

THE HIDDEN DANGER: UNINTENDED OVERDOSE WITH PRESCRIPTION MEDICATION DUE TO NON-MEDICAL USE

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Abstract: The non-medical use of pharmaceuticals, which is defined as the intentional intake of medication that is not medically necessary, has become recognised as a public health problem. Many women engaged in non-medical prescription use suffer concurrent mental health problems, often associated with the current and/or past exposure to violence in the home. In these cases, complex clinical presentations are to be entangled, with reports that the substances are used as a coping mechanism, particularly, when sexual violence is part of the victimisation history. This article provides insight into the complex interplay between victimisation experiences, mental health problems and substance use as well as the increased recognition of the danger of accidental overdoses. It demonstrates the importance of flexible multidisciplinary support from specialist services for clients who present with multiple comorbidities and vulnerabilities. As such, the article advocates for multidisciplinary management, which allows assisting women with complex presentations utilising collaborative care provided by an interdisciplinary team.

Keywords: Addiction, mental health, overdose, prescription drug use, women.

Introduction

Opioid analgesics, when taken as prescribed, assist pain management of countless sufferers in a safe way. This is the reason why certain medications require prescriptions by medical professionals who oversee the management of health conditions with pharmaceutical intervention. Prescription drugs are regulated by legislation because they can cause harm to the user if taken differently than prescribed by a medical practitioner (Bell & Salmon, 2009). If prescription medications are used for non-medical purposes, numerous health risks may occur (Centers for Disease Control and Prevention, 2011).

The use of pharmaceuticals for non-medical purposes (prescription and over-the-counter available substances), defined as the intentional intake of medication that is not medically necessary (Guggisberg, 2010) has recently been recognised as a public health problem (National Institute on Drug Abuse, 2011). The danger of any psychoactive substance is that even a ‘one off’ dose may result in respiratory complications and even death (National Institute on Drug Abuse, 2011). Recently, the Centers for Disease Control and Prevention (2011) referred to an ‘epidemic of unintended prescription drug overdoses’.

Non-medical use of pharmaceuticals

There is a problem that needs to be recognised to reduce the prevalence of fatal overdoses with prescription medication. In the United States, ‘one hundred people die from drug overdoses every day’, the Centers for Disease Control and Prevention (2011) reported. Over 36,000 people died from drug overdoses in 2008, mostly caused by prescription medication, which is a three-fold increase since 1990.

There are different classes of prescription drugs that are used non-medically, such as strong painkillers (opioid-analgesics), benzodiazepines (minor-tranquillisers), and amphetamine-type stimulant medications (Australian Institute of Health and Welfare, 2011). Opioid analgesics are pain relievers that include real or synthetic ingredients of the opium poppy plant (e.g., Fentanyl, Oxycodone). Benzodiazepines are central nervous system depressants.

Opioid analgesics

Opioids reduce pain signals to the brain and inhibit painful stimuli with the effect of inhibited or reduced experiences of pain. Medications prescribed have distinct pain relieving properties such as Morphine or Oxycodone, as these drugs attach to opioid receptors in the brain and block the pain stimulus.

Minor Tranquillisers

Central nervous system depressants slow the brain activity and produce a calming effect. Benzodiazepines are commonly prescribed for anxiety-related symptoms and/or sleep disorders such as Xanax and or Diazepam. Usually, they are prescribed for short-term management of symptoms to avoid development of tolerance and dependence on the substances.

Amphetamine-type Medications

Central nervous system stimulants increase a person's heart rate, blood pressure and respiration. As a consequence, cognitive enhancement is experienced with increased attention, alertness and energy. Medication such as Ritalin is prescribed for a condition called Attention Deficit Hyperactivity Disorder, which has been proven to be beneficial.

Trends in non-medical prescription drug use

The proportions of non-medical pharmaceuticals use with the exception of alcohol, tobacco and cannabis, are higher than any other substance (Australian Institute on Health and Welfare, 2011; National Institute on Drug Abuse, 2011). In Australia, the prevalence of non-medical use of pharmaceuticals has been estimated over 4% (see Table 1).

Research indicates that painkillers/analgesics are used most often non-medically, followed by tranquillisers/sleeping pills (Australian Institute of Health and Welfare, 2011; Centers of Disease Control and Prevention, 2011). While the potential for non-medical use of central nervous system stimulants, prescribed to treat depression, attention-deficit-hyperactivity disorder and narcolepsy, has been noted, these pharmaceuticals are least likely to be used non-medically (National Institute on Drug Abuse, 2011).

According to the results of the 2010 National Drug Strategy Household Survey Report (Australian Institute of Health and Welfare, 2011), around 10% of the Australian population used prescription medication for non-medical purposes in their lifetime. The highest prevalence was found to be among individuals aged between 20 and 39 years. People were most likely to use prescription medications belonging to the category of painkillers/analgesics, with a higher rate for females when compared to males (31% vs. 24%). More than 1/3 of females reported using these medications non-medically daily or weekly. Again, a gender disparity was observed with 1/4 of males using pharmaceuticals for non-medical purposes reporting daily or weekly intake.

Table 1: Australian drug use trends 1995 – 2010 (past-year prevalence in %)

SUBSTANCE	1995	2010
ALCOHOL	78.3	80.5
AMPHETAMINES/METHAMPHETAMINES	2.1	2.1
CANNABIS	13.1	10.3
COCAINE	1.0	2.1
ECSTASY	0.9	3.0
HALLUCINOGENS	1.9	1.4
HEROIN	0.4	0.2
PHARMACEUTICALS	4.1	4.2
TOBACCO	27.2	18.1

Source: AIHW, 2011

A similar pattern was reported in the United States where women were identified as a particular vulnerable group according to the latest data from the 2010 National Survey on Drug Use and Health (National Institute on Drug Abuse, 2011). Apart from age, research has found other demographic factors that were associated with the use of female pharmaceuticals. Some consistent findings were reported with regard to minority status, suggesting that Caucasian women were more likely than minority women to use prescription drugs non-medically (Arkes & Iguchi, 2008). Furthermore, a negative correlation with income was reported, as well as education level, which seems to be a protective factor. In addition, women not participating in the labour force were found to have a higher prevalence of non-medical prescription drug use when compared to those working for payment (Arkes & Iguchi). Finally, mixed results were found with regard to status of relationship. Arkes and Iguchi (2008) found no association with relationship status, which was not what they expected. In their study, examining painkiller use, married women aged 18-25 had a lower prevalence than married women aged 26-34 years. These findings indicated a need for further research.

Caucasian women, with lower education, not participating in the workforce and not married have been found to be associates for non-medical use of prescription medication (Arkes & Iguchi, 2008). Income was also negatively correlated with the use of these substances.

However, McCauley and colleagues (2009) reported no statistically significant difference between Caucasian women' and minority women's use. Furthermore, the researchers reported no significant contribution of education and income. Only relationship status yielded a marginally significant difference; however, reasons for this are not well understood (Arkes & Iguchi, 2008). Some researchers suggested that non-medical prescription drug use was used to self-medicate symptoms of anxiety (Woicik, Stewart, Pihl & Conrod, 2009). Furthermore, particular concern of non-medical use for pharmaceuticals has been expressed, as women may use over-the-counter available and prescription medicines concurrently, while often diagnosed with comorbid mental health problems (National Institute on Drug Abuse, 2011). To date, the issue of pharmaceuticals use for non-medical purposes with regard to mental health and other substance use problems has not received much attention in the literature.

Women's non-medical use of pharmaceuticals

Women have been recognised as a particularly vulnerable population group with regard to substance use (Centers for Disease Control, 2011; National Institute on Drug Abuse, 2011). They often face specific difficulties such as victimisation by an intimate partner, and concerns that the involvement of child protection services will result in loss of children (Guggisberg, 2010). Many women engaging in non-medical use of prescription drugs experience violence or abuse by a current or former intimate partner. While the reasons for the non-medical use of pharmaceuticals is not well understood, it has been recognised that this 'new group' of drug users has particularly complex needs.

For example, non-medical use of pharmaceuticals often occurs in the context of mental health problems suggesting an attempt to self-medicate psychiatric symptoms (Sturza & Campbell, 2005) and trauma-related effects (Williamson, 2010). In the following, reasons for women's non-medical prescription medication use are explored.

Calculated coping

It has been hypothesised that one possible reason for women to engage in non-medical use of prescription medication is a way of alleviating painful thoughts and feelings about difficulties in their lives, as a form of avoidance. Here the role of prescription medication use is reflected in its coping component.

The addiction literature suggests that women with co-occurring mental health problems use prescription drugs as self-medication measures to achieve reduction of negative emotions and distress (Guggisberg, 2012). The coping strategy of using prescription medication non-medically may be deemed 'maladaptive' or 'inappropriate'. However, the seriousness of distress experienced that resulted in such behaviour must not be trivialised. Women's personal resources (or lack thereof) to cope with life stresses need to be recognised and acknowledged along with the fact that their perceived control over the distressing situation may be an important maintaining factor. Currently, little is known about individuals' circumstances and motivations to engage in non-medical use of prescription medications.

Ryder and colleagues (2006) argued that psychoactive substances are frequently consumed in order to increase a person's ability to cope with certain situations. They stated that 'some drug users say that they have to use their drug of choice simply to feel normal' (p. 12). Therefore, it can be argued that women using prescription medications for non-medical purposes may engage in 'calculated coping'. However, given the danger of such behaviours as well as associated health risks, it is argued that further research should examine women's expectancies from the use of various prescription medications to explore reinforcement motivations and assist in therapy.

Positive expectancies may influence cognitive decision making rationalisations of women using prescription medications for non-medical purposes. Previous studies found much evidence in support of self-medicating behaviour, namely positive and negative reinforcement motives for psychoactive substances including non-medical pharmaceuticals use (Bell & Salmone, 2009; Guggisberg, 2010).

Concern for children

Society places specific focus of attention on mothering regardless whether or not a woman experiences abuse and/or violence by a current or former intimate partner (Peled & Gil, 2011). Feminist scholars continue to criticise the prevalent culture of gender inequality and its structural processes (Guggisberg, 2010). The social construction of the 'ideal mother' is still deeply embedded in contemporary society despite political activism in recent decades (Douglas & Michaels, 2004; O'Reilly, 2010). O'Reilly (2010) asserted that women who are mothers are disproportionately victimized by intimate partner violence.

Women in violent relationships who are mothers are facing unique challenges in their concern for the wellbeing of their children and the desire to protect them (Peled & Gil, 2011). In order to do so, women may choose to stay in an abusive and/or violent relationship (Radford & Hester, 2006; Solveig, Vatnar, & Bjorkly, 2010; Williamson, 2010).

Motherhood is an additional risk factor of negative health outcomes of abused women (Solveigh et al., 2010; O'Reilly, 2010). The increased distress of comforting children exposed to violence and ensuring their needs are met may pose an additional challenge to abused women, who may be affected by mental and physical health impacts as a result of exposure to abuse or violence (Peled & Gil, 2011).

While research into the effects of mothering capability of victimised women is scarce, evidence suggests that the majority of abused mothers is able to parent successfully even against the background of continuous victimisation (Radford & Hester, 2006). For example, Peled and Gil's (2010) reported that victimised women were most concerned about the wellbeing of their children and reported that "the children are above all else and that they must do everything for the sake of the children" (Peled & Gil, 2011, p. 464). The study also found that the mothers attempted to maintain control by preserving a view of themselves as "good, functioning mothers" (p. 466).

Maintaining control

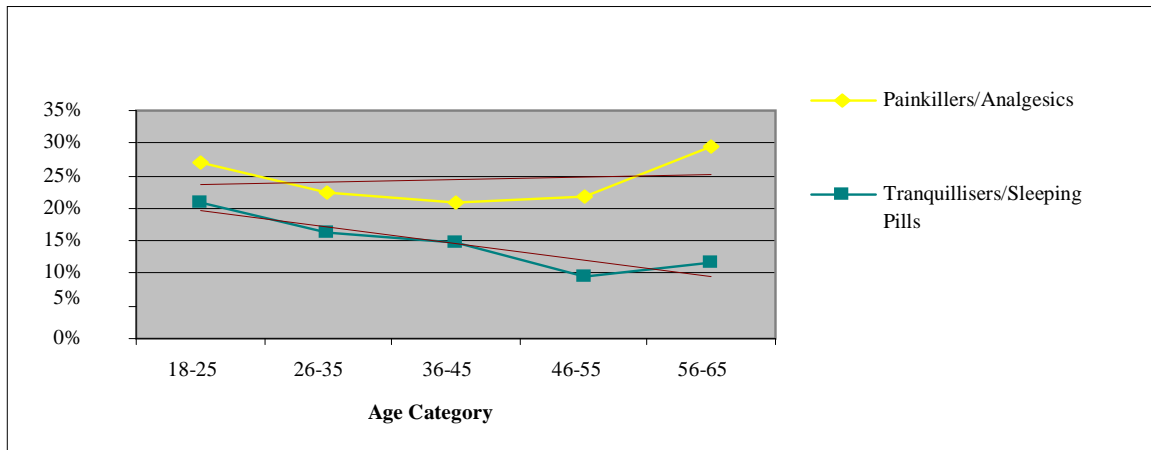
Some women, it has been reported, accept their victimisation as normal and give resistance up over time (Williamson, 2010). They learn to survive while living in the situation that is experienced as 'enforced dependency' (Herman, 1992, p. 83) in which the women become compliant and submissive (Williamson, 2010). They often internalise blame placed upon them by the abuser and/or the environment (Herman, 1992), a strategy they find useful as they accept responsibility for their victimisation and experience a sense of control (Williamson, 2010). However, the distress and continuous danger of 'walking on egg shells' may result in self-medicating behaviour with psychoactive substances (Guggisberg, 2012).

An Australian Study

In Australia, little research has investigated the use of non-medical prescription drug use (Nicolas, Lee, & Roche, 2011). As part of a larger study, 227 women's use of psychoactive substances including non-medical use of pharmaceuticals was examined (for information on methodology and data analysis see Guggisberg, 2010). Adult female respondents provided anonymous information on their licit and illicit drug use behaviours. Findings are reported here on respondents' use of painkillers/analgesics and/or tranquillisers/sleeping pills with regard to demographic characteristics and co-occurring mental health problems.

Overall, there was some difference between the age groups, and despite statistical comparison yielded non-significant results, $\chi^2 (4, N = 227) = 1.022, p = .907$, interesting patterns were observed. These are discussed in the following.

Figure 1: Non-medical use of pharmaceuticals by Age Category



Age

Of the 227 respondents, 64 (28.2%) reported to have used pharmaceuticals, either painkillers/analgesics (P/A) or tranquillisers/sleeping pills (T/S), for non-medical purposes in the 12 months prior to completing the questionnaire. Approximately one in three of these women reported to have used both, P/A and T/S.

Generally, a slight increase of painkillers/analgesics use with increasing age was observed. Young women aged 18 - 25 years used painkillers/analgesics at a higher rate (27%) than those in the age group 35 - 46 years (21%), from which an increase could be observed until over 29% among women aged between 56 - 65 years. Overall, results suggested little fluctuation among the age categories with regard to painkillers/analgesics.

By comparison, the trend for the use of tranquillisers/sleeping pills suggested a steady decrease with age until 55 years. As with painkillers/analgesics, the prevalence was highest among 18 - 25 year olds and lowest for over 45 year olds with about 9%, and a minimal increase to less than 12% at age 56-65 years.

These results suggest that the non-medical use of painkillers/analgesics appeared to be relatively stable with little fluctuation regardless of age, whereas with increasing age, women in this study tended to engage less in non-medical use of tranquillisers/sleeping pills.

Other demographic characteristics

An examination of **relationship status** suggested that women using pharmaceuticals for non-medical purposes were most likely to be married/cohabiting (65%) and least likely to be in a dating relationship (18%). Married women were slightly more likely to use painkillers/analgesics than cohabiting women, while cohabiting women were more likely to use tranquillisers/sleeping pills. One in four women currently separated, used pharmaceuticals for non-medical purposes. Women in this category were more likely to use P/A than T/S for non-medical purposes. The lowest prevalence was found among women in dating relationships. Women in this category were more likely to use P/A.

With regard to **Indigenous status**, the study found that the rate of pharmaceuticals use for non-medical purposes was approximately 2:1 with Aboriginal women nearly twice as likely to report past-year use when compared to non-Aboriginal women. However, regardless of this characteristic, women in both categories were more likely to use P/A than T/S.

Education level did not appear to influence use of pharmaceuticals for non-medical purposes much. Women with less than year 10 completed, were slightly less likely to engage in non-medical use pharmaceuticals when compared to those with at least 10 years of completed formal education.

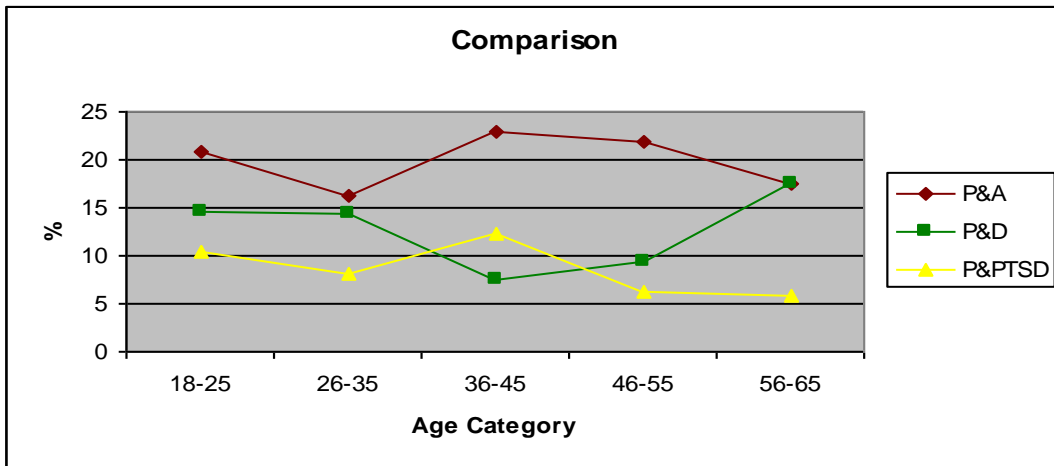
Similarly, **gross weekly income** did not reveal different use patterns. Respondents reporting income between \$600 and \$999 were slightly more likely (30%) than those earning less than \$600 (27%) or over \$1000 per week (25%) to use P/A and/or T/S. The use of P/A was higher than the use of T/S in all categories. Participation in the workforce did not reveal differences in the use of pharmaceuticals for non-medical purposes.

Co-occurring mental health problems

Women using pharmaceuticals for non-medical purposes were identified with mental health problems. Nearly 21% of participants aged 18 – 25 years reported co-occurring anxiety with the use of non-medical pharmaceuticals use. The highest prevalence of 22.2% was found among women aged 36 – 45 years, while the lowest prevalence of 16.3% was found among women aged between 26 and 35 years. Women aged between 36 – 45 years also had the highest prevalence of PTSD co-occurring with pharmaceuticals use for non-medical purposes.

Furthermore, co-occurring mental health problems were reported by 23.5% of women who experienced violence by a current or previous male intimate partner, which was significantly lower for those with no exposure to violence (7.5%). Additionally, anxiety-related use of pharmaceuticals for non-medical purposes was found to be significantly higher among Aboriginal women when compared to non-Aboriginal participants.

Figure 2: Co-occurring Mental Health Problems by Age Category



P&A = Pharmaceuticals use for non-medical purposes *co-occurring with anxiety*; P&D = Pharmaceuticals use for non-medical purposes *co-occurring with depression*; P&PTSD = Pharmaceuticals use for non-medical purposes *co-occurring with PTSD*.

Figure 2 shows that overall, the co-occurrence of pharmaceuticals use for non-medical purposes with PTSD tended to decrease with increasing age with the exception of the age category 36 – 45 years. Middle aged women appeared to be most likely to suffer anxiety as well as PTSD in combination with pharmaceuticals use for non-medical purposes, while also being least likely to suffer depression in combination with pharmaceuticals use for non-medical purposes. Women aged between 56 years and 65 years were most likely to use pharmaceuticals for non-medical purposes if they experienced anxiety or depression, but least likely to use pharmaceuticals for non-medical purposes if they experienced PTSD. These results suggest that respondents were most likely to engage in the use of pharmaceuticals for non-medical purposes when anxiety and/or depression were experienced.

Other demographic characteristics

With regard to **status of relationship**, it was observed that separated, married and cohabiting women were most likely affected by anxiety and use of pharmaceuticals for non-medical purposes. Female respondents were less likely to utilise pharmaceuticals for non-medical purposes when experiencing depression or PTSD in comparison with anxiety. Overall, separated women had the highest prevalence of pharmaceuticals use co-occurring with mental health problems, while women in dating relationships had the lowest prevalence. Contrary to other types of psychoactive substances (Guggisberg, 2010), marriage did not appear to be a protective factor with the use of pharmaceuticals for non-medical purposes comorbid with mental health issues.

An examination of **Indigenous status** revealed that prevalence anxiety-related use of pharmaceuticals for non-medical purposes was substantially higher among Aboriginal women when compared to non-Aboriginal women (30.0% vs. 19.8%). With regard to PTSD, Aboriginal women were statistically significantly more likely to use pharmaceuticals for non-medical purposes when compared to non-Aboriginal respondents. No differences were observed with regard to depression (10.0% vs. 11.5%).

A higher **level of education** did not appear to influence the occurrence of pharmaceuticals use for non-medical purpose in this sample. While women with at least year 10 completed experienced slightly higher prevalence of co-occurring anxiety and non-medical use of pharmaceuticals when compared to women with less than 10 years of formal education, Chi-square analyses suggested non-significant results.

Women with a **completed qualification** were less likely to report use of pharmaceuticals for non-medical purposes for all three types of mental health problems when compared with women not holding a completed qualification. Not surprisingly then, respondents with a **gross weekly income** level of at least \$1000 were least likely to report using of pharmaceuticals for non-medical purposes for all types of mental health problem. However, statistical analysis yielded a non-significant influence of gross weekly income.

Summary of findings

In summary, this study found interesting patterns with regard to socio-demographic characteristics involving mental health problems co-occurring with the use of pharmaceuticals for non-medical purposes. Women with anxiety used pharmaceuticals at a rate of around 20% in all age groups. With regard to depression it was found that women in the age category 56 – 65 years had the highest prevalence. Aboriginal women were more likely to use pharmaceuticals for non-medical purposes when experiencing anxiety, while the difference in

Indigenous status was minimal with depression. Education level and qualification did also not appear to demonstrate a clear pattern. Co-occurring mental health problems were found to be higher in women with no completed qualification, particularly in relation to anxiety. As with other forms of psychoactive substances, women with a weekly gross income level of at least \$1000 were least likely to be affected. Workforce participation did not seem to make a difference with regard to mental health problems and use of pharmaceuticals for non-medical purposes.

These findings suggest that women with certain backgrounds are at a higher risk of engaging in non-medical use of pharmaceuticals. To reduce harm and prevent adverse outcomes, it is essential to have knowledge and understanding of contributing factors as well as ways in which pharmaceuticals can be 'abused'.

Reducing harm and preventing adverse outcomes

Assisting individuals who present with non-medical use of pharmaceuticals is usually challenging (Gonzales, Brecht, Mooney, & Rawson, 2011). Often, underreporting is a problem due to embarrassment and fear. However, discussion is required to ensure safety.

For clinicians, it is important to recognise non-medical use of prescription medication. There are numerous ways by which prescription medications are 'abused'. These include the following:

- Using prescribed medication at a *higher dose* than prescribed
- Using *somebody else's* prescribed medications
- Using prescription medications in *combination with other substances* (without the knowledge of the medical practitioner)
- Using medication by a *different route of administration* than prescribed

Medical practitioners, counsellors and other health professionals may identify non-medical use of medication and prevent escalation by asking specific questions about a patient's use of the prescribed drugs (Lessenger & Feinberg, 2008). For example, it may be enquired whether she/he complies with prescribed doses and/or if other, over-the-counter available medications are taken to 'top up' the prescriptions. Furthermore, it should be noted that often, individuals with prescription drug use problems engage in 'doctor shopping' behaviours, which is, obtaining multiple prescriptions at the same time from different doctors. Consequently, asking whether prescription medications are taken as directed and being aware of the possibility of 'topping up' and 'doctor shopping' may be effective avenues to engage in the discussion of the hidden danger of non-medical use of prescription drugs in general, and with female patients who present with complex problems in particular.

As mentioned above, understanding should be demonstrated for maladaptive coping and sensitive enquiries made as to the reasons for utilising prescription medications as a strategy to regulate emotional distress. Being able to recognise addiction is not easy.

However, indications involve explanations such as losing a prescriptions or medications, report theft, exaggerating pain symptoms and request particular medications for the management of their symptoms.

Conclusion

In conclusion, concern about the non-medical use of pharmaceuticals has increased in recent years. Individuals caught up in such drug using behaviour may have particularly complex needs. It appears imperative to not only raise awareness among practitioners, the public, and policy makers of this emerging problem, but also to ensure that treatment options are appropriate. This requires increased readiness to engage in multidisciplinary collaborative care. There appears to be a necessity to extend concern about psychoactive substances to pharmaceuticals that can be used not only legitimately but for non-medical purposes. Marked similarities have been noted to those substances already 'on the radar' such as alcohol, tobacco, and illicit drugs. The continuous availability of pharmaceuticals over the counter may exacerbate the problem of non-medical use of pharmaceuticals. It appears imperative raising awareness among practitioners, the public and policy makers to ensure treatment options are appropriate and evidence-based.

Physicians, their patients, and pharmacists can all play a role in identifying and preventing non-medical use of prescription drugs, placing them in a unique position, not only to prescribe medications, but also to identify abuse (or nonmedical use) of prescription drugs and prevent the escalation to addiction. By asking about *all* drugs, physicians can help their patients recognize that a problem exists, set recovery goals, and seek appropriate treatment make appropriate referrals to an alcohol and other drug treatment agency.

While treating prescription drug addiction is difficult, the first step is recognising the problem and addressing it with the patient and making a referral to an alcohol and/or other drugs counsellor pharmacotherapy options such as the use of buprenorphine and/or naltrexone. This may be the first step in preventing unintended drug overdoses.

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