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PERSONAL DETERMINANTS OF YOUNG ADULTS' WILLINGNESS TO USE OTC PAINKILLERS*

Introduction: OTC painkillers are among the most commonly used pharmaceuticals. The widespread availability of painkillers is not the only predictor of willingness to use them, although it may encourage underestimation of side effects, unwarranted use and overdose.
Research Aim: The aim of the study was to determine the relationship between personal resources (self-efficacy, positive future orientation and locus of pain control), and willingness to use OTC painkillers.
Method: A survey was conducted among 252 young adults aged 17–26 years, including 183 (72.6%) women and 69 (27.4%) men. A tool was constructed to study the willingness to use pain medication by referring to Ajzen's Theory of Planned Behaviour. The scale has satisfactory psychometric properties.
Results: Internal pain control, self-efficacy and positive future orientation promote caution in the use of OTC painkillers. People with high levels of self-efficacy and those with higher levels of positive future orientation show greater awareness of the health risks of OTC painkillers. A factor that increases willingness to take OTC painkillers is attributing the importance of random events for pain control. Respondents with a low level of internal pain control are statistically more likely, than those with a high level, to be in favour of eliminating suffering with painkillers, are more likely to use medication habitually.
Conclusions: Personal resources such as locus of pain control, self-efficacy, and positive future orientation significantly modify willingness to use painkillers.

Keywords: OTC painkillers, personal resources, young adults, pain management.

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INTRODUCTION

Over-the-counter (OTC) painkillers are low-dose therapeutic preparations available without a prescription. Based on the active substance, this group includes 1) non-steroidal anti-inflammatory drugs containing ibuprofenum, acidum acetylsalicylicum, diclofenac, metamizolum or naproxenum, and 2) non-opioid analgesics based on paracetamol (Weiner et al., 2019).

In the search for an answer to the question why people use OTC painkillers despite being aware of the health risks of excessive, unjustified use of such drugs, Isaac Ajzen's Theory of Planned Behaviour was referred to (1991). Fishbein and Ajzen found that planned and deliberate human behaviour is easier to predict if one takes into account 1) individual attitudes towards specific behaviours, 2) subjective norms and 3) control over behaviour (Myers, 2004). These three groups of factors are involved in the formation of intention, understood as "a behavioural disposition with high predictive power" (Schwarzer, 1997). Intention precedes behaviour and is the primary predictor of initiating behavioural activity. The notion of intention understood in this way is close to the notion of readiness (Sobol, 2000), which means a determination to do something, a willingness, an inclination, an intention. The Theory of Planned Behaviour is used in health psychology and health education to explain the mechanisms of health-related behaviour (Zawadzka, 2006; Kowalski and Gaweł, 2006; Heszen and Sęk, 2007).

Individual attitude refers to the positive or negative valuation of a given behaviour, which is a consequence of personal beliefs about its consequences and an evaluation of the outcome of the behaviour. The intention to take OTC painkillers may be influenced by the belief that suffering caused by pain should be eliminated with the available pharmaceuticals. The process of shaping attitudes involves both personal conditions (including innate dispositions, self-perception) and external influences (learning through observation and imitation of significant people, especially close family members) (Crisp and Turner, 2009). One of the attitude acquisition mechanisms used in advertising for OTC medications is the "mere exposure effect". Mere contact with a stimulus (e.g. attention-grabbing drug packaging) can increase its attractiveness, but overexposure (e.g. intensive advertising of painkillers in the media) can cause negative attitudes towards its object (Böhner and Wänke, 2004; Buczak et al., 2010).

Subjectively perceived norms are in other words beliefs about how other people judge a certain behaviour. The willingness to take painkillers is supported by the fact that the use of such medications is considered common, effective and accepted in the community. Subjective norms related to the use of OTC painkillers may to a large extent be shaped by socio-cultural factors, e.g. age, gender, education, occupation, religion, material conditions, access to a doctor, legal regulations regarding marketing authorisation, place of sale and possibilities to advertise medicines (cf. e.g. Tesfamariam et al., 2019; Calamusa et al., 2012).

Perceived behavioural control refers to the belief that one has the resources to achieve a goal, to overcome possible obstacles. The basis for this belief may be previous experience. The importance of previous experience as a factor in the use of painkillers has been pointed out, among others, by Babakor and Al Ghamdi (2018).

Willingness to take OTC painkillers may be conditioned by, e.g. resources such as self-efficacy, positive orientation, beliefs about pain control. Previous research on the use of OTC painkillers focused primarily on providing statistical data on their prevalence and indicated the impact of advertising. The literature on the subject lacks reports on personal determinants of readiness to use them (Lessenger and Feinberg, 2008; Zarzeczna-Baran et al., 2013; Szalonka, 2015; Hagen and Georgescu, 2020; Karaszkiewicz and Waniowski, 2020).

RESEARCH AIM AND QUESTION

The aim of the study was to determine the relationship between personal resources and willingness to use OTC painkillers. Self-efficacy, positive future orientation and locus of pain control – which may be specific determinants of willingness to take OTC painkillers – were indicated. An attempt was also made to test the psychometric properties of a proprietary tool diagnosing attitudes towards commonly available painkillers. The following research question was formulated: Are there relationships between personal resources (self-efficacy, positive future orientation, locus of pain control) and readiness to take OTC painkillers, and if so, what are those relationships?

RESEARCH METHOD AND SAMPLE CHARACTERISTICS

A diagnostic survey was used. The study group consists of 252 young adults aged 17–26 years, including 183 (72.6%) women and 69 (27.4%) men. The group of respondents consisted of students of humanities, social sciences and technology. Only 5.6% (14 people) never use painkillers, 22.2% use them frequently, and 72.2% – rarely. The following research tools were used to explore personal resources: Generalised Self-Efficacy Scale (GSES) by Schwarzer, Jerusalem, Juczyński, Positive Orientation Scale adapted by Łaguna, Oleś and Filipiuk, Beliefs about Pain Control Questionnaire (BPCQ) by Skevington adapted by Juczyński.

In order to diagnose the willingness to use OTC painkillers, a self-administered questionnaire was prepared, in which the respondents responded on a Likert scale to statements related to the assessment of the use of OTC painkillers. Questionnaire items addressed cognitive, emotional and behavioural aspects of stated attitudes towards the use of OTC painkillers.

STATISTICAL DATA ANALYSIS PROCEDURE

Statistical analyzes were performed using SPSS for Windows, version 20.0 and IBM SPSS AMOS. The following statistical procedures were used: confirmatory factor analysis (CFA), exploratory factor analysis (EFA), reliability analysis, correlation analysis, regression analysis, difference analysis.

RESULTS

Willingness to use OTC painkillers – the process of constructing the original research tool (results of factor analysis and reliability analysis)

As a result of factor analysis, 3 subscales emerged from the original version of the questionnaire containing 18 items: I: freeing oneself from suffering by taking medication; II: awareness of the harm caused by medications; III: habitual use of medications. After removing items that correlate poorly with the scale, the Cronbach's alpha reliability coefficient for the whole scale reached 0.684 (with 8 items). For subscale I: $\alpha = 0.700$ (2 items), for subscale II: $\alpha = 0.534$ (3 items), for subscale III: $\alpha = 0.593$ (3 items).

Personal resources as determinants of willingness to use painkillers – own research results

Self-efficacy is considered a personality trait. The expectation of efficacy is related to self-control, which is considered as a determinant of intentions and actions in different areas of health behaviour. It helps predict health-related intentions and actions. The Polish version of the Generalised Self-Efficacy Scale (GSES) by Schwarzer, Jerusalem, Juczyński (Juczyński, 2012) was used to examine the level of self-efficacy. Table 1 shows the distribution of self-efficacy level scores taking into account Polish norms for adults.

Table 1.
Level of self-efficacy of respondents using the GSES scale, N = 252

Level of self-efficacy	N	%
Low	54	21.4
Average	86	34.1
High	112	44.4
Overall	252	100.0
$\chi^2 = 20.095$; $df = 2$; $p < 0.001$		

Source: Authors' own study.

The analysis of the data in the table shows that there are twice as many people with high levels of self-efficacy among the respondents as there are people declaring low levels of self-efficacy. A positive future orientation is largely responsible for adaptive functioning. It is a combination of self-esteem, life satisfaction and optimism, which translates into goal achievement and quality of life. The Polish version of the new abbreviated Positive Orientation Scale adapted by Łaguna, Oleś and Filipiuk (2011) was used. The results, taking into account the norms set by the authors of the tool for determining low, average and high levels of positive orientation, are presented in Table 2.

Table 2.
Level of positive orientation of respondents with P scale, N = 252

Level of positive orientation	*N*	%
Low	85	33.7
Average	81	32.1
High	86	34.1
Overall	252	100.0
$\chi^2 = 0.167$; $df = 2$; $p > 0.05$		

Source: Authors' own study.

The analysis of the frequency distribution presented in Table 2 shows that the number of people declaring low, high, average levels of positive orientation is similar (the differences are not statistically significant). It is probably the expectation of pain and the belief that it can and will be controlled that prompts the activation of a strategy related to overcoming pain with painkillers. Skevington's Beliefs about Pain Control Questionnaire (BPCQ), adapted by Juczyński, was used to identify the locus of pain control. The questionnaire measures the strength of three factors that, according to the respondents, are involved in pain control to varying degrees: internal factors (internal pain control), the strength of others (pain control dependent on physicians) and chance events (the belief that pain can be controlled by chance events). According to the guidelines for the interpretation of the results, the division into low and high values in each subscale is determined by medians (Juczyński, 2012). The distribution of the results obtained in the analysed group of subjects is presented in Table 3.

Analysis of the prevalence of high and low levels of pain control showed that low levels were statistically more common in each of the control factors. High level of pain control most often appears in the dimension of physician-dependent control. However, from the point of view of responsibility for one's own health, it is assumed that internal control would be more beneficial.

Table 3.
Level of pain control – analysis of BPCQ subscale scores, N = 252

	Internal pain control		The power of others to influence pain control		The importance of chance events for pain control	
Level of control	*N*	%	*N*	%	*N*	%
Low	144	57.1	138	54.8	155	61.5
High	108	42.9	114	45.2	97	38.5
Overall	252	100.0	252	100.0	252	100.0
	$\chi^2 = 5.143$; $df = 1$; $p < 0.05$		$\chi^2 = 2.286$; $df = 1$; $p > 0.05$		$\chi^2 = 13.349$; $df = 1$; $p < 0.001$	

Source: Authors' own study.

The distributions of scores for each of the three subscales of the OTC Painkiller Acceptance Questionnaire did not meet normality criteria (only for the total score was a normal distribution observed). Therefore, the median was defined as a measure of central tendency, which made it possible to divide the results obtained into high and low (cf. Table 4).

Table 4.
Willingness to use OTC painkillers, N = 252

	Overall score Readiness to use		Factor I Freeing oneself from suffering		Factor II Awareness of the harm caused by medications		Factor III Habitual use	
Level	*N*	%	*N*	%	*N*	%	*N*	%
Low	129	51.2	135	53.6	151	59.9	138	54.8
High	123	48.8	117	46.4	101	40.1	114	45.2
Overall	252	100.0	252	100.0	252	100.0	252	100.0
	$\chi^2 = 0.143$; $df = 1$; $p > 0.05$		$\chi^2 = 1.286$; $df = 1$; $p > 0.05$		$\chi^2 = 9.921$; $df = 1$; $p < 0.01$		$\chi^2 = 2.286$; $df = 1$; $p > 0.05$	

Source: Authors' own study.

Table 4 shows the distribution of scores on the subscales of the questionnaire for testing willingness to use OTC painkillers. An overall score (willingness to use OTC painkillers) was also considered, taking into account the three factors identified. At the same time, in the overall scale of willingness to take medication, the scores obtained in factor II were recorded to indicate a positive attitude towards the use of OTC painkillers. Analysis of the data in Table 4 showed a statistically significant variation in high and low scores within factor II related to respondents'

perceived awareness of the harmfulness of OTC painkillers. The assignment of more scores to the low group is due to the median value being reached by a larger group of respondents.

Personal resources and willingness to use painkillers from OTC group – results of correlational analysis

A correlational analysis using the tau-*b*-Kendall coefficient was conducted to examine the relationship between personal resources and willingness to take OTC painkillers. Table 5 shows statistically significant relationships. Readiness to use analgesics is represented by the declared need to free oneself from suffering and the habitual use of drugs. In addition, the factor that reduces the willingness to use OTC painkillers is the awareness of their harmful effects.

Table 5.
Relationship between willingness to take OTC painkillers and personal resources, N = 252

Readiness to use medications	Internal pain control	The power of others to influence pain control	The importance of chance events for pain control	Sense of self-efficacy	Positive orientation
Overall scale score	tau = –0.179; $p < 0.001$		tau = 0.092; $p < 0.05$		
Factor I: Freeing oneself from suffering	tau = –0.134; $p < 0.01$		tau = 0.106; $p < 0.05$		
Factor II: Awareness of the harm caused by medications	tau = 0.142; $p < 0.01$			tau = 0.112; $p < 0.05$	tau = 0.127; $p < 0.01$
Factor III: Habitual use	tau = –0.137; $p < 0.01$		tau = 0.120; $p < 0.01$		

Source: Authors' own study.

Based on the analysis of the data in Table 5, there is a statistically significant negative relationship between internal pain control and willingness to use OTC painkillers (tau = -0.179; $p < 0.001$), belief in the need to take medication to relieve suffering (tau = –0.134; $p < 0.001$) and habitual use of OTC painkillers. At the same time, statistically significant positive correlations should be noted between attributing the importance of random events for pain control to the willingness to use OTC painkillers (tau = 0.092; $p < 0.05$). The belief in the effect of chance events on pain management correlates positively with habitual use of medication (tau = 0.120; $p < 0.01$) and acceptance of taking it to relieve suffering (tau = 0.106; $p < 0.05$). Significant correlates for awareness of the harmfulness of painkillers are

internal pain control (tau = 0.142; $p < 0.01$), self-efficacy (tau = 0.112; $p < 0.05$) and positive orientation (tau = 0.127; $p < 0.01$).

It may be assumed that people convinced of the importance of chance events for the possibility of pain control may reach for accidental OTC painkillers, following not the indications of a doctor or the leaflet on the package, but, e.g. an impulse caused by the influence of advertising. Greater caution in the use of OTC painkillers will be exercised by those with greater internal control of pain, higher levels of self-efficacy and a positive future orientation.

A hierarchical regression analysis was performed to clarify the relationship between the willingness to use OTC analgesics and its predictors. Self-efficacy, positive future orientation, and location of pain control were introduced as independent variables. A fitted model was obtained $F(5.246) = 6.541$; $p < 0.001$. The level of the dependent variable can be significantly predicted based on the predictor of internal pain control (beta = –0.314; $p < 0.001$). It can be concluded that the lower the internal pain control, the higher the level of willingness to take painkillers.

Determinants of willingness to use OTC painkillers – results of a difference analysis

In order to diagnose the determinants of use of OTC painkillers, tests of significance of differences were applied for the summed scale of willingness to use painkillers (total score of the questionnaire) and three identified factors. The Mann–Whitney and Kruskal–Wallis tests of significance of differences were applied comparing the results obtained according to gender and personal resources.

Gender

Analysis using the Mann–Whitney test showed that gender was a variable that significantly differentiated willingness to use OTC painkillers. Women are statistically more likely than men to try to relieve their suffering by using OTC painkillers ($U = 5184.5$; $p < 0.05$), they are also more likely to habitually use recognisable medications ($U = 4274.500$; $p < 0.001$). Women also manifest a greater willingness to use painkillers, as evidenced by a statistically significant difference in the Mann–Whitney test for the overall scale score ($U = 4923.00$; $p < 0.01$).

Pain control

Using the Mann–Whitney test, statistically significant differences were found in the willingness to use painkillers according to modality and level of pain control. People with low levels of internal pain control are statistically more likely, than those with high levels, to advocate eliminating suffering with painkillers ($U = 6583.000$; $p < 0.05$), and are more likely to use medications habitually ($U = 6249.00$; $p < 0.01$). Low levels of internal pain control clearly favour willingness to use OTC painkillers ($U = 6033.00$; $p < 0.01$). The level of belief that pain can be managed un-

der the influence of doctors significantly differentiates the willingness to use OTC painkillers. A significant difference exists in the approval of the use of painkillers by people with different levels of influence of doctors on the use of medications. Those who believe that doctors have little influence on pain control are more likely to express willingness to use OTC painkillers ($U = 6676.00$; $p < 0.05$). It is likely that people who believe that pain can be managed under the influence of doctors are more likely to use prescription drugs for painful conditions. The belief in the importance of chance events for pain control statistically significantly differentiates the willingness to use OTC painkillers. A high level of belief that pain and its manageability are influenced by chance events favours willingness to use OTC painkillers ($U = 5891.50$; $p < 0.01$).

People for whom pain management depends on chance try to avoid suffering with OTC medications ($U = 5705.00$; $p < 0.001$), are more likely to habitually reach for a medication ($U = 5649.00$; $p < 0.001$). It is plausible to assume that high levels of belief in the impact of chance events on pain control would be more likely to promote unwarranted recourse to medication.

Self-efficacy

The level of self-efficacy differentiates the respondents' awareness of the harmfulness of OTC painkillers. Analysis was performed using the Kruskal–Wallis test. Individuals with high levels of self-efficacy show greater awareness of the health risks of OTC painkillers than those with low and average levels of self-efficacy ($H = 6823$; $df = 2$; $p < 0.05$).

Positive orientation

Positive orientation differentiates awareness of the harm of often unjustified use of OTC painkillers ($H = 8166$; $df = 2$; $p < 0.05$). Those with a higher level of positive future orientation have a greater awareness of the harmfulness of such measures than those with average and low levels.

DISCUSSION

The statistics on self-medication, including the use of OTC painkillers, are worrying. Analysis of HBSC survey results showed an increase in the use of painkillers by adolescents in 12 out of 20 countries (Holstein et al., 2015). For youth in adolescence, self-medication through the use of painkillers can affect up to over 70% of the population (Gualano et al., 2015). The results of own research indicate that 22.2% of respondents often use OTC painkillers, and 72.2% use them rarely. According to various studies, 50–86% of Polish students use OTC painkillers. Interestingly, medical students statistically reach for this type of pharmaceuticals more

often and read the drug leaflets less often than, for example, physical education students. Compared to middle-aged and elderly people, young people tend to use painkillers sporadically and usually take them for no more than 2–3 days (Wójtowicz-Chomicz and Borzęcki, 2011; Krajewska-Kułak et al., 2011, Borzęcki et al., 2012; Weiner et al., 2019).

Our study found statistically significant negative correlations between internal pain control and willingness to use painkillers, habitual use of painkillers and avoidance of suffering through medication. At the same time, a positive relationship was observed between the intensity of internal control of pain and the cautiousness of using OTC painkillers. The results of correlational studies were confirmed by difference analysis. The importance of supporting internal pain control in people experiencing pain is highlighted by Garg and colleagues (2016). With help come cognitive behavioural therapies, which are effective not only in increasing internal pain control but also in reducing the tendency to catastrophise, which, like low levels of internal pain control, increases the risk of overuse of painkillers. The tendency to catastrophise as a predictor of painkiller abuse is also highlighted by de Boer (2012). In addition, he also showed that women, the elderly and those with severe pain are statistically more likely to use painkillers, putting themselves at risk of addiction. The opposite of the catastrophising tendency appears to be a positive orientation (Łaguna et al., 2011), which our own research shows to be correlated with caution in the use of painkillers.

Our study also shows that not only a positive orientation but also a sense of self-efficacy promotes prudent use of OTC painkillers. Also high school adolescents with a high sense of self-efficacy who participated in the 2008 study rarely declared reaching for painkillers (Łukasik et al., 2009). In contrast, Dutch researchers have shown that consumers of medications believe in their own medication handling skills, i.e. they believe that they can use medications in a risk-aware and rational manner. At the same time, they believe that these medications should only be available in pharmacies, as they are not sure that other people around them can handle the medications properly. The authors of the study suggest that some respondents may overestimate their competence related to the safe use of painkillers, which may result in serious health consequences (Brabers et al., 2013).

It is worth emphasising that our own research concerned a group of young adults who may be differently aware of the risks of OTC painkillers than older people. Research on the subject showed that among young adults, the factor that mattered most in deciding whether to take a medication was the degree of risk of possible side effects. At the same time, older people showed greater acceptance of taking painkillers according to their preferences despite being aware of their side effects (Ligneau-Herve and Mullet, 2005).

CONCLUSIONS

The willingness to take OTC painkillers is not synonymous with the use of such drugs. Habitual use of medication is just one dimension of a self-administered questionnaire diagnosing attitudes towards the use of OTC painkillers. According to Isaac Ajzen's Theory of Planned Behaviour, readiness, understood as making a decision, is a behavioural intention that can result in the use of drugs, including excessive and unjustified use. In prevention and education activities, it is worth focusing on the determinants of readiness to use OTC painkillers, the misuse of which may cause many health problems, including addiction.

A mediator of the effect of pain intensity reducing the risk of addiction is pain acceptance. It is worth promoting preventive and therapeutic interventions based on pain acceptance in order to reduce the risk of dependence on painkillers, also from the OTC group, whose dosage is usually not consulted with a physician (Elander et al., 2014).

In the case of young people, it seems worth paying attention to promoting the practice of reading the leaflet that accompanies the medication. Increased awareness of the side effects of medications can be a deterrent to medically unjustified use of medications. In addition, pharmacists can have an important educational role by providing reliable information about medications (Perrot et al., 2019). However, in the case of countries where, as in Poland, the sale of OTC medications outside pharmacies is permitted, the importance of pharmacists, as specialists providing the most reliable information about a medication, is secondary.

STUDY LIMITATIONS

It should be noted that the research was conducted on a relatively small group of respondents. Moreover, the problem of taking OTC painkillers also applies to other groups, e.g. elderly people, teenagers, etc. It is worth extending the research to these consumers.

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OSOBISTE UWARUNKOWANIA GOTOWOŚCI MŁODYCH DOROSŁYCH DO STOSOWANIA LEKÓW PRZECIWBÓLOWYCH OTC

Wprowadzenie: Środki przeciwbólowe OTC należą do najczęściej stosowanych środków farmaceutycznych. Powszechna dostępność środków przeciwbólowych nie jest jedynym predyktorem chęci ich stosowania, chociaż może być powodem niedoceniania skutków ubocznych, nieuzasadnionego stosowania i przedawkowania.

Cel badań: Celem badania było określenie związku między zasobami osobistymi (poczuciem własnej skuteczności, pozytywną orientacją na przyszłość i umiejscowieniem kontroli bólu) a chęcią stosowania leków przeciwbólowych OTC.

Metoda badań: Ankietę przeprowadzono wśród 252 młodych dorosłych w wieku 17–26 lat, w tym 183 (72,6%) kobiet i 69 (27,4%) mężczyzn. Skonstruowano narzędzie do badania gotowości stosowania leków przeciwbólowych, odwołując się do Teorii Planowanego Zachowania Ajzena. Skala ma zadowalające właściwości psychometryczne.

Wyniki: Wewnętrzna kontrola bólu, poczucie własnej skuteczności i pozytywna orientacja na przyszłość sprzyjają ostrożności w stosowaniu leków przeciwbólowych OTC. Osoby o wysokim poziomie poczucia własnej skuteczności i osoby z wyższym poziomem pozytywnej orientacji na przyszłość wykazują większą świadomość zagrożeń zdrowotnych związanych z lekami przeciwbólowymi OTC. Czynnikiem zwiększającym skłonność do przyjmowania leków przeciwbólowych OTC jest przypisywanie znaczenia zdarzeń losowych dla kontroli bólu. Respondenci o niskim poziomie wewnętrznej kontroli bólu statystycznie częściej niż ci o wysokim poziomie są skłonni do eliminowania cierpienia środkami przeciwbólowymi, częściej stosują leki nałogowo.

Wnioski: Zasoby osobiste, takie jak umiejscowienie kontroli bólu, poczucie własnej skuteczności i pozytywna orientacja na przyszłość, znacząco modyfikują gotowość stosowania środków przeciwbólowych.

Słowa kluczowe: środki przeciwbólowe OTC, zasoby osobiste, młodzi dorośli, radzenie sobie z bólem.