

## **Self-Determination, Deviance, and Risk Factors**

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### Abstract

Deviant behaviours are a significant cost to Canadian society and can incur an immeasurable amount of emotional and physical damage every year (Office of the Parliamentary Budget Officer, 2018; The John Howard Society of Canada, 2018). There have been numerous studies on the role of risk factors in affecting deviant behaviours, however, few of these have examined the influence of self-determination on deviance (Mann et al., 2010; Murray & Farrington, 2010; Zara & Farrington, 2010). This study intends to fill this gap by investigating the interactions between self-determination, gender, risk factors, and deviance. Participants were invited through the University of Saskatchewan's PAWS and SONA systems to complete an online survey that asked questions relating to gender, self-determination, risk factors, and deviance. A Chi-square Test for Independence was utilized to explore the explicit relationships between the type of self-determination and gender differences. In addition, a two-way MANOVA was used to compare self-determination and gender together in relation to deviance and risk factors. A Chi-square test found that there was not a significant relationship between gender and self-determination while the two-way MANOVA found a significant interaction effect between self-determination, deviance, and risk factors. However, when the interaction was examined further through univariate ANOVAs, no significant differences were found. Future research that examines and expands on the relationship between self-determination, gender, risk factors and antisocial behavior is suggested.

*Keywords:* antisocial behaviours, deviance, gender, risk factors, self-determination

Understanding deviant behaviour and why individuals engage in it is crucial to provide effective prevention, assessment, and treatment of such behaviours. While there are various definitions of deviant or antisocial behaviour, these behaviours typically involve any type of behaviour that is considered harmful (i.e. lying, bullying, skipping work, assault, etc.), goes against the generally agreed-upon norms in society, and that elicits a negative response (Cho et al., 2010; Reavy, Stein et al., 2012). For this study, the terms antisocial and deviant will be treated as interchangeable.

Deviant behaviour has several undesirable consequences for society and on individuals – the financial, emotional, and potentially physical effects on victims, the financial cost of treatment, and the cost of preventative measures throughout society (i.e., security measures), just to name a few. By increasing the collective understanding of why individuals engage in antisocial behaviours, society can provide more effective preventive, assessment, and treatment techniques that target these behaviours. Both criminal and non-criminal deviant acts can have huge detriments on society, including financial, emotional, and physical impacts, as the most apparent consequences of these behaviours.

The purpose of this study is to understand how self-determination (otherwise known as motivation), gender, deviance, and risk factors are intertwined. The objectives of the study are i) to determine if there is a significant relationship between each of the types of self-determination (autonomous, controlled, and impersonal) and gender and ii) how do the types of self-determination orientations (autonomous, controlled, and impersonal) and gender interact with the number and severity of deviant acts an individual engages in, and the amount of risk factors present for each individual. While there has been a multitude of research done on risk factors that may lead an individual to a criminal lifestyle, the impact of self-determination, along with gender, have not been widely researched in this way (Mann et al., 2010; Murray & Farrington, 2010; Zara & Farrington, 2010).

### **Self-Determination Theory**

Conceptually, Self Determination Theory (SDT) began as an exploration into intrinsic motivation, which at the time contrasted with behaviourist notions of motivation (Deci & Ryan, 1980a; 1980b). As SDT developed, early theoretical understandings of intrinsic and extrinsic motivation evolved (Deci & Ryan, 1985). This concern with how individuals organized their actions saw the advancement of the four main tenants of SDT that are most fundamental to the theory. First, that the type of motivation an individual holds is more central in predicting outcomes than the amount of motivation; second, there are three basic, universal human psychological needs related to motivation - competence, autonomy, and relatedness; third, there are three types of motivation orientations or regulatory systems – autonomous, controlled, and impersonal, and three corresponding types of motivation – intrinsic, extrinsic, and amotivation; and fourth, that all people have each of the motivation orientations, but to varying degrees, and that each individual typically has more of one type than the others (Deci & Ryan, 1985; 2000; 2008a; 2008b; Ryan & Deci, 2019; 2020).

Intrinsic motivation involves participating in activities because they are inherently interesting and satisfying to the individual, rather than due to separate, external outcomes. Intrinsic motivation is considered by Deci and Ryan (2000) as a volitional, or self-determined activity. Intrinsically motivated activities are often done to meet the innate, basic human psychological needs of competence, autonomy, and relatedness.

According to Deci and Ryan (1985; 2000; 2008b), individuals participate in extrinsic behaviours to attain a separate, external outcome. More specifically, Deci and Ryan (2000) identified four types: external regulation, introjection, identification, and integration, which exist on a spectrum of motivation and locus of control.

Amotivation is regarded by Deci and Ryan (1985; 2000) to be the absence of motivation. Deci and Ryan (2000; 2008a) continued on to explain that amotivation occurs when an individual does not value an activity, does not perceive that they are competent enough to accomplish it, or that they do not believe a behaviour will result in a desired outcome. Deci and Ryan (1985) also liken amotivation to depression or other periods of low interest and energy.

Further, SDT postulates that there are three basic, innate psychological human needs required for effective functioning and psychological health– competence, autonomy, and relatedness (Deci & Ryan, 2000; 2008b; Ryan et al., 2019). The presence or absence of each of these needs also influences an individual’s motivational orientation. Previous research has supported the existence of these needs, and that they are consistent across cultures and worldviews (Deci & Ryan, 2008b).

Competency is largely known as the feeling that one can successfully and efficiently complete a task or activity. Autonomy is commonly known as “the ability for one to make their own decisions”. Both competency and autonomy can be increased through positive feedback and choice, and thwarted by negative feedback and rewards based on task performance. Finally, relatedness provides us with a sense of belongingness to a person, group, society, or culture (Deci & Ryan, 2000).

### **Motivational Orientations**

While there are three main types of motivation, intrinsic, extrinsic, and amotivation, according to Deci and Ryan (1985) there are also three types of motivational orientations which guide said behaviours. These orientations are all-encompassing and include an individual’s beliefs, attitudes, and perceived locus of control. The motivational orientations theorized by Deci and Ryan (1985) are autonomy orientation, control orientation, and impersonal orientation. Most individuals have aspects of each of the three orientations, however, individuals have differing levels of each of the orientations (Deci & Ryan, 1985). It is more accurate to describe the orientations as sliding scales rather than determinant groups. Further, it is important to note that Deci and Ryan (1980a; 1980b; 2000) hypothesized that the type of motivation, more so than the amount of motivation, is what guides our actions and behaviours.

In the autonomy orientation, individuals participate in activities in correspondence to their values and their own volition (Deci & Ryan, 2008b). These individuals are driven by their need for personal satisfaction and competence, hence they tend to organize their priorities based on their personal goals and interests. They also choose to seek out opportunities that strengthen their autonomy, competence, and relatedness to others such as jobs that require a high level of initiative and have a large amount of freedom (Deci & Ryan, 1985; 2000; 2008b). As reasonably expected, intrinsic motivation is an example of someone behaving in an autonomous way (Deci & Ryan, 2008b). However, there are also autonomous forms of extrinsic motivation. These are similar to intrinsic motivation in their volitional nature, except that extrinsic autonomous motivation is not organized around enjoyment or interest. Rather, extrinsic autonomous motivation is integrated and identified based on the perceived worthiness or value of the activity to the individual (Ryan & Deci, 2020).

In this sense, Ryan and Deci (2020) postulate that various forms of extrinsic self-regulatory systems exist, including external regulation, introjection, identification and integration. These self-regulatory systems co-exist along an autonomy continuum, with identification and integration regulations being influenced by an increase in autonomy and perceived value of the activity. As such, identification and integration are considered to be aspects of extrinsic autonomous motivation. High autonomy then, has been shown to lead to several positive life outcomes, such as better psychological, social, and physical well-being, higher self-esteem, better learning, greater work satisfaction and relationship outcomes and that this occurs across many distinct and varied cultures (Baard et al., 2004; Chirkov & Ryan, 2001, Chirkov et al., 2003; Deci et al., 1989; Deci & Ryan, 2008a; Lynch et al., 2005; Sheldon et al., 2004).

In the control motivation orientation, individuals act on extrinsic motivation and engage in behaviours that are controlled through external pressures, leaving them to have an external locus of control, and lack volition and agency (Deci & Ryan, 1985). These individuals view factors such as pay and status, for example, as very important when making decisions or choosing jobs (Deci & Ryan, 2000; 2008b).

Finally, the impersonal orientation involves individuals that believe they cannot regulate or determine their own behaviour, and who tend to view outcomes to be independent of their behaviour (Deci & Ryan, 1985; 2000). Individuals that suffer with depression and/or anxiety often have these cognitions and may believe that they are unable to control or change their situation. These individuals often follow expectations, not because they are controlled by them, but because they lack the intentionality needed to do something different (Deci & Ryan, 1985). Again, it is important to re-iterate that individuals do not solely fall into one of these three categories. Everyone has components from each of these categories, however, according to Deci and Ryan (1980a; 1980b; 2008b), we tend to be higher on the scale for one of these types than the others. Deci and Ryan (1980a, 1980b; 1985; 2000) also hypothesized that there is a range of different phenomena that are related to an individual's motivation orientation, including, but not limited to, their perceived locus of control, perceived competence, the presence or absence of salient rewards, and self-esteem.

### **Gender and Deviant Behaviour**

As mentioned previously, a significant difference between males and females engaging in criminal activities has been observed consistently for decades (Steffensmeier & Allan, 1996). Recently, females have been reported to account for approximately 25% of the police-reported crime in Canada (Savage, 2019). According to LaGrange and Silverman (1999), gendered differences are partially due to males generally maintaining a lower level of self-control and having higher amounts of potential opportunities. These researchers defined low self-control to include risk-seeking, impulsivity, temper, being present-oriented and careless, which in turn, can align with some of the characteristics in Deci and Ryan's (1985, 2000) controlled and impersonal orientations. Other researchers have found that certain risk factors, such as attention deficits, attachment to peers, depression, and childhood maltreatment influenced males and females differently (Abajobir et al., 2017; Daigle et al., 2007). Extrapolating from this, since there are fundamental differences in the critical risk factors for males and females, it could be theorized that males and females are likely to represent different self-determination orientations, with males showing dominance in the control and impersonal categories, and females in the autonomous category.

### **Risk Factors and Deviant Behaviours**

Risk factors are generally described as “those characteristics, variables, or hazards that, if present for a given individual, make it more likely that this individual, rather than someone selected from the general population, will develop a disorder” (Mrazek & Haggerty, 1994, p. 127). Any number of risk factors can increase an individual’s chance of engaging in deviant and/or criminal behaviour, however, they do not determine if someone will engage in those behaviours with any certainty whatsoever. Nevertheless, with each additional risk factor an individual has, the likelihood that they may participate in deviant behaviours increases (Shader, 2001). Self-Determination Theory postulates that if the offender’s needs are met in a pro-social way, the offender’s motivational orientation may shift and they will begin to engage in society in more prosocial ways. Subsequently, it could be predicted that an individual’s specific motivational characteristics could act as a risk factor for engaging in deviant behaviours.

### **Methods**

This study explores the relationship between each self-determination category (autonomous, controlled, and impersonal) and gender. This includes examining the effect of gender on each of the types of self-determination, as well as investigating the interactions between the type of self-determination orientation and gender with the number and severity of deviant acts an individual may engage in and participant’s amount of risk factors. There are three hypotheses. First, there will be a significant relationship between gender and self-determination. More so, it is hypothesized that the autonomous orientation will be made up primarily of females, while the other two orientations (controlled and impersonal) will primarily consist of males.

Relating to the second research question, it is theorized that there will be a significant relationship between an individual’s type of motivation orientation and their engagement in deviant activities. In particular, it is hypothesized that the control and impersonal orientations will result in higher amounts of deviant behaviours. Further, it is postulated that not only will the control and impersonal orientations lead to more antisocial behaviours, but they will also lead to more extreme antisocial behaviours as well. Finally, it is also hypothesized that gender will interact with self-determination and deviance decreasing the strength of the relationship between the amount of self-determination and deviance for females.

Lastly, it is theorized that there will also be a significant interaction between the motivational orientations and the number of risk factors present. Specifically, it is hypothesized the controlled and impersonal orientations will result in higher amounts of self-reported risk factors. Gender is again hypothesized to interact with this relationship, decreasing the strength of the relationship between the amount of self-determination and risk factors for females.

### **Participants**

The participant sample was derived from undergraduate students who were 18 years or older and were enrolled at the University of Saskatchewan. Participants completed an online self-report survey through Survey Monkey and were compensated with either bonus credits or a chance to win a gift card. The University of Saskatchewan’s PAWS and SONA systems was utilized to recruit the participant sample. Participants were ensured that their data would be de-identified and kept strictly confidential. As well, participants were informed that they could quit the study and ask to have their data withdrawn at any time, without any consequences, and would still receive appropriate compensation for their time. Finally, participants received a full explanation of the study and its’ importance before they were given the opportunity to electronically sign an informed consent or to cease with the study. Once the informed consent

process was complete, student participants were then welcomed to complete the survey package. The online survey consisted of four parts: demographic information, the General Causality Orientations Scale, a modified version of the Delinquent Activities Scale, and a modified version of the Violence Risk Scale. The survey package took approximately 15 minutes to complete.

### Measures

**Self-Determination.** The General Causality Orientations Scale - 17 item version (GCOS) was used to measure a participant's relative degree of autonomy, controlled, and impersonal orientations (Deci & Ryan, 1985). The GCOS is a survey that consists of a number of vignettes and three items for each vignette. Each of the three items corresponds with a motivation orientation. The participant is instructed to read the vignette and then rate how likely they would be to respond in each of the three ways on a Likert scale from 1 – 7 (1 being least likely, 7 being most likely). Ultimately, within each vignette, the respondent is indicating how likely they would be to respond in an autonomous, controlled, and impersonally consistent manner. At the end of the survey, respondents are given a score for each of the orientations. The GCOS has been shown to be internally consistent ( $\alpha = .75$ ), have good test-retest reliability ( $r = .74$ ) over two months, and behave as expected in correlation with other theoretically related constructs (Deci & Ryan, 1985).

**Deviant/Antisocial Behaviours.** The Delinquent Activities Scale (DAS), which is used as a binary self-report measure of delinquency, was used as a baseline source for identifying the amount and severity of deviant behaviours (Reavy et al., 2012). However, since the current study is more concerned about deviant rather than criminal behaviours, this scale was modified slightly to match the needs of this study. Severely antisocial items such as “been involved in gang fights” were changed slightly to more pertinent items such as “been involved in multiple fights” and items such as engaged in any other potentially minor illegal or deviant activities that have not been discussed above (i.e. drinking in public, not following posted rules, parking in no-parking areas) were added in order to supplement the questionnaire. Participants were instructed to indicate if they either have or have not participated in the given activities in the last 12 months. The DAS does not account for how frequently an individual participates in the same activity.

The amount or frequency of deviant behaviours was found by calculating the mean number of times any given participant answered *yes* to engaging in any of the activities. In order to assess for severity, items from the DAS were weighted according to current Canadian penalties, such as getting a warning for skipping work to a fine for distracted driving to incarceration for dealing drugs or theft, by separating them into five categories (Government of Canada, 2019). Participant's answers were coded, into one out of the five categories. Finally, the mean severity of behaviours was calculated for each participant with the coded values.

The DAS has been shown to have an internal consistency of  $\alpha = .69$  for generalized delinquency and significant test-retest reliability ( $r = .204$ ,  $p = .006$ ). The researchers did note, however, that the low retest score could be due to a number of factors: a long retest interval (eight months), intervening treatments, or that the scales were intended to measure current and easily changeable behavioural patterns, not relatively stable personality traits. The DAS showed evidence of good construct validity when examined in relation to other relative factors (Reavy et al., 2012; Reavy et al., 2014). An analysis was run on the revised version of the DAS used for this study which revealed an internal consistency of  $\alpha = .82$  for generalized delinquency.

**Risk Factors.** To assess the role of self-determination as a risk factor, its' relationship to other risk factors was considered to examine its' convergent validity. In order to measure convergent validity, participants completed the Violence Risk Scale (VRS) (Lewis et al., 2012). The VRS consists of 6 static and 20 dynamic factors, which are rated on a Likert type scale from 0 (very rarely) – 3 (very often). Typically, the items on this scale are rated by clinicians, but for the purpose of this study, they were self-reported by participants. Similar to the DAS, since the current study is interested in deviance in the general population, rather than violent behaviours in criminal populations, some of the VRS items were modified slightly. For example, items such as “prior release failures” and “security level at release” were removed from the survey, while more pertinent risk factors examining participants' outlook on education and family stress were added. The VRS acts as a strong primary source for the identification of other possible risk factors, with an internal consistency of  $\alpha = .93$  and interrater reliability of  $r = .93$  and  $r = .84$  (Gordon, 1998; Wong & Gordon, 2003; 2006). The VRS has also been shown to be successful in predicting recidivism anywhere from 1 to 4 years later (Wong & Gordon, 2006).

### Data Analysis

To investigate the research questions, two distinct data analysis methods were used. A Chi-square analysis was chosen due to its' non-parametric characteristics, which “allows us to make inferences about population frequencies from sample frequencies” (Evans, 1992, pg. 309). Chi-square is also used to test the frequencies of categorical variables, meaning that it compares the expected outcome to the observed outcome (Evans, 1992). A Chi-square Test for Independence was undertaken to analyze if self-determination and gender are dependent.

A two-way MANOVA was also chosen as a method of analysis due to its ability to compare multiple independent variables with numerous levels to multiple dependent variables. For the MANOVA, the independent variables were the type of self-determination, which is comprised of three levels: the autonomous orientation, the control orientation, and the impersonal orientation, and gender, which has two levels: female and male. The dependent variables were the number of deviant behaviours engaged in, the severity of the deviant behaviours engaged in, and participant's scores on the VRS. By examining participant's scores on the VRS, it is possible to observe the interactions between self-determination, gender, deviance and other well-known risk factors to have a more complete view of the relationship between self-determination and deviance.

As part of the data analysis, the statistical assumptions for a MANOVA were checked to see if they were met (Field, 2013). Box's Test of Equality of Covariance was used to determine that the assumption of homogeneity of covariance matrices was met. Levene's Test of Equality of Error Variances was also checked for non-significance ( $p < 0.5$ ). Multivariate normality of residuals and random sampling have also been assumed. Finally, Wilk's Lambda was chosen to determine the differences of variances between groups.

### Results

The results presented examine the interactions between type of self-determination orientation (autonomous, controlled, and impersonal), gender, the number and severity of deviant acts an individual may engage in, and participant's amount of risk factors. An individual's self-determination orientation was measured by the General Causality Orientation Scale (GCOS) (Deci & Ryan, 1985), while the number and severity of deviant acts were measured through



the Delinquent Activities Scale (DAS) (Reavy et al., 2012), with an individual's amount of risk factors measured by the Violence Risk Scale (VRS) (Wong & Gordon, 2003).

442 individuals participated in this study. However, eight participants requested for their data to be withdrawn and two participants were excluded from the data analysis as they were under 18 years of age, leaving 432 participants. Descriptive statistics including gender, age, ethnicity, year of study, and program of study were collected in order to be able to describe the sample population in detail. The remaining sample (N=432) was predominantly female (77%, N = 333), Caucasian (64%, N=275), in either their first (26%, N=111) or second (28%, N=119) year of university, in either Arts (33%, N=142) or Science (37%, N= 157) as their field of study, and had a median age range of 18-24 years with age groupings ranging from 18 to 54 years. After assessing demographic information, 18 participants were removed due to a significant amount of missing data and nine participants were removed for having scores over three standard deviations above the test means for the number of deviant acts, the severity of deviant acts, and the number of risk factors. Finally, participants who identified as “non-binary” (N=5) were removed from the data population due to the low numbers and because this research was primarily interested in differences between individuals who identified as male or female, leaving 400 participants to be included in the analysis. Since the removed participants were a part of the population sample, they were included in the demographic statistics. The outliers were identified through a box plot graph and data points were excluded from the Chi-square Test for Independence and the MANOVA analysis.

In determining if there is a significant relationship between each of the types of self-determination (autonomous, controlled, and impersonal) and gender a Chi-square Test for Independence was conducted. The Chi-square Test for Independence was not significant for self-determination and gender,  $\chi^2(2, N = 400) = 1.33, p < .05$ . The findings indicate that self-determination and gender are independent

A two-way MANOVA was conducted to ascertain how self-determination orientations (autonomous, controlled, and impersonal) and gender interact with the number and severity of deviant acts an individual engages in and the amount of risk factors present for each individual. Since a MANOVA is the intended method of analysis, the MANOVA assumptions were checked. Box's Test of Equality of Covariance Matrices was not significant ( $p = .119$ ), meaning that the assumption of homogeneity between groups was met for this analysis. Levene's Test of Equality of Error Variances ( $p < 0.5$ ) also showed non-significant results in all three variables assessed (number of deviant acts;  $p = .893$ , severity of deviant acts;  $p = .447$ , and the number of risk factors;  $p = .855$ ), further supporting that the assumption of homogeneity between groups had been met. Due to the sample size, the assumptions of multivariate normality of residuals and random sampling are assumed.

Pillai's Trace is used to determine the differences of variances between groups, as all the assumptions of a MANOVA were met but the sample sizes were unequal. According to Field (2013) in such situations, Pillai's Trace is the most robust test statistic when working with unequal sample sizes when the MANOVA assumptions are met.

In Table 1 the composite scores for self-determination by gender show a significant interaction effect (Pillai's Trace = .056, ( $F = 9, 1191) = 2.538, p = .007, \eta^2 = .019$ ). The effect of self-determination on the dependant variables is significant (Pillai's Trace = .032, ( $F(6, 792) = 2.153, p = .046, \eta^2 = .016$ ), meaning that self-determination accounts for 1.6% of variance in deviance and risk factors. When between-subject tests were run, the interaction between self-

determination by gender and the number of deviant acts is shown to be significant  $F(3, 397) = 3.38, p = .018, \eta^2 = .025$ .

**Table 1**  
*MANOVA Results*

Variable		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Self-Determination	Pillai's Trace	.032	2.153	6.000	792.000	.046*	.016
	Wilk's Lambda	.968	2.148	6.000	790.000	.046*	.016
	Hotelling's Trace	.033	2.143	6.000	788.000	.047*	.016
	Roy's Largest Root	.019	2.504	3.000	396.000	.059	.019
Gender	Pillai's Trace	.021	1.373	6.000	792.000	.223	.010
	Wilk's Lambda	.979	1.371	6.000	790.000	.046*	.016
	Hotelling's Trace	.021	1.370	6.000	788.000	.224	.010
	Roy's Largest Root	.016	2.169	3.000	396.000	.091	.016
Self-Determination x Gender	Pillai's Trace	.056	2.538	9.000	1191.000	.007*	.019
	Wilk's Lambda	.944	2.541	9.000	961.477	.007*	.019
	Hotelling's Trace	.058	2.536	9.000	1181.000	.007*	.019
	Roy's Largest Root	.036	4.731	3.000	397.000	.003*	.035

\* $p < .05$

The separate univariate ANOVAs in Table 2 indicate non-significant self-determination effects on the number of deviant acts  $F(2, 397) = 1.91, p = .150, \eta^2 = .01$ , the severity of deviant acts  $F(2, 397) = 1.47, p = .231, \eta^2 = .007$ , and the amount of risk factors present  $F(2, 397) = .461, p = .631, \eta^2 = .002$ . Field (2013) explains that this phenomenon is due to the multivariate test considering the correlation between dependant variables, meaning MANOVA, rather than univariate ANOVAs, has more power to determine group differences. The effect of the dependant variables on self-determination are further examined in a discriminate function. Gender did not show a significant interaction (Pillai's Trace = .021,  $F(6, 792) = 1.373, p = .223, \eta^2 = .01$ ).

**Table 2***Univariate Analysis of Variance: F Ratios for Three Dependent Variables*

Variable	Self-Determination	Gender	Self-Determination x Gender
	(F <sub>2, 397</sub> )	(F <sub>2, 397</sub> )	(F <sub>2, 397</sub> )
Number of Deviant Acts	1.91	.831	3.38*
Severity of Deviant Acts	1.47	.284	2.11
Amount of Risk Factors Present	.461	1.57	1.63

\*p &lt; .05

A discriminant analysis was run on self-determination to further examine which level(s) or predictor variable(s) significantly affects the dependant variables. This analysis revealed two discriminant functions as seen in Table 3. The first function explained 67.3% of the variance, with a canonical  $R^2 = .0038$ , while the second function explained 32.7% of the variance, with a canonical  $R^2 = .0018$ . Together these discriminant functions did not significantly differentiate the groups (Wilk's  $\Lambda = .994$ ,  $\chi^2(6) = 2.30$ ,  $p = .890$ ). As displayed in Table 4, removing the first function also indicated in a non-significant result (Wilk's  $\Lambda = .998$ ,  $\chi^2(2) = .754$ ,  $p = .686$ ). The discriminate function plot showed that the first function discriminated the autonomous orientation group from the control orientation group, and the second function differentiated the impersonal orientation group from the prior two. However, as previously noted, there were no significant differences found when comparing the two groupings. The F-ratios, means (M) and standard deviations (SD) for gender and self-determination are illustrated in Table 5. In all cases the means for number of deviant acts, severity of acts, and amount of risk factors present were slightly, though not significantly, higher for males than they were for females.

**Table 3***Discriminant Function Analysis Eigenvalues*

Function	Eigenvalue	Percent of Variance	Cumulative Percentage	Canonical Correlation
1	.004	67.3	67.3	.062
2	.002	32.7	100.0	.043

**Table 4***Discriminant Function Analysis Wilk's Lambda*

Test of Function(s)	Wilk's Lambda	Chi-square	df	Sig.
1 through 2	.994	2.301	6	.890
2	.998	.754	2	.686

**Table 5***Observed Means and Standard Deviations for Gender and Self-Determination Groups*

Variable	Gender				Self-Determination					
	Male		Female		Autonomous		Controlled		Impersonal	
	M	SD	M	SD	M	SD	M	SD	M	SD
Number of Deviant Acts	.093	.075	.085	0.69	.087	.071	.088	.065	.081	.084
Severity of Deviant Acts	.165	.158	.138	.138	.146	.145	.145	.121	.121	.138
Amount of Risk Factors Present	.454	.164	.409	.160	.419	.163	.467	.156	.405	.141

\* $p < .05$ 

### Discussion

The purpose of this study was to first, examine the relationship between gender and self-determination and second, to explore the interactions between self-determination and gender, and risk factors and deviance. Self-Determination Theory from Deci and Ryan (1985, 2000, 2008b) served as the foundation for this study. The findings for the first research question, pertaining to the relationship between gender and self-determination examined through a Chi-square Test for Independence, found that gender does not significantly contribute to any one type of self-determination. This finding illustrates that neither males or females are more likely to be included in or contribute to any one particular orientation over the others. Therefore, the gender differential in deviance may not be influenced by a specific gender being generally more or less self-determined (i.e. autonomously motivated vs control motivated).

The second research question explored the relationship between self-determination and gender as independent variables, and deviance and risk factors as dependant variables. The findings for the MANOVA analysis indicated that there was a small but significant group difference for the effects of self-determination related to the number of deviant acts, the severity of deviant acts, and the number of risk factors present. However, upon further inspection, the findings for the follow up contrasts and discriminate analysis indicated there is not a significant difference between the levels of self-determination. This phenomenon occurs in research regularly, as MANOVA gives the original variable (i.e. self-determination) more power when considered all together as a MANOVA, than when it is considered after being split into three groups, as multiple ANOVAs (Field, 2013).

Although the effects were not significant, the general outcomes of this analysis are intriguing. Contrary to the hypothesis, the control and the impersonal orientation were not associated with a higher amount and severity of deviant behaviours. Rather, these orientations were only associated with more deviant behaviours for certain groups. Specifically, the control orientation was only associated with an increase in deviance for females, while increasing deviant behaviours was only associated with the impersonal orientation for males. The autonomous orientation was generally related to higher amounts and severity of deviance. However, it is important to note is that the male gender sample was also quite small when

compared to the female gender sample. The sample sizes of these groupings may also have an influence on the results found in this study.

Supporting effects for SDT in fulfilling basic psychological needs have been found in workplace, health care, sport, technological, and educational research (Ryan & Deci, 2019; 2020). When one's basic psychological needs and the internalization of autonomy and competence are thwarted, deviant behaviours among students (Niemi & Ryan, 2009; Ryan, & Deci, 2000) or in the workplace can occur (Manganelli et al., 2018). For example, Van Petegem et al., (2015) found that when parents exert a controlling parenting style their adolescent children experienced frustration in actualizing their need for autonomy which in turn can result in oppositional behaviors.

It was theorized by Deci and Ryan (1985) that those individuals who had or did not have specific life events (such as perceived loss of control or substantial emphasis on external rewards) would be more likely to be orientated in a certain way. The results from this study illustrate that an individual's orientation is not necessarily an indicator of the amount or type of risk factors a given individual has, or if they have or have not engaged in deviant behaviours. It could be that Deci and Ryan's (1985) factors of self-determination are distinctly different or not related to the risk factors reported or that the study's findings are unique to the measures used and subject sample derived

### **Implications**

At the beginning of this study, it was posited that the results may be able to provide more insight into why people engage in deviant behaviours. Although a significant effect was found for the relationship between self-determination, deviance and risk factors, self-determination was only shown to account for 1.6% of the variance in deviance and risk factors. While this relationship is significant, it offers little real-world value. This research may help illustrate the domains in which self-determination has significant effects, such as in work and educational settings as previously shown, and in which domains, such as deviance, other factors may be involved (Baard et al., 2004; Deci et al., 1989; Deci & Ryan, 2008a; Lynch et al., 2005; Vansteenkiste et al., 2004).

As well as providing additional insight into deviant behaviours for educational or research purposes, it is also suggested that the findings could be used to enhance risk assessments and counselling tools. While there may be other mediating factors to address regarding deviance, self-determination has been shown to have a meaningful place within the counselling domain. Deci and Ryan (2008b) illustrated how utilizing self-determination in counselling can help clients to autonomously explore and create change. Deci and Ryan (2008b) discussed the practice of using self-determination to support motivational interviewing techniques, as well as ensuring client's three basic psychological needs are met. Finally, Deci and Ryan (2008b) advocate that integrating self-determination into the counselling process enhances the likelihood that treatment goals will be met and maintained.

### **Conclusion**

#### **Limitations**

There are number of limitations to the current study. The first limitation of is that the sample population included unequal sample sizes, with the overall sample composed of a substantially greater number of undergraduate female participants. A second limitation is that the sample population was exclusively made up of University of Saskatchewan students which does not

necessarily represent the Saskatchewan or Canadian population. A third limitation is that participants were recruited using convenience sampling rather than random sampling. Consequently, the results of this study are not generalizable to populations outside of this participant group. A fourth limitation of this study is that some of the measures used were modified to fit the sample population better, and therefore may not have retained their original measures of validity and reliability. In addition, the VRS is a measure that is typically completed by trained professionals to assess violent offenders, but it was applied to a generally non-violent population in a self-report fashion.

### **Future Research**

This study was exploratory in nature and future research should further investigate the underpinnings of self-determination theory and its' relationship to deviance in larger more representative populations. Recommendations for future research include replicating the study with a general or offender population and utilizing random sampling in order to ensure generalizability. As well, future research should examine what (if any) are the mediating factors in the relationship between self-determination and deviance. Finally, more research is needed into SDT and its application in areas outside of education, work, and personal attributes. In specific, investigations into deviance and risk factors are desired in order to better understand the applicability of SDT. Expanding the research on deviant behaviours will allow for a more informed work and a greater understanding of those who commit antisocial acts. The results of this study indicate that the relationship between SDT, deviance, and the influence of gender, is complex and may not mirror the effects that have been shown between self-determination and other concepts.

## References

- Abajobir, A. A., Kisely, S., Williams, G., Strathearn, L., Clavarino, A., & Najman, J. M. (2017). Gender differences in delinquency at 21 years following childhood maltreatment: A birth cohort study. *Personality and Individual Differences, 106*, 95–103. <https://doi.org/10.1016/j.paid.2016.10.020>
- Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *Journal of Applied Social Psychology, 34*(10), 2045–2068. <https://doi.org/10.1111/j.1559-1816.2004.tb02690.x>
- Chirkov, V. I., & Ryan, R. M. (2001). Parent and teacher autonomy-support in Russian and US adolescents: Common effects on well-being and academic motivation. *Journal of Cross-Cultural Psychology, 32*(5), 618–635. <https://doi.org/10.1177/0022022101032005006>
- Chirkov, V., Ryan, R. M., Kim, Y., & Kaplan, U. (2003). Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalization of cultural orientations and well-being. *Journal of Personality and Social Psychology, 84*(1), 97–110. <https://doi.org/10.1037/0022-3514.84.1.97>
- Cho, Y. I., Martin, M. J., Conger, R. D., & Widaman, K. F. (2010). Differential item functioning on antisocial behavior scale items for adolescents and young adults from single-parent and two parent families. *Journal of Psychopathology and Behavioral Assessment, 32*(2), 157–168. <https://doi.org/10.1007/s10862-009-9145-1>
- Daigle, L. E., Cullen, F. T., & Wright, J. P. (2007). Gender differences in the predictors of juvenile delinquency: Assessing the generality-specificity debate. *Youth Violence and Juvenile Justice, 5*(3), 254–286. <https://doi.org/10.1177/1541204007301289>
- Deci, E. L., Connell, J. P., & Ryan, R. M. (1989). Self-determination in a work organization. *Journal of Applied Psychology, 74*(4), 580–590. <https://doi.org/10.1037/0021-9010.74.4.580>
- Deci, E. L., & Ryan, R. M. (1980a). Self-determination theory: When mind mediates behavior. *The Journal of Mind and Behavior, 1*(1), 33–43. <https://www.jstor.org/stable/43852807>
- Deci, E. L., & Ryan, R. M. (1980b). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), Vol. 13. *Advances in experimental social psychology* (pp. 39–80). Academic Press. [https://doi.org/10.1016/S0065-2601\(08\)60130-6](https://doi.org/10.1016/S0065-2601(08)60130-6)
- Deci, E. L., & Ryan, R. M. (1982). Intrinsic motivation to teach: Possibilities and obstacles in our colleges and universities. *New Directions for Teaching and Learning, 10*, 27–35. <https://doi.org/10.1002/tl.37219821005>
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self determination in personality. *Journal of Research in Personality, 19*(2), 109–134. [https://doi.org/10.1016/0092-6566\(85\)90023-6](https://doi.org/10.1016/0092-6566(85)90023-6)
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268. [https://doi.org/10.1207/S15327965PLI1104\\_01](https://doi.org/10.1207/S15327965PLI1104_01)

- Deci, E. L., & Ryan, R. M. (2008a). Facilitating optimal motivations and psychological well-being across life's domains. *Canadian Psychology*, 49(1), 14–23. <https://doi.org/10.1037/0708-5591.49.1.14>
- Deci, E. L., & Ryan, R. M. (2008b). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology*, 49(3), 182–185. <https://doi.org/10.1037/a0012801>
- Evans, A.N. (1992). *Using Basic Statistics in the Behavioral Sciences* (2nd ed). Prentice Hall.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). Sage.
- Gordon, A. (1998). *The Reliability and validity of the violence risk scale experimental version 1* Master thesis, College of Education, University of Saskatchewan]. Electronic Theses and Dissertations. <http://hdl.handle.net/10388/etd-05202009075549>
- Government of Canada. (2019). Criminal Code. <https://laws-lois.justice.gc.ca/eng/acts/c-46/>.
- LaGrange, T. C., & Silverman, R. A. (1999). Low self-control and opportunity: Testing the general theory of crime as an explanation for gender differences in delinquency. *Criminology*, 37(1), 41–72. <https://doi.org/10.1111/j.1745-9125.1999.tb00479.x>
- Lewis, K., Olver, M. E., & Wong, S. C. (2012). The Violence Risk Scale: Predictive validity and linking changes in risk with violent recidivism in a sample of high-risk offenders with psychopathic traits. *Assessment*, 20(2), 150–164. <https://doi.org/10.1177/1073191112441242>
- Lynch Jr, M. F., Plant, R. W., & Ryan, R. M. (2005). Psychological needs and threat to safety: Implications for staff and patients in a psychiatric hospital for youth. *Professional Psychology: Research and Practice*, 36(4), 415. <https://doi.org/10.1037/0735-7028.36.4.415>
- Manganelli, L., Thibault-Landry, A., Forest, J., & Carpentier, J. (2018). Self determination theory can help you generate performance and well-being in the workplace: A review of the literature. *Advances in Developing Human Resources*, 20(2), 227-240. <https://doi.org/10.1177/1523422318757210>
- Mann, R. E., Hanson, R. K., & Thornton, D. (2010). Assessing risk for sexual recidivism: Some proposals on the nature of psychologically meaningful risk factors. *Sexual Abuse*, 22(2), 191–217. <https://doi.org/10.1177/1079063210366039>
- Mrazek, P.J., & Haggerty, R.J. (Eds), (1994). *Reducing risks for mental disorders: Frontiers for preventative intervention research*. National Academy Press. [https://doi.org/10.1016/0277-9536\(96\)80828-8](https://doi.org/10.1016/0277-9536(96)80828-8)
- Murray, J., & Farrington, D. P. (2010). Risk factors for conduct disorder and delinquency: Key findings from longitudinal studies. *The Canadian Journal of Psychiatry*, 55(10), 633–642. <https://doi.org/10.1177/070674371005501003>
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education*, 7(2), 133-144. <https://doi.org/10.1177/1477878509104318>
- Office of the Parliamentary Budget Officer. (2018). *Update on costs of incarceration*. Government of Canada.



- Reavy, R., Stein, L. A. R., Quina, K., & Paiva, A. L. (2014). Assessing conduct disorder: A new measurement approach. *Journal of Correctional Health Care*, 20(1), 4–17. <https://doi.org/10.1177/1078345813505448>
- Reavy, R., Stein, L. A. R., Paiva, A., Quina, K., & Rossi, J. S. (2012). Validation of the delinquent activities scale for incarcerated adolescents. *Addictive Behaviors*, 37(7), 875-879. <https://doi.org/10.1016/j.addbeh.2012.03.007>
- Ryan, R., & Deci, E. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist*, 55(1), 68–78.
- Ryan, R. M., & Deci, E. L. (2019). Brick by brick: The origins, development, and future of self-determination theory. In *Advances in motivation science* (Vol. 6, pp. 111–156). Elsevier. <https://doi.org/10.1016/bs.adms.2019.01.001>
- Ryan, R. M., Ryan, W. S., Di Domenico, S. I., & Deci, E. L. (2019). The nature and the conditions of human autonomy and flourishing: Self-determination theory and basic psychological needs. In R. M. Ryan (Ed.). *The Oxford handbook of human motivation* (pp. 89–110). (2nd ed.). Oxford University Press. <http://doi.org/10.1093/oxfordhb/9780190666453.013.6>
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 1–11. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Savage, L. (2019). Female offenders in Canada, 2017. <https://www150.statcan.gc.ca/n1/pub/85-002-x/2019001/article/00001-eng.htm>
- Shader, M. (2001). *Risk factors for delinquency: An overview*. US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention. <https://www.ncjrs.gov/pdffiles1/ojjdp/frd030127.pdf?q=risk-and-protective-factors-of-child-delinquency>.
- Sheldon, K. M., Elliot, A. J., Ryan, R. M., Chirkov, V., Kim, Y., Wu, C., ... & Sun, Z. (2004). Self-concordance and subjective well-being in four cultures. *Journal of Cross-Cultural Psychology*, 35(2), 209–223. <https://doi.org/10.1177/0022022103262245>
- Steffensmeier, D., & Allan, E. (1996). Gender and crime: Toward a gendered theory of female offending. *Annual Review of Sociology*, 22(1), 459–487. <https://doi.org/10.1146/annurev.soc.22.1.459>
- The John Howard Society of Canada. (2018). Financial facts on Canadian prisons. <http://johnhoward.ca/blog/financial-facts-canadian-prisons/>
- Van Petegem, S., Soenens, B., Vansteenkiste, M., & Beyers, W. (2015). Rebels with a cause? Adolescent defiance from the perspective of reactance theory and self-determination theory. *Child Development*, 86(3), 903–918. <https://doi.org/10.1111/cdev.12355>
- Vansteenkiste, M., Simons, J., Soenens, B., & Lens, W. (2004). How to become a persevering exerciser? Providing a clear, future intrinsic goal in an autonomy-supportive way. *Journal of Sport and Exercise Psychology*, 26(2), 232–249. <https://doi.org/10.1123/jsep.26.2.232>

Wong, S., & Gordon, A. E. (2003). *The Violence Risk Scale*. Saskatoon, Saskatchewan, Authours.

Wong, S. C., & Gordon, A. (2006). The validity and reliability of the Violence Risk Scale: A treatment-friendly violence risk assessment tool. *Psychology, Public Policy, and Law*, 12(3), 279–309. <https://doi.org/10.1037/1076-8971.12.3.279>

Zara, G., & Farrington, D. P. (2010). A longitudinal analysis of early risk factors for adult-onset offending: What predicts a delayed criminal career? *Criminal Behaviour and Mental Health*, 20(4), 257-273. <https://doi.org/10.1002/cbm.763>

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