime, 2018). It is widely recognised that individuals who begin using drugs at an early age are at increased risk of being dependent on them or developing a substance use disorder in later life.

In England and Wales, around one in 11 (9.4%) adults aged 16 to 59 years had taken drugs in 2018 (Home Office, 2019). In Wales, the overall number of individuals admitted to hospital for poisonings with illicit drugs increased by 4.4% from 6,488 in 2017/18 to 6,786 in 2018/19 (Public Health Wales, 2019). Opioids were responsible for the highest number of hospital admissions in 2018/19, followed by cannabinoids (Public Health Wales, 2019). Admissions were six times higher amongst those from the most deprived areas compared to least deprived (Public Health Wales, 2019). There were 327 deaths by drug poisoning registered in Wales in 2018, an increase of 25.8% from 2017 (Public Health Wales, 2019). Heroin and related opiates are responsible for the highest mortality rates among illegal drug users (Office for National Statistics, 2019).

[1] This includes illicit drugs and so called 'legal highs' which are now outlawed, but may not have been at the time of publication of relevant studies, and misuse of prescription medication.

3 The systematic reviews

Full details of both the methods we used for the systematic reviews and the included studies are available in the technical reports.

One of the systematic reviews included quantitative cohort studies that identified people with potential risk or protective factors and followed them to see if they became involved in drug misuse. This review looked at two questions:

> What risk factors (personal, interpersonal, and structural (environmental/economic) are associated with use of illicit drugs[2] or use of prescription drugs for non-prescribed purposes?
>
> What protective factors (personal, interpersonal, and structural (environmental/economic) are associated with no use of illicit drugs[2] or no use of prescription drugs for non-prescribed purposes?

The second review was qualitative. The studies we included explored perceptions about why people do or do not misuse drugs. This review also looked at two questions:

> What views, attitudes or beliefs are expressed about the reasons why people use illicit drugs or prescription medication for non-prescribed purposes?
>
> What views, attitudes or beliefs are expressed about what may protect people from using illicit drugs or prescription medication for non-prescribed purposes?

The literature searches for the reviews took place in May and June 2019 respectively.

4 Key findings

For the quantitative review we used a grading based on the quality of the study and the strength of the relationship between the risk or protective factor and the likelihood of drug misuse. There is more detail on this in the appendix to this report and in the technical report. The tables below summarise the evidence and grade for each potential risk or protective factor identified by the quantitative review. This information gives an idea of how confident we are that a particular factor is likely to increase risk of or enhance protection against drug misuse. Where we found only one study

[2] This includes so called legal highs.

no letter grade is given as single studies do not allow us to draw any conclusions.

We assessed the studies included in the qualitative review using a standard critical appraisal checklist. Overall study quality was moderate, although the results appear credible. Full information is in the technical report.

The tables below summarise the findings from the quantitative review. The narrative brings together relevant findings from both reviews.

Socio-environmental risk factors

Risk factor	Evidence statement
Negative life events	There is some evidence indicating that experiencing high stress/negative life events in childhood is a risk factor for drug misuse, but it is not conclusive [C] (four studies, one moderate quality, two poor quality showing an association, and one moderate quality showing no association)
Socio-economic status and income	The evidence is inconsistent and it is not possible to draw a conclusion regarding socio-economic status/income [D] (one good quality study and four moderate quality with inconsistent findings across the studies)
Childhood IQ score (single study)	Evidence from one moderate quality study of a strong association between high childhood IQ score and drug misuse
Urban settings (single study)	Evidence from one moderate quality study of a strong association between those living in cities and towns and drug misuse

The qualitative review found that some reported initiating drug use as a strategy to cope with a range of difficult situations, circumstances and relationships. These included difficult family relationships in childhood, and unemployment, bereavement and homelessness as adults. Evidence from the quantitative review suggested an association between negative life events in childhood and drug misuse. However, evidence supporting deprivation and disposable income as risk factors review was inconsistent and therefore inconclusive.

Intrapersonal risk factors

Risk factor	Evidence statement
Bullying perpetration	The hypothesis that bullying perpetration is a risk factor for illicit drug use at 18 years is supported by moderate to good quality evidence [B] (two studies, one good and one moderate quality)
Gender	The hypothesis that being male is a risk factor is supported by moderate quality evidence [B] (sixteen studies, seven good and nine moderate quality found an association and four studies, three moderate and one poor quality found no association)
Personality traits	The hypothesis that certain personality dimensions (including novelty or sensation seeking, self-control, self-esteem, coping and inhibitory control) are a risk factor is supported by moderate quality evidence [B] (twelve studies, three good, eight moderate and one poor quality found an association and one poor quality study found no association)
Academic achievement	There is some evidence supporting the hypothesis that low academic achievement is a risk factor, but it is not conclusive [C] (seven studies,

Risk factor	Evidence statement
	one good, four moderate and two poor quality found an association and three studies, one good and two moderate quality found no association)
Delinquency or aggression	There is some evidence supporting the hypothesis that delinquency or aggression are risk factors, but it is not conclusive [C] (six studies, two good, two moderate and two poor quality found an association and one poor quality study found no association)
Emotional and behavioural problems	There is some evidence supporting the hypothesis that emotional and behavioural problems are a risk factor, but it is not conclusive [C] (five studies, three good, one moderate and one poor quality found an association and three studies, two good and one moderate quality found no association)
School related problems	There is some evidence supporting the hypothesis that school related problems are a risk factor for drug misuse, but it is not conclusive [C] (four studies, three moderate and one poor quality found an association)
Suicidal behaviour	There is some evidence supporting the hypothesis that suicidal behaviour is a risk factor, but it is not conclusive [C] (two studies, one moderate and one poor quality found an association)
Mental disorders	The evidence is inconsistent and it is not possible to draw a conclusion [D] (ten studies, three good, five moderate and two poor quality with inconsistent results)
Pubertal timing	The evidence is inconsistent and it is not possible to draw a conclusion [D] (three studies, two moderate and one poor quality with inconsistent results)
Race/ethnicity	The evidence is inconsistent and it is not possible to draw a conclusion [D] (eight studies, two good, six moderate quality with inconsistent results)
Bully victimisation	The evidence is inconsistent and it is not possible to draw a conclusion [D] (three studies, one good and two moderate quality with inconsistent results)
Truancy *(single study)*	Evidence from one moderate quality study of a strong association between exclusions in the past three years and truancy in the past 12 months and drug misuse
Independent decision making (*single study*)	Evidence from one poor quality study of a strong association between independent decision making and drug misuse

The qualitative analysis found some participants used drugs to cope with mental health problems such as depression and anxiety. In a UK study of people with schizophrenia, illicit drugs were used for self-treatment of a variety of physical or mental ailments. This could be to manage pain, side effects from another medication, or feelings of being stigmatised by their illness. Evidence from the quantitative review was inconsistent and therefore inconclusive as to whether mental disorders are a risk factor. Evidence of an association with suicidal behaviour was also inconclusive. However, there was moderate quality evidence that personality traits, including novelty- or sensation-seeking, self-control, self-esteem, coping and lack of inhibitory control are risk factors.

Some participants whose data contributed to the qualitative review said drugs filled a void, meeting otherwise unmet emotional needs or helping them to escape their current reality. For others, turning to drugs was a way to cope with rejection, or exclusion from society; drug use offered a sense of freedom, independence from or rebellion against their circumstances. Misuse of prescription and over the counter (OTC) medication could be a coping mechanism in a variety of ways. For some, it was a way to cope with

specific circumstances including bereavement, work or relationship problems. Traumatic life events could also motivate an escalation in the prescribed dose.

Interpersonal risk factors

Risk factor	Evidence statement
Childhood maltreatment	The hypothesis that experiencing childhood maltreatment is a risk factor is supported by good quality evidence [A] (seven studies, six good and one moderate quality)
Parental drinking	The hypothesis that parental drinking is a risk factor is supported by moderate quality evidence [B] (five studies, one good, three moderate and one poor quality)
Parental illicit drug use	The hypothesis that parental illicit drug use is a risk factor is supported by moderate quality evidence [B] (six studies, three good, two moderate and one poor quality)
Parental mental state	The hypothesis that parental mental state is a risk factor is supported by moderate quality evidence [B] (two moderate quality studies)
Parental cigarettes smoking	The hypothesis that parental cigarette smoking is a risk factor is supported by moderate quality evidence [B] (four studies, two good and two moderate quality)
Family composition	There is some evidence supporting the hypothesis that being in a single-parent family is a risk factor, but it is not conclusive [C] (three moderate studies found an association and one poor quality found no association)
Parental marital circumstances	The evidence is inconsistent and it is not possible to draw a conclusion [D] (three good and two moderate quality with inconsistent results across studies)
Friendship/peers	The evidence is inconsistent and it is not possible to draw a conclusion [D] (two moderate and one poor quality with inconsistent results across studies)
Relationship with parents	The evidence is inconsistent and it is not possible to draw a conclusion [D] (four moderate and five poor quality with inconsistent results across studies)
Parental education	The hypothesis that parental education is not a risk factor is supported by moderate quality evidence [G] (one good quality study found an association and three moderate quality studies found no association)
Parental monitoring	The hypothesis that parental monitoring (parental knowledge of child's whereabouts) is not a risk factor is supported by moderate quality evidence [G] (two moderate quality studies found no association and one moderate quality study found an associaton)
Late bedtime (*single study*)	There is evidence from one good quality study of a strong association between late bedtime and drug misuse
Out of home placement/living in care (*single study*)	Evidence from one moderate quality study of a strong association between being placed out of home as a child and drug misuse
Parental criminality (*single study*)	Evidence from one moderate quality study of a strong association between a parent associated with criminality and drug misuse
Structural stigma (*single study*)	Evidence from one poor quality study of a strong association between structural stigma and drug misuse
Intimate partner violence (*single study*)	Evidence from one moderate quality study demonstrated no association between experiencing intimate partner violence (women aged 18 to 30 years) and drug misuse
Relationship satisfaction (*single study*)	Evidence from one moderate quality study demonstrated no association between relationship satisfaction and drug misuse

Good quality evidence from the quantitative review supported childhood maltreatment as a risk factor. This was reflected in the qualitative data;

which found for some, drug misuse was a way to cope with a dysfunctional childhood filled with abuse, neglect and instability.

Parental behaviours including illicit drug use, smoking and drinking were risk factors identified in the quantitative review and supported by moderate quality evidence. The qualitative evidence indicated that for some, introduction to drug use was through family, often as part of a dysfunctional childhood. Others suggested that access to and availability of drugs in their immediate environments/social networks/communities may have helped pique their curiosity. For some participants, drug use was normalised within their immediate family environment. This 'norm' could extend beyond immediate social networks, with drug use being seen as normal in people's wider communities and the areas in which they lived.

Substance related risk factors

Risk factor	Evidence statement
Age at first cannabis use	The hypothesis that younger age at first cannabis use is a risk factor is supported by good quality evidence [A] (eighteen studies, ten good quality, seven moderate quality and one poor quality found an association and one moderate quality study found no association)
Substance using peers	The hypothesis that substance using peers is a risk factor is supported by good quality evidence [A] (four studies, three good quality, one poor quality study)
Alcohol use	The hypothesis that alcohol use is a risk factor is supported by moderate quality evidence [B] (eleven studies, four good, four moderate and three poor quality, found an association and one good and one moderate quality study found no association)
Adolescent illicit drug use (other than cannabis)	The hypothesis that adolescent illicit drug use (other than cannabis) is a risk factor for future/adult use is supported by moderate quality evidence [B] (seven studies, three good, three moderate and one poor quality found an association and one moderate quality study found no association)
Cigarette smoking	The hypothesis that cigarette smoking is a risk factor is supported by moderate quality evidence. [B] (seven studies, three good and four moderate quality studies found an association and two good quality studies found no association)
Prior exposure to drugs (*single study*)	Evidence from one moderate quality study of a significant association between prior exposure to drugs (prior drug offers/experience) and drug misuse

Exposure to substance use and misuse was identified as an important factor in both reviews. The qualitative analysis found that drug use was often influenced by others; either directly initiated with others, or influenced by the actions of those in their social network. Many participants reported their first experience of illicit drug use was linked to some form of social event.

The quantitative review found good quality evidence that having substance-using peers was a risk factor. Findings from the qualitative review showed that sometimes peer influence came in the form of pressure to use illicit drugs. At other times, use was a conscious choice resulting from curiosity or perceived positive effects. Some wanted the benefits they saw a drug

providing such as increased confidence or sociability, or acquiring a specific identity.

The quantitative data did not separate misuse of illicit drugs from those available on prescription or over the counter. However, qualitative data indicated that misuse of prescription/OTC medications was influenced by interpersonal networks, including peers and family members.

Evidence on misuse of stimulants was generally from student populations some of whom identified significant social advantages that prompted their decision to take stimulants. These included increased confidence, staying awake longer, feeling energised and suppressed appetite.

When discussing the misuse of prescribed pain relief medications the responses were quite different. Respondents were concerned about the lack of therapies for managing severe pain. They complained of not being offered a non-pharmacological alternative, or having their request dismissed. Where such therapy was available, some reported being able to manage their pain without medication. This suggests that access to other therapies might help limit potential misuse.

Where participants raised concerns about the potential side effects of opioids, they reported those concerns were sometimes dismissed by health professionals who went on to offer false reassurance and/or increased dosages. Participants felt that this led to a loss of trust and subsequent disengagement. Some also reported that they were more likely to increase the dosage as a self-management strategy when physicians failed to supervise opioid treatment closely.

Several participants reported receiving repeat prescriptions of opioids with few restrictions on amount and frequency. They indicated this facilitated misuse. Some participants misusing OTC medication developed strategies to avoid being challenged on their purchases, including visiting multiple pharmacies or visiting at different times. However, challenging by pharmacists may have an impact; several participants reported that these challenges positively influenced their attempts to seek help.

Finally, the quantitative review also found that addiction to prescription medication could act as gateway to illicit drug use, as users sought illegal substances to supplement prescription medication or as the primary means for self-medication.

Protective factors

Protective factor	Evidence statement
Positive attitude to school	The hypothesis that a positive attitude to school is a protective factor for drug misuse is supported by moderate quality evidence [B] (two moderate quality studies)

Protective factor	Evidence statement
Religiosity	There is some evidence supporting the hypothesis that being religious is a protective factor, but it is not conclusive [C] (two moderate and two poor quality studies found an association and one moderate quality study found no association)
Extracurricular activity	There is some evidence supporting the hypothesis that being involved in extracurricular activities is a protective factor, but it is not conclusive [C] (one moderate and one poor quality study)

The qualitative review found little evidence overall for the reasons why people did not use illicit drugs. An *awareness of the harms* associated with drug use was given as a reason by some participants. Sometimes this awareness came from TV or reading about drugs in newspapers/magazines/books. Other factors mentioned included witnessing the negative impacts on friends or family members.

People's personal aspirations or personal responsibilities may also be protective. Some participants had aspirations for life that they did not feel were compatible with drug use. The quantitative review identified involvement in extracurricular school activities as a potential protective factor and there is moderate evidence supporting a positive attitude to school. Family honour and religious beliefs were also given as reasons for not using drugs, suggesting that where something is not socially or culturally acceptable, this may act as a protective factor. This was reflected in the quantitative review, where religiosity was identified as a potential factor.

5 Conclusions

Both reviews show that risk factors are multiple, complex and likely to interact with one another rather than operate in isolation.

The quantitative review identified several potential risk factors that prevention programmes could address. Although cohort studies alone cannot infer causation, there was consistent evidence from multiple studies for some risk factors.

- Younger age at first cannabis use, substance using peers and childhood maltreatment were potential risk factors supported by good evidence
- There was moderate quality evidence supporting prior alcohol use, adolescent illicit drug use (other than cannabis), cigarette smoking, bullying perpetration, male gender, personality traits, parental drinking, parental illicit drug use, parental mental state and parental cigarette smoking as potential risk factors
- Moderate quality evidence suggested that parental education and parental monitoring are not associated with drug misuse.

The findings of the quantitative review suggest that any interventions aimed at discouraging the initial use of illegal drugs or stopping the likelihood of misuse of prescription medications should include multiple components across all levels of the socioecological model for health.

Coping with depression or anxiety, circumstances such as bereavement or a dysfunctional childhood, or drug use being seen as "the norm" within an individual's social network were often given as reasons for initiation of illicit drug use, with some wider community and policy level factors also at play.

Lack of options for managing pain in primary care or coping with difficult circumstances (such as bereavement in the case of opioids and using stimulants to cope with academic pressures) were seen as reasons for the misuse of prescription and OTC medications. Wider institutional and policy level factors were also discussed by some participants.

To the best of our knowledge, ours is the first qualitative systematic review to synthesise evidence of risk and protective factors for the initiation of substance misuse and the first quantitative systematic review to have collated the evidence of risk and protective factors for drug misuse in the general population.

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Appendix

Summary grading scheme for risk/protective factors with multiple studies

A. The hypothesis that this is a risk (or protective) factor is supported by good quality evidence	Mostly good quality cohort and case control studies (very low risk of confounding, bias or chance), with majority demonstrating a strong and consistent statistical association between the factor and outcome of interest
B. The hypothesis that this is a risk (or protective) factor is supported by moderate quality evidence	Moderate to good quality cohort and case control studies (low risk of confounding, bias or chance) with majority demonstrating a strong and consistent statistical association between the factor and outcome of interest
C. There is some evidence supporting the hypothesis that this is risk (or protective) factor, but it is not conclusive	Moderate to poor quality case control or cohort studies (high risk of confounding bias, or chance) with the majority demonstrating of a strong and consistent statistical association between a risk (or protective) factor and the outcome of interest
D. The evidence is inconsistent and it is not possible to draw a conclusion	Good to moderate case control and cohort studies with inconsistent findings
E. The evidence is inconsistent and it is not possible to draw a conclusion but it tends towards supporting the hypothesis that this is not a risk (or protective) factor	Good to moderate case control and cohort studies with inconsistent findings, although most demonstrate no statistical association between the factor and outcome of interest
F. There is some evidence supporting the hypothesis that this is not a risk (or protective) factor, but it is not conclusive	Moderate to poor quality case control or cohort studies (high risk of confounding bias, or chance) with the majority demonstrating no statistical association between a risk (or protective) factor and the outcome of interest
G. The hypothesis that this is not a risk (or protective) factor is supported by moderate quality evidence	Moderate to good quality cohort and case control studies (low risk of confounding, bias or chance) with majority demonstrating no statistical association between the factor and outcome of interest
H. The hypothesis that this is not a risk (or protective) factor is supported by good quality evidence	Mostly good quality cohort and case control studies (very low risk of confounding, bias or chance) consistently demonstrating no statistical association between the factor and outcome of interest

Summary grading scheme for risk/protective factors with single studies

Evidence from a good quality single study of a strong association between a risk (or protective) factor and the outcome of interest	Case–control or cohort studies with a very low risk of confounding, bias or chance demonstrating a strong statistical association between a risk (or protective) factor and the outcome of interest
Evidence from a moderate quality single study of a strong association between a risk (or protective) factor and the outcome of interest	Case–control or cohort studies with a low risk of confounding, bias or chance demonstrating a strong statistical association between a risk (or protective) factor and the outcome of interest
Evidence from a poor quality single study of a strong association between the risk (or protective) factor and outcome of interest	Case–control or cohort studies with a high risk of confounding bias, or chance demonstrating a strong statistical association between a risk (or protective) factor and the outcome of interest
Evidence from a poor quality single study demonstrating no association between the risk (or protective) factor and outcome of interest	Case–control or cohort studies with a high risk of confounding bias, or chance demonstrating no statistical association between a risk (or protective) factor and the outcome of interest
Evidence from a moderate quality single study demonstrating no association between a risk (or protective) factor and the outcome of interest	Case–control or cohort studies with a low risk of confounding, bias or chance demonstrating no statistical association between a risk (or protective) factor and the outcome of interest
Evidence from a good quality single study of no association between a risk (or protective) factor and the outcome of interest	Case–control or cohort studies with a very low risk of confounding, bias or chance demonstrating no statistical association between a risk (or protective) factor and the outcome of interest

Source: Developed using NICE guideline development methods handbook and modified GRADE criteria developed for NICE Clinical Guideline Addendum 37.1 July 2014.