

# Prison Inmates' Intention to Demand That Bleach Be Used for Cleaning Tattooing and Piercing Equipment

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## ABSTRACT

**Objective:** The aim of this study was to document the phenomenon of tattooing and piercing in prisons in Quebec and to identify factors underlying the intention of inmates to demand that equipment used in prison for piercing and tattooing be cleaned with bleach.

**Method:** A total of 1,434 inmates recruited in seven prisons completed a questionnaire with the help of a community worker. The questionnaire was developed using an integrative model based on the Theory of Planned Behaviour.

**Results:** One third of respondents had been tattooed in prison in the past and 2.6% had a piercing; 27.2% of the tattooing and 30.5% of the piercing were carried out using unsafe equipment. Three quarters of the respondents expressed a firm intention to demand that equipment used for tattooing or piercing be cleaned with bleach. Logistic regression analysis showed that personal normative beliefs (OR 5.09; 95% CI 3.54-7.32), perceived behavioural control (OR 3.55; 95% CI 2.48-5.08) and role beliefs (OR 3.23; 95% CI 1.72-6.06) were the significant determinants of intention.

**Conclusion:** Interventions aimed at encouraging safer tattooing and piercing activities in prison should focus on inmates' sense of responsibility, obstacles impeding adoption of this behaviour and promotion of this behaviour as an integral part of the culture in the prison environment.

**MeSH terms:** Prisons; HIV; hepatitis C; tattooing; body piercing

*La traduction du résumé se trouve à la fin de l'article.*

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Health officials in Canada are increasingly concerned about the rate of infections caused by the human immunodeficiency virus (HIV) and the hepatitis C virus (HCV) among inmates.<sup>1</sup> Several studies have shown that the rate of HIV is higher among inmates than among the general population,<sup>2,3</sup> and others have demonstrated that the proportion of individuals infected with HCV is even higher than first thought.<sup>4</sup> A recent study of inmates in Quebec correctional facilities established the rate of HIV and HCV at 2.3% and 16.6%, respectively, among men and at 8.8% and 29.2%, respectively, among women.<sup>5</sup>

Several epidemiological studies have associated injection drug use with HIV and HCV infections among inmates;<sup>2,4,6</sup> the main risk factor appears to be use of contaminated needles prior to detention. Since HCV is easily transmitted, it has also been associated with other risk factors among inmates, such as tattooing and piercing.<sup>7</sup> In 1995, a survey by the Canadian Correctional Service revealed that almost half of all inmates had been tattooed during their stay in prison.<sup>8</sup> Since prison regulations forbid piercing and tattooing, the risk of non-sterilized material being used is very high.

Hoping to reduce the risk of HIV and HCV transmission in prison, programs to provide access to bleach have been implemented in most Canadian correctional institutions.<sup>9-11</sup> Although the efficacy of bleach as a disinfectant is controversial,<sup>12</sup> it has been suggested that its use can help to prevent HIV and HCV infection.<sup>13</sup>

The aim of this study was to document the phenomenon of tattooing and piercing in prisons in Quebec and to identify factors underlying inmates' intention to demand that tools used in prison for piercing and tattooing be cleaned with bleach.

## Theoretical framework

Ajzen's Theory of Planned Behaviour (TPB)<sup>14</sup> served as the basis for organizing the theoretical framework. According to Ajzen,<sup>14</sup> the immediate determinant of any behaviour is an intention to do or not to do something in particular. Three fundamental concepts influence intention: attitude, social norms and perceived behavioural control. Attitude designates an individual's favourable or unfavourable assessment of adopting any given behaviour.

Social norms correspond to an individual's perception of approval or disapproval of the adoption of any given behaviour by people or a group of people. Perceived behavioural control is defined as the degree of facility or difficulty with which any given behaviour can be adopted.

Several authors have demonstrated that other psychosocial variables can help explain health-related behaviour.<sup>15,16</sup> Two of these variables refer to the Theory of Interpersonal Behaviour:<sup>17</sup> role beliefs and personal normative beliefs. Role beliefs represent the degree to which a person perceives the appropriateness of adopting a given behaviour by someone in a position similar to his own in a social network. Personal normative beliefs measure the sense of personal obligation towards adoption of the behaviour. The other two variables are anticipated regret and perceived descriptive norm.<sup>18</sup> Anticipated regret refers to an individual's beliefs regarding the degree of regret, tension or preoccupation felt if the targeted behaviour is not adopted. Perceived descriptive norm refers to the prevalence of the behaviour in the reference population.

Finally, socio-demographic characteristics, piercing and tattooing behaviour in prison and certain factors related to incarceration were also included in the theoretical framework. Their influence on intention is believed to be mediated by the theoretical variables described above.

## POPULATION AND METHOD

The study population consisted of inmates from correctional facilities in Quebec. For the purposes of the study, 7 of 17 detention centres were chosen on the basis of geographical location. A sample of 1,434 inmates was recruited. Each person was free to accept or refuse to participate in the study without prison officials or other inmates being advised of their decision. Ten dollars was deposited into the account of each prisoner who came to the information meeting, whether or not he or she completed the questionnaire. This study received the approval of Laval University's research ethics committee.

The psychosocial questionnaire was developed in accordance with recommendations in the theoretical consensus on predictive models.<sup>19</sup> The questionnaire began

**TABLE I**  
Psychometric Values of the Theoretical Constructs

Theoretical Constructs	Number of Items	Cronbach Alpha Coefficients (N=34)	Intraclass Coefficients (N=30)
Intention	3	0.72	0.81
Attitude	4	0.95	0.86
Social norms	3	0.89	0.77
Perceived behavioural control	3	0.56	0.64
Personal normative beliefs	3	0.78	0.88
Anticipated regret	3	0.85	0.62
Role beliefs	1	n.a	0.81
Perceived descriptive norm	1	n.a	0.22

with an explanation of tattooing and piercing in the prison context and a description of equipment used. Afterwards, each person was asked to answer the questions as if he or she had decided to have a tattoo or a piercing that same day in prison. Therefore, the dependent variable was an intention of demanding that tools used be cleaned with bleach. A rating scale ranging between "certainly not" (+1) and "certainly yes" (+4) was used for all items of the psychosocial variables. The metrological properties of the questionnaire were evaluated. Psychometric values<sup>20,21</sup> of the theoretical constructs are reported in Table I.

## Statistical analysis

Descriptive statistics were first conducted on socio-demographic variables and on variables linked to the practice of tattooing and piercing. A logistic regression was then applied to determine the explanatory model underlying behavioural intention. This statistical choice was necessary owing to the asymmetrical distribution of the intention variable. Consequently, the psychosocial constructs were dichotomized. The psychosocial variables of the theoretical framework were first considered in the regression model, followed by the predictive value of external variables to the model (socio-demographic and behavioural variables). The variables were retained if deemed statistically significant. These analyses were conducted using version 6 of SAS software.<sup>22</sup>

## RESULTS

More than one third of respondents had been tattooed while in detention (498 men and 11 women), while fewer than 3% had undergone piercing (28 men and 9 women). One inmate in ten reported having tattooed or pierced another inmate. Finally, slightly more than one quarter of

the tattoos and piercings were done with unsafe material, meaning possibly having been used by someone else and not cleaned with bleach or disinfected with a sterilizer. No significant difference was apparent regarding ethnicity and tattooing or piercing in prison under safe or unsafe conditions. Respondent characteristics are reported in Table II.

Most of the inmates (74%) expressed a firm intention to demand that material used for tattooing or piercing in prison should be cleaned with bleach. A logistic regression analysis was applied to identify a model that explains behavioural intention, since the distribution of the intention variable was skewed positively. This led to a model in which six determinants were significantly associated with intention (see Table III). A high intention was significantly explained by personal normative beliefs, perceived behavioural control and role beliefs. It was also significantly associated, but to a lesser extent, with attitude, gender (i.e., being male) and anticipated regret.

## DISCUSSION

Results first indicated that tattooing is prevalent in prison, particularly among male inmates, and that the activity often takes place in an at-risk context. Piercing is much less popular, but again often practiced in the same at-risk context. However, it was interesting to note that with respect to the idea of being tattooed or pierced in prison, the majority of respondents demonstrated a firm intention to demand that equipment used be cleaned with bleach.

The results showed that all determinants of intention were cognitions, with the exception of gender. No personal experience with detention contributes to this prediction. Personal normative beliefs proved

**TABLE II**  
**Characteristics of Respondents (n=1434)**

Variables	n	%
Gender		
Men	1215	84.7
Women	219	15.3
Age (years)		
≤30	576	40.2
31-44	663	46.2
≥45	195	13.6
Ethnicity		
French Canadian	1143	80.2
English Canadian	83	5.8
Aboriginal	63	4.4
Others	136	9.5
Education		
High school not completed	902	63.0
High school completed and more	530	37.0
Number of incarcerations		
1	269	18.8
2-5	651	45.4
≥6	514	35.8
Number of months in detention centres		
<12	583	42.6
12-35	347	25.3
≥36	439	32.1
Characteristics related to tattooing or piercing		
Had been tattooed in prison in the past	509*	35.5
Unsterilized tools	138	27.2
Had been pierced in prison in the past	37†	2.6
Unsterilized tools	11	30.5
Had tattooed or pierced someone else in prison	157	11.0
Unsterilized tools	34	22.2

\* Among these respondents, 11 were women

† Among these respondents, 9 were women

Number of missing data: education (n=2); ethnicity (n=9); number of months in detention (n=65); had previously been tattooed in prison (n=2) with unsterilized tools (n=4); had previously been pierced in prison (n=4) with unsterilized tools (n=5); had previously tattooed or pierced someone else in prison (n=2) with unsterilized tools (n=6).

**TABLE III**  
**Logistic Regression Analysis Predicting Inmates' Intention to Demand That Bleach Be Used for Cleaning Tattooing and Piercing Equipment in Prisons (n=1434)**

Variables	Odds Ratio	95% CI	p
Personal normative beliefs	5.09	3.54 - 7.32	<0.0001
Perceived behavioural control	3.55	2.48 - 5.08	<0.0001
Role beliefs	3.23	1.72 - 6.06	<0.001
Attitude	1.68	1.23 - 2.29	<0.01
Males	1.65	1.23 - 2.29	<0.05
Anticipated regret	1.58	1.14 - 2.19	<0.01

All variables were dichotomized (high versus low), low being the reference group. For gender, females were the reference group.

to be the most important determinant of inmate intention to demand that bleach be used for cleaning tools. Inmates seem to recognize a personal responsibility in requiring that tools be cleaned with bleach. Thus, an inmate who believes that this behaviour concurs with his or her personal principles is more likely to show an intention to adopt this protective behaviour.

The importance of perceived behavioural control as a predictor of the intention to demand that tools be cleaned reinforces the relevance of the TPB in the study of protective behaviour. As shown by Godin and Kok,<sup>15</sup> perceived behavioural control is an important determinant of intention. In their study, Bryan et al.<sup>23</sup> had also identi-

fied perceived behavioural control as a determinant of inmates' intention not to share tattooing tools. Given that perceived behavioural control is defined by perceived barriers and facilitating conditions, it would be wise to identify properly these barriers in order to bring about conditions that might help inmates surmount the obstacles and adopt safer behaviour. In this sense, a review of rules concerning inmate access to bleach and conditions related to the practice of tattooing and piercing should be contemplated.

Role beliefs are also an important determinant warranting consideration in the choice of preventive messages. Inmates who believe that it is appropriate for

another prisoner to adopt this behaviour are more likely to form an intention to follow suit. In this manner, appealing to the social image of the inmate as someone who views this behaviour favourably might prove to be a strategy worth promoting. The meta-analysis of Godin and Kok<sup>15</sup> explicitly identified personal normative beliefs and role beliefs as important determinants for adopting health-related behaviour, above and beyond the variables of the TPB. This study of inmates supports this observation.

In accordance with the TPB, attitude contributed to explain intention, but to a lesser degree. Thus, inmates who believe that requiring tools be cleaned with bleach is a prudent, intelligent, good and reassuring behaviour show a higher intention of doing so. Finally, inmates who anticipate regret at the thought of not requiring that tools be cleaned have a higher intention than those who do not associate such an idea with regret. This result is congruent with the work of Sheeran & Orbell,<sup>18</sup> who maintain that anticipated regret is a determining variable of intention. Moreover, Richard et al.<sup>24</sup> had previously applied the theory of anticipated regret successfully in the study of preventive behaviour, specifically in the field of AIDS. In short, a preventive strategy could advantageously explore this avenue.

Compared to women, men are more likely to show an intention of adopting preventive measures. However, care should be taken in the interpretation of this data, given the small number of women in this study. Future research will be necessary in order to confirm this observation.

The subjective norm was not identified as a determinant of inmates' intention of requiring tools to be cleaned with bleach. This, coupled with the observation that descriptive norm also did not achieve significance, supports the hypothesis that inmates are not influenced by the approval of others in the adoption of this behaviour. This result is congruent with the work of Bryan et al.,<sup>23</sup> who also observed that a subjective norm was not a determinant of inmates' intention of not sharing instruments used for tattooing.

### Limitations

This study has a few limitations that are important to specify. First of all, the study

population was composed of inmates in correctional facilities in Quebec under provincial jurisdiction; that is, institutions for inmate incarceration periods of two years or less. The psychosocial profile of this population may be different from the profile of inmates with longer sentences. Therefore, one must be prudent in assuming that the conclusions of this study apply to all incarcerated populations.

Another limit was that a large proportion of respondents had never been tattooed or pierced. This may have biased the evaluation of their level of intention. However, this factor did not appear to influence the final model, since past behaviour did not achieve significance in the prediction of intention. Also, the number of female inmates was very low. Therefore, future studies will be necessary to identify if gender is an important factor.

In conclusion, personal principles guiding one's decision whether or not to adopt a given behaviour were found to be the main determinants of intention. Inmates believe that they have a responsibility with respect to this behaviour. This should be considered in future prevention intervention. Moreover, an intervention aimed at supporting inmates in their intention to demand that material used in tattooing and piercing first be cleaned with bleach should address obstacles linked to the adoption of this behaviour and strategies to overcome these obstacles. Finally, the promotion of a culture among the prison population suggesting that the use of bleach as a preventive measure is the right thing to do is also a strategy warranting consideration.

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## RÉSUMÉ

**Objectifs :** Cette étude visait à documenter le phénomène du tatouage et du perçage dans les prisons du Québec, ainsi qu'à cerner les facteurs qui pousseraient des personnes incarcérées à exiger que le matériel utilisé lors des tatouages et perçages effectués en prison soit nettoyé à l'eau de Javel.

**Méthode :** Au total, 1 434 détenus recrutés dans sept prisons ont répondu à un questionnaire avec l'assistance d'un intervenant communautaire. Le questionnaire avait été élaboré à partir d'un modèle intégrateur basé sur la théorie du comportement planifié.

**Résultats :** Parmi les répondants, 36 % s'étaient déjà fait tatouer et 2,6 % s'étaient fait percer pendant leur détention. Cependant, 27,2 % des tatouages et 30,5 % des perçages avaient été réalisés avec du matériel non sécuritaire. Les trois quarts des répondants ont exprimé la ferme intention d'exiger que le matériel soit nettoyé à l'eau de Javel. L'analyse de régression logistique a montré que les convictions personnelles (RC = 5,09; IC de 95 % = 3,54-7,32), la perception du contrôle comportemental (RC = 3,55; IC de 95 % = 2,48-5,08) et les croyances dans les rôles sociaux (RC = 3,23; IC de 95 % = 1,72-6,06) étaient les principaux déterminants significatifs de l'intention.

**Conclusion :** Une intervention visant à favoriser le tatouage ou le perçage plus sécuritaire en prison devrait principalement s'intéresser au sens des responsabilités des détenus, aux barrières à surmonter pour adopter ce comportement ainsi qu'à la promotion de ce comportement comme faisant partie intégrante de la « culture » du milieu de détention.