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15 parent study, contributed to the design, data acquisition, analysis and interpretation.

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17

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26 project.

27

28 **STATEMENT OF CONFLICT OF INTEREST**

29 None

30 **ETHICAL APPROVAL**

31 Ethical approval for this study was not required because the survey was conducted with  
32 publicly-available data.

33

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35 knowledge, attitudes practice; risk management; self-care.

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37

38

39 **Public risk perception of non-prescription medicines and information disclosure during**  
40 **consultations: a suitable target for intervention?**  
41

42 **ABSTRACT**

43 **Objective**

44 Optimisation of nonprescription medicine (NPM) supply from community pharmacies could  
45 reduce demand on other healthcare providers, including general practitioners and emergency  
46 department personnel. Outcomes can be maximised if patients disclose relevant information  
47 e.g. concomitant medication, during pharmacy-based consultations. Strategies to promote  
48 information disclosure are needed. This study used the Psychometric Paradigm of Risk to  
49 explore whether the public's risk perception of NPMs was associated with information  
50 disclosure.

51 **Methods**

52 This national, cross-sectional population study used a random sample of 3000 adults (aged  $\geq 18$   
53 years) from the Scottish Electoral register. Postal questionnaires collected data on risk  
54 perceptions, information disclosure and demographic information. Exploratory factor analysis  
55 was used to determine constructs to which the risk questions could be grouped. Factors were  
56 scored and the scores compared across demographics.

57 **Key Findings**

58 Just over half (57%) of the 927 respondents perceived NPMs to be associated with low general  
59 risk. For 19 of the 23 statements (83%), respondents indicated general agreement i.e. low risk  
60 perception of OTC medicines. Individuals with higher risk perception of NPMs were less likely  
61 to disclose information during consultations compared with respondents with lower risk  
62 perception.

63 **Conclusion**

64 There is general low public risk perception of NPMs. Individuals with higher risk perception  
65 are less likely to disclose information. Interventions that raise risk perception are unlikely to  
66 enhance the safe and effective supply of NPMs.

67 **INTRODUCTION**

68

69 Nonprescription medicines (NPMs) enable patients to manage conditions without recourse to  
70 health-seeking from high cost settings e.g. general medical practices, emergency departments.

71 The consequences of inappropriate NPM use are often explored using indirect measures

72 because traditional methods of pharmacovigilance are less applicable due to the lack of

73 documentation in patients' medical records. Previous research demonstrated that 6.5% of all

74 emergency hospital admissions were due to adverse drug reactions (ADRs) and that the

75 majority of these were associated with non-steroidal anti-inflammatory (NSAIDs), aspirin in

76 particular [1]. Most NSAIDs (e.g. ibuprofen) implicated in these admissions are available as

77 NPMs in the UK; low dose aspirin (75mg) is widely available internationally and contributed

78 to the majority of NSAID-related harms primarily gastro-intestinal haemorrhage. A recent

79 Dutch study confirmed the use of NSAIDs by "high risk" patients and reiterated the need for

80 patients to be warned about the risks of these medicines [2].

81

82 Evidence suggests the sale/supply of NPMs from community pharmacies is sub-optimal

83 irrespective of country, product or health condition [3, 4]. Managing NPM consultations is

84 complex; pharmacists and their staff are often required to make recommendations based upon

85 incomplete symptom information, other medical conditions, other medications being used, as

86 well as the health status of clients. The way in which clients "present" during consultations

87 varies with some requesting a specific product (hereafter referred to as 'direct product

88 request'), while others seek advice to address symptoms or clinical condition. Direct product

89 requests, which account for the majority of NPM consultations, are less likely to result in an

90 appropriate outcome i.e. supply of medicines consistent with best evidence, compared with

91 advice-seeking requests [5]. This variation has been attributed to low rates of information

92 disclosure during product requests [6].

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Individual’s perceptions of the benefits and risks of medicines are likely to influence their treatment decisions. For prescribed medicines, there is ample evidence that patients are less likely to engage appropriately if they believe there are risks; a recent meta-analysis found that patients with more concerns were less likely to adhere to the medicines regimen [7]. For NPMs, one study reported that 40% of Americans believed that NPMs were too weak to cause any real harm, and one-third took more than the recommended dose, believing it would increase effectiveness [8]. Whilst there has been some exploration of public perception of risk of NPMs [9-11], only one study to date has adopted a theoretical approach to exploring these beliefs [12], which applied the Theory of Planned Behaviour to exploring low-to-middle income women in Mexico’s risk perception of cold and flu remedies. Whilst the majority of these studies have sought to explore sources of information used by the public to increase their knowledge of these medicines as a means of mitigating risk, none has explored the effect of risk perception on information disclosure during consultations.

It is therefore important to understand individual and public risk perceptions of medicines so that interventions can be targeted to promote safe and effective use. The psychometric paradigm [13], proposes that the explanatory power of risk perception is clearer when scores are disaggregated to show differences between people separately from differences between hazards. The psychological paradigm of risk [13] involves asking individuals to assess the relative risk associated with specific items, hazards or behaviours. Within this paradigm, individuals make quantitative judgements of the risk associated with different hazards and their desired level of regulation for each of these hazards.

The purpose of the present study was to:

- Describe public risk perceptions of NPMs

- 119       • Explore the association between general risk perception, specific components of risk  
120           perception and information disclosure behaviour during consultations for NPMs

121 Our hypothesis was that a lower risk perception of NPMs would be associated with reduced  
122 information disclosure information during consultations for NPMs.

123

## 124 **METHODS**

### 125 **Design and Participants**

126 A cross-sectional population survey was conducted in 2008 to determine factors associated  
127 with buying NPMs and giving information to pharmacy staff when buying “pharmacy  
128 medicines”. The questionnaire was informed by the Theory of Planned Behaviour (TPB) [14].

129 This theory identifies important determinants of voluntary behaviours such as information  
130 giving. The term “Pharmacy medicines” was used for NPMs and was defined as “medicines  
131 that can be bought from pharmacies (chemists) without a prescription”. The TPB proposes that  
132 behaviour is predicted by behavioural intention which in turn is influenced by Perceived  
133 Behaviour Control (PBC) (i.e. whether the behaviour is difficult or easy to perform), subjective  
134 norm (SN) (i.e. whether important others consider the behaviour to be important) and attitude  
135 (ATT) towards the behaviour (i.e. whether engagement with the behaviour will achieve valued  
136 outcomes) (Figure 1).

137

138 Using the Scottish Electoral register, a random sample was taken, stratified by sex. Adults aged  
139  $\geq 18$  years (one per household) and those not registered with the Mail Preference Service were  
140 approached. Postal questionnaires were mailed to 3000 participants with a 2:1 female to male  
141 ratio to reflect the population of people purchasing NPMs from community pharmacies [15,  
142 16]. The results presented here relate to respondents’ risk perceptions regarding NPMs.

143



144 **Questionnaire Content and Administration**

145 The questionnaire collected the following information:

- 146 • Risk perceptions of NPMs. Risk was defined as “*a situation that could expose you*  
147 *to harm or have an unpleasant outcome*”.
- 148 • Predictors (based on the Theory of Planned Behaviour, [14, 17] of buying products  
149 and giving information using measures of attitudes and perceived behavioural control  
150 reported elsewhere [6].
- 151 • Demographic characteristics.

152

153 A reminder letter was sent after two weeks and included a reply paid envelope. A second  
154 reminder letter, non-reply form and reply paid envelope were sent to non-responders after a  
155 further two weeks.

156

157 **Pharmacy medicines and risk**

158

159 Respondents were asked “in general how much risk do you think there is when using a  
160 pharmacy medicine” and was measured on a scale from one to seven, anchored by descriptive  
161 terms at extreme values only (1=low risk, 7=high risk). They were also asked to state their  
162 agreement about the risk of 23 additional items related to NPMs, derived from the psychometric  
163 paradigm attributes [13]. Agreement was measured on a 7-point scale (1=strongly agree;  
164 7=strongly disagree) where agreement equates to low risk perception. Information disclosure  
165 (‘giving information’) was explored using constructs from the TPB [6]. Respondents were also  
166 asked an open question to name the NPMs which they considered to be associated with least  
167 and most risk.

168

169 **Data Management and Analysis**

170

171 Data were entered and analysed in SPSS version 20 (IBM Corp. Released 2011. IBM SPSS  
172 Statistics for Windows, Version 20.0. Armonk, NY). Demographics summarised using  
173 frequency and percentage for categorical variables, mean and standard deviation for age. Risk  
174 questions were summarised using number and percentage responding in each category of the  
175 1-7 scale and mean agreement was calculated [18]. Two questions were reverse coded to align  
176 the interpretation (*It is not possible to overdose with pharmacy medicines; There are no risks  
177 associated with using pharmacy medicines*). Two categories of risk perception were derived:  
178 low (1-3), high (4-7). The neutral category (4) was included within high risk, so that any  
179 observed effect would be a conservative estimate of association.

180

181 Exploratory factor analysis was undertaken to determine whether responses could be grouped  
182 by constructs of risk. A correlation matrix of responses to the 23 specific risk questions was  
183 obtained. An a priori decision was made to exclude a question from the factor analysis if its  
184 correlation coefficients with all other questions was  $<0.2$  [20]. The Kaiser-Meyer-Olkin  
185 (KMO) test [19] and Bartlett's test of sphericity [20] were conducted to test whether there was  
186 sufficient common variance and correlation to carry out the factor analysis. According to  
187 convention [21], a minimum level of 0.5 was used for the KMO test to indicate sufficient  
188 common variance. Cattell's scree plot [21] and Kaiser's eigenvalue [19] criterion were used to  
189 determine the number of factors to extract. Factors were extracted using principal components  
190 analysis rotated with varimax rotation [22]. Items contained within factors were limited to those  
191 with a factor loading of  $>0.4$  [20]. To generate a factor score the average of the identified  
192 statements within that factor was calculated for each respondent. For example, for a factor  
193 containing 4 items ( $a_1, a_2, a_3, a_4$ ) the score was given by the following equation:  $score = (a_1 +$   
194  $a_2 + a_3 + a_4) / 4$ . Higher scores indicate higher perception of risk. Univariate tests (Mann  
195 Whitney or Spearman's rank correlation) were performed to determine the relationship

196 between factor scores and respondent demographics on information disclosure. Multiple linear  
197 regression using forward selection (entry  $p < 0.05$ ) identified which demographics were  
198 predictive of factor scores.

199

#### 200 *Sample size*

201 The factor analysis conducted for this study was based upon 21 questions resulting in six  
202 factors. The recommended minimum sample size for conducting factor analysis using these  
203 parameters is 900 [23].

204

#### 205 *Ethical approval*

206 Ethical approval for this study was not required because the survey was conducted with  
207 publicly available data.

208

## 209 **RESULTS**

### 210 **RESPONDENT CHARACTERISTICS**

211 The demographic characteristics of the 927 respondents are shown in Table 1. Respondents  
212 were aged between 19 and 96 years (mean 52.3, SD 16.1), three quarters of whom were female,  
213 almost all of whom were of white ethnic origin. The majority (69%) were married/ living with  
214 partner with 48% having no formal qualification or only school-level education. Just over half  
215 reported their health to be very good or excellent. Nearly half (49%) had used a pharmacy in  
216 the previous 14 days and 43% had bought a NPM in the previous month.

217

218

### 219 **Public Perceptions of Risk of NPMs**

220 In response to the general risk question, over half the respondents indicated there was low risk  
221 to using NPMs (57.0%), with 23.9% remaining neutral and 19.0% indicating high risk

222 response. The majority (19/23) of statements had a mean score <4 on the 7 point scale  
223 indicating general agreement with these statements i.e. low risk perception of OTC medicines.  
224 The four statements with which respondents tended to disagree were: “*the risks associated with*  
225 *using pharmacy medicines are likely to be fatal*”, “*there is more risk involved with using*  
226 *pharmacy medicines than there was 10 years ago*”, “*people who use pharmacy medicines*  
227 *know precisely what risks are associated with them*” and “*the risks associated with using*  
228 *pharmacy medicines affect me personally*”. There was strong agreement (>70%) with 11  
229 statements and strong disagreement (>70%) with two statements (Table 2). Figure 2 shows the  
230 mean agreement for the general risk statement followed by each statement (ordered from most  
231 agreement at the bottom to least agreement at the top).

232

### 233 **Identifying risk components: Factor analysis**

234 Two statements, “*Pharmacy medicines can be addictive*” and “*Pharmacy medicines that used*  
235 *to be available on prescription have greater risk than medicines that have been available with*  
236 *our prescription for many years*” showed correlation < 0.2 with other items were and were  
237 excluded from the factor analysis. The factor analysis of the remaining 21 statements produced  
238 a KMO measure of sampling adequacy of 0.781 which is considered good and Bartlett test of  
239 sphericity was  $p < 0.001$ , indicating factor analysis was appropriate. The eigenvalue >1 rule and  
240 the scree plot indicated that six factors should be extracted totalling 58.2% of the variance using  
241 a varimax rotation.

242

243 Table 2 shows the six identified factors and their loadings, with loadings <0.4 suppressed for  
244 clarity. The first factor (*Personal Acceptance*) contributed 16.5% of the variance and consisted  
245 of items around acceptance, benefit and comfort with Pharmacy medicines. The second factor  
246 (*General risk perception*) consisted of statements relating to a general view of risk and

247 contributed an additional 15.9% of the variance. The third factor (*Populations and behavioural*  
248 *risk factors*) contributed 8.3% of the variance and contained statements relating to risk in  
249 specific populations such as children and pregnant women. The fourth factor (*Adherence*) (i.e.  
250 adherence to giving information) was mainly related to using information to manage risk and  
251 contributed 6.7% of the variance. The fifth factor (*Denial of risk*) contributed to 6.0% of  
252 variance and the sixth factor (*Individual- and population-risk*) contributed the final 4.9% of the  
253 total variance.

254

255

### 256 **Do individual characteristics predict risk perception?**

257 Univariate analyses of the relationship between demographic variables and factor scores was  
258 undertaken. No significant gender difference ( $p > 0.05$ ) was found. Older respondents were  
259 significantly more likely to agree (equating to lower risk perception) with the statements  
260 associated with three factors: *General risk* ( $p = 0.004$ ), *Population and behaviour risk factors*  
261 ( $p < 0.001$ ), *Adherence* ( $p = 0.033$ ). Respondents with post-school education showed  
262 significantly higher risk perception for *Adherence* ( $p = 0.001$ ) compared with those with no  
263 formal or only school level education, but had lower scores (lower risk perception) for *General*  
264 *Risk Perception* ( $p = 0.02$ ) and *Individual- and population-risk* ( $p = 0.03$ ). Those married/living  
265 with partner showed significantly lower scores for *Personal Acceptance* ( $p = 0.016$ ).

266

267 For health status, respondents reporting good/very good/excellent status compared with  
268 fair/poor were significantly more likely to agree (lower risk perception) with the statements  
269 associated with the factors: *Personal Acceptance* ( $p = 0.02$ ) and *Populations and Behaviour Risk*  
270 *Factors* ( $p = 0.002$ ), and to disagree (higher risk perception) with statements associated with  
271 *Denial* ( $p = 0.033$ ).

272

273 Six multiple linear regression was used to investigate the combined effects of these  
274 demographic variables in predicting each of the six factor scores (Table 3). Age was an  
275 important predictor for *General Risk Perception, Populations and Behaviour Risk Factors,*  
276 *Denial* and *Individual- and Population-risk* with older age indicating greater agreement/ lower  
277 risk perception (as indicated by the negative coefficients). Gender was only important for  
278 *Adherence*, with females indicating more agreement i.e. higher risk perception. Education was  
279 important for *General Risk Perception* and *Individual- and Population-risk* with greater  
280 education levels associated with greater agreement/higher risk perception. Health status was  
281 significant for *Personal Acceptance* and *Denial* with those in good/very good/excellent health  
282 indicating more agreement. In each case, the R-square was low (<5%) but the ANOVA p-  
283 value was significant indicating that the demographics explained a low, but statistically  
284 significant, percentage of variability in the factor scores.

285

### 286 **Does risk perception predict behaviour (information giving)?**

287 Respondents with overall low risk perception were significantly more likely to have disclosed  
288 information during their last pharmacy consultation than those with higher risk perception:  
289 41.2% versus 33% (p=0.032). No statistically significant differences in factor scores occurred  
290 between respondents who disclosed and those that did not.

291

### 292 **Does risk perception predict behavioural determinants (TPB variables)?**

293 Respondents who perceived NPMs to be associated with low risk had significantly higher  
294 attitude (p=0.003) and perceived behavioural control scores (p=0.01) regarding giving  
295 information to medicine counter assistants (MCAs). This means that respondents who were  
296 categorised as “low risk” believed that giving information would achieve better outcomes.

297 There was some indication that respondents' with low risk perception had higher intention to  
298 disclose information than those who perceived NPMs to be of high risk (p=0.05).

299  
300 **DISCUSSION**

301 *Main results*

302 This is the first theoretically-underpinned study to explore public risk perception of NPMs and  
303 information disclosure. The results showed that, in general, NPMs were perceived to be  
304 associated with low risk and that low risk perception was associated with higher tendency to  
305 disclose information thus disproving our hypothesis. In a study about patient information  
306 leaflets, people who were more worried about adverse effects were less likely to read the leaflet.  
307 This fits with the idea that high risk perception is linked to a lack of engagement with  
308 information, which reflects our finding that low risk perception was associated with higher  
309 tendency to disclose information [24]. Another study found low risk perception may be  
310 associated with higher tendency to disclose information due to variations in 'regulatory' focus,  
311 i.e. the extent to which individuals seek to promote positive or prevent negative comments. In  
312 promotion focus, they are more prepared to take risks and to engage in promotion activities  
313 such as giving information [25].

314  
315 *Limitations/strengths*

316 These data were collected in 2008 and have undergone substantial analysis and iterations.  
317 Whilst a survey of *general* risk perception of NPMs in the UK was conducted in 2013 [26],  
318 there are no published studies of in-depth risk perception as reported in the current study. As  
319 such we believe the results are important and provide a unique contribution to existing  
320 knowledge. Furthermore, in the intervening period, no major changes have occurred with NPMs  
321 in Scotland/UK in general, although tighter restrictions have been introduced for some  
322 medicines associated with misuse e.g. pseudoephedrine (<https://www.gov.uk/drug-safety->

323 update/pseudoephedrine-and-ephedrine-update-on-managing-risk-of-misuse), the age limit  
324 was raised limit for cough remedies for children ([https://www.gov.uk/drug-safety-update/over-](https://www.gov.uk/drug-safety-update/over-the-counter-cough-and-cold-medicines-for-children)  
325 [the-counter-cough-and-cold-medicines-for-children](https://www.gov.uk/drug-safety-update/over-the-counter-cough-and-cold-medicines-for-children)) and diclofenac was reclassified to  
326 Prescription Only Medicine status because of new evidence regarding cardiovascular toxicity  
327 ([https://www.gov.uk/government/news/diclofenac-tablets-now-only-available-as-a-](https://www.gov.uk/government/news/diclofenac-tablets-now-only-available-as-a-prescription-medicine)  
328 [prescription-medicine](https://www.gov.uk/government/news/diclofenac-tablets-now-only-available-as-a-prescription-medicine)).

329

330 This current study was conducted in Scotland and few respondents were from ethnic minorities  
331 thus the effect of ethnicity could not be explored, but has been shown previously to influence  
332 risk perception of prescription medicines [18]. A 2:1 female: male sampling strategy was used  
333 (to reflect the higher rates of pharmacy and medicine use by females) and generated more  
334 female than male respondents. Furthermore, respondents were more likely to be older and to  
335 be married or living with someone. These characteristics mean that these results might not be  
336 generalisable to individuals from ethnic minorities, people who are living alone, or younger  
337 individuals. Bias may have been introduced into the sample through the use of the electoral  
338 register, however, it was the most inclusive method available for this survey. The study had  
339 sufficient power (based upon the derived sample size of 927) to conduct the factor analysis  
340 which generated six factors and explained 58% of the variation.

341

#### 342 *Comparison with literature*

343 A much higher proportion of respondents (71.4%) in our study agreed that there was “no risk  
344 with pharmacy medicines” compared with an earlier survey which showed that only 47.4% of  
345 respondents agreed/strongly agreed that “*non-prescription medicines are totally safe to use*”  
346 [27]. Our results suggest that individual respondents’ perceive themselves to be at less risk  
347 from NPMs compared with the wider population. This finding is congruent with an earlier



348 study suggesting that consumers were critical of the public's ability to self-medicate safely and  
349 appropriately using NPMs [28]. All NPMs were treated as one group in this current study.  
350 Slovic et al [18] included four medicines available in non-prescription form and explored  
351 differences in risk perceptions between them. Other studies have compared risk perception of  
352 NPMs versus prescription only medicines but have demonstrated conflicting results, with some  
353 showing public perception of risk to be greater with POMs compared with NPMs [11], whilst  
354 others report the converse [12]. An earlier study of individuals who used a NPM for the relief  
355 of hay-fever (terfenadine) which was subsequently reclassified back to prescription medicine  
356 status because of adverse effects, expressed concern about the previously unknown risks with  
357 the use of the drug [28]. Their risk perceptions of NPMs also changed as a result of the  
358 reclassification of this medicine.

359

#### 360 *Implications for policy, practice and research*

361 These results highlight a need to increase public awareness regarding the use of NPMs as well  
362 as the importance of sharing information during NPM consultations. Pharmacy personnel need  
363 to actively seek relevant information from consumers to inform their decisions regarding the  
364 appropriate treatment and research is ongoing to explore strategies which influence both  
365 service provider and user behaviour during these consultations.

366

#### 367 **CONCLUSION**

368 There is general low public risk perception of NPMs. Interventions that target risk perception  
369 are unlikely to enhance the safe and effective supply of these medicines because they will not  
370 enhance information disclosure during consultations. Alternative strategies are needed to  
371 enhance the public's health literacy regarding these medicines and the importance of  
372 information disclosure to maximise their safe and effective use.

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- 432
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- 434

435 Table 1: Respondent demographics n (%)  
 436

		N = 927
Gender		(n = 895)
	Male	241 (27)
	Female	654 (73)
Marital status		(n = 894)
	Single	134 (15)
	Married/living with partner	612 (69)
	Divorced/separated	67 (8)
	Widowed	81 (9)
Highest educational qualification		(n = 914)
	No formal education	162 (18)
	School level	274 (30)
	post School (non-university)	102 (11)
	University degree	229 (25)
	Other	134 (15)
Ethnic group		(n = 914)
	White	903 (99)
	Other	11 (1)
Health status		(n = 913)
	Excellent	107 (12)
	Very good	357 (39)
	Good	300 (33)
	fair/poor	149 (16)
Age (years)		(n = 892)
	Mean (SD)	53.2 (16.1)

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Table 2: Pharmacy Medicines, mean agreement of risk perception and factor loadings

			<i>Factor Loadings using Varimax Rotation</i>					
			<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<b>Question</b>	<b>Total N</b>	<b>Mean Agreement**</b>	<b><i>Personal Acceptance</i></b>	<b><i>Medicines ' Risk</i></b>	<b><i>Population and behaviour risk factors</i></b>	<b><i>Adherence</i></b>	<b><i>Denial</i></b>	<b><i>Individual- and population-risk</i></b>
In general how much risk do you think there is when using pharmacy medicines	829	3.23						
The risks associated with using pharmacy medicines are acceptable to me	828	2.83	0.848					
I can deal with the risks of using pharmacy medicines	833	2.87	0.822					
<b>I feel comfortable with the level of risk associated with using pharmacy medicines</b>	<b>835</b>	<b>2.60</b>	<b>0.812</b>					
<b>Using pharmacy medicines is beneficial to me</b>	<b>841</b>	<b>2.49</b>	<b>0.622</b>					
<b>It is up to me whether I put myself at risk due to using pharmacy medicines</b>	<b>834</b>	<b>2.72</b>	<b>0.425</b>	<b>0.435</b>				
People who use pharmacy medicines know precisely what risks are associated with them	834	4.27	0.423				0.532	
<b>There is more risk involved in using pharmacy medicine than there was 10 years ago</b>	<b>829</b>	<b>4.59</b>		<b>0.665</b>				
Using pharmacy medicines could harm people	827	3.66		0.653				
The risks associated with using pharmacy medicines may not be understood until much later	835	3.36		0.633				
<b>The risks associated with using pharmacy medicines are likely to be fatal</b>	<b>831</b>	<b>5.12</b>		<b>0.594</b>				

Everyone who uses a pharmacy medicine could be at risk from these medicines	831	3.60	0.407		0.598
Children are at greater risk than adults when using pharmacy medicines	836	2.92		0.853	
<b>Pregnant women are at greater risk when using pharmacy medicines</b>	<b>834</b>	<b>2.62</b>		0.838	
<b>Using a pharmacy medicine and driving can be risky</b>	<b>868</b>	<b>2.59</b>		<b>0.565</b>	
<b>Drinking alcohol whilst using pharmacy medicines can be risky</b>	<b>845</b>	<b>1.90</b>		0.550	<b>0.457</b>
<b>When using pharmacy medicines, I always use the recommended dose</b>	<b>842</b>	<b>1.56</b>			<b>0.757</b>
<b>Pharmacy medicines are less risky if you follow the instructions when using them</b>	<b>838</b>	<b>1.68</b>			<b>0.629</b>
<b>If I do not follow the instructions when using pharmacy medicines I will be putting myself at risk of harm</b>	<b>843</b>	<b>1.95</b>			<b>0.624</b>
<b>It is not possible to overdose with pharmacy medicines*</b>	<b>836</b>	<b>1.77</b>			<b>0.763</b>
<b>There are no risks associated with using pharmacy medicines*</b>	<b>826</b>	<b>2.64</b>			<b>0.692</b>
The risks associated with using pharmacy medicines affect me personally	817	4.14			0.875
Pharmacy medicines can be addictive	832	3.00	Not included in factor analysis		
Pharmacy medicines that used to be available on prescription have greater risk than medicines that have been available without a prescription for many years	855	3.76	Not included in factor analysis		

\*Reverse coded to enable comparable interpretation

\*\* Agreement: Strongly agree (1) to Strongly Disagree (7)

Bold indicates statements with > 70% agreement/disagreement

Table 3: Regression coefficients (SE) for models examining the predictive ability of demographic factors on each factor score

	Factor 1 <i>Personal Acceptance</i>	Factor 2 General Risk Perception	Factor 3 Population and Behaviour Risk Factors	Factor 4 Adherence	Factor 5 Denial	Factor 6 Individual and Population Risk
N	802	805	826	830	814	812
R-square	0.007	0.022	0.03	0.012	0.008	0.013
ANOVA F	5.53	9.10	25.7			
p-value	0.019	<0.001	<0.001	4.96 0.007	6.93 0.009	5.21 0.006
Constant	3.19 (0.10)	4.41 (0.14)	3.21 (0.15)	2.27 (0.16)	3.09 (0.08)	4.46 (0.21)
Gender						
Female				-0.155 (0.07)		
Age						
per year		-0.008 (0.08)	-0.014 (0.003)	-0.004 (0.002)		-0.008 (0.11)
Health						
Good/very good/excellent	-0.249 (0.11)				-0.235 (0.09)	
Education						
Post school		-0.238 (0.002)				-0.29 (0.004)

NB: Marital status was not selected by any model so is not included in this table

## FIGURES

Figure 1: Theory of Planned Behaviour

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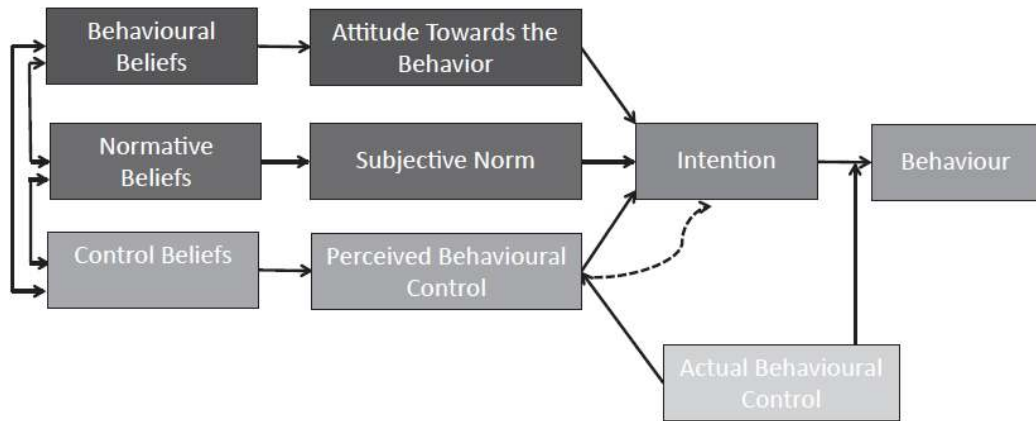
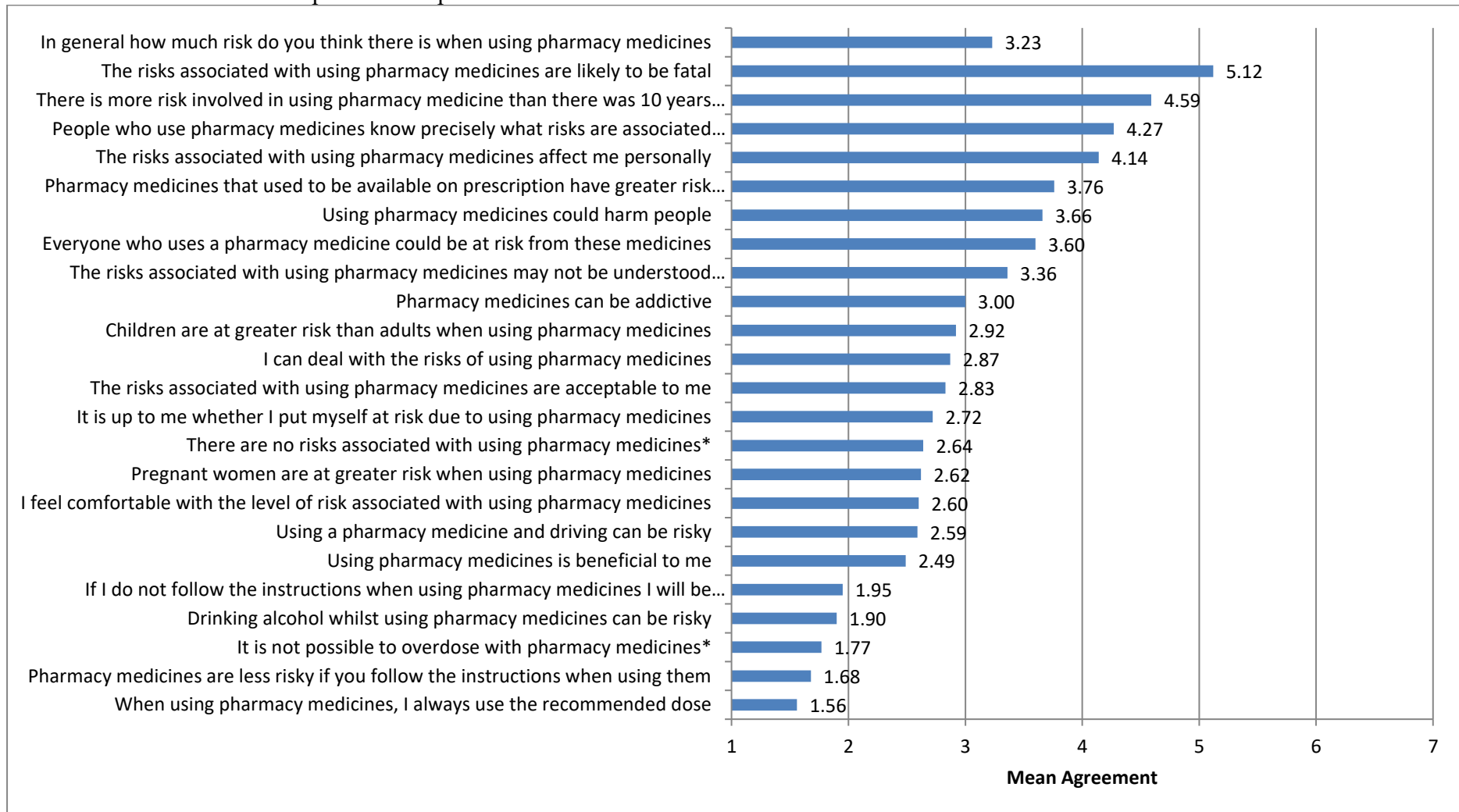




Figure 2 Respondents' mean agreement with risk perception statements (1 = strongly agree to 7 strongly disagree)

\*Reverse coded to enable comparable interpretation



\*Reverse coded to enable comparable interpretation

