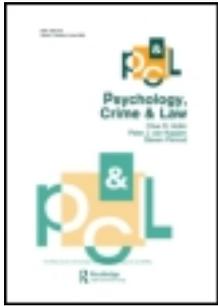


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Are the misinformed more punitive? Beliefs and misconceptions in forensic psychology

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Misconceptions about psycho-legal issues are widespread and threaten the fabric of our legal system. The present study examines how misconception endorsement is related to tough-on-crime beliefs and sentencing decisions. Two hundred and fifty-six students completed a 50-item questionnaire assessing misconceptions related to forensic psychology and determined sentences in four mock-jury scenarios at the beginning and end of an introductory forensic psychology course. Misconception endorsement decreased significantly from 32% to 21%, with every subscale (police and interrogations, service provision, mental illness, memory and cognition, tough on crime) experiencing a significant decrease from pre-test to post-test. This drop in endorsement is meaningful, as misconceptions and beliefs are typically very difficult to change. Additionally, misconception endorsement was positively correlated with tough-on-crime beliefs and punitive (mock) sentencing. This study provides a valuable resource for endorsement rates of psycho-legal misconceptions and the propensity of individual misconceptions to change. It also makes a strong argument for the usefulness of psychology and law courses in reducing potentially harmful misconceptions and tough-on-crime beliefs.

Keywords: forensic psychology; misconceptions; punitive; sentencing; tough on crime

The nature and prevalence of misconceptions have been of interest to psychologists since the beginning of the field as an empirical discipline. This interest arises partly because misconceptions can be incredibly harmful, and partly because they are often surprisingly difficult to change (e.g., Taylor & Kowalski, 2004; Vosniadou, 2001). Misconceptions are harmful because they can lead to misguided interpretations of situations and events that can lead to poor judgment and decision making. For example, an individual who incorrectly believes that all mentally ill individuals are dangerous may be inclined to judge, avoid, ignore, or harass an individual showing signs of mental illness. Such beliefs are particularly difficult to change because once a misconception becomes part of an individual's knowledge base, new information is frequently ignored or distorted (Taylor & Kowalski, 2004). Reasons for this have been founded in the conceptual change literature, which suggests that individuals may be unwilling to invest the cognitive effort needed to change their basic schemata (Dole, 2000; Dole & Sinatra, 1998). For instance, individuals with strongly held misconceptions that then encounter information for the first time in an introductory

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psychology course appear to be particularly difficult to change (Taylor & Kowalski, 2004). The present article seeks to understand the prevalence of misconceptions related to forensic psychology, how they translate into (legal) decision making, and how amenable they are to change after exposure to empirical information (a forensic psychology course).

Overall, psychological research has shown the widespread nature of misconceptions in psychology and their general lack of amenability to change, with a seemingly small reduction of 5% to 6.5% misconception endorsement considered a success (e.g., Amsel, Baird, & Ashley, 2011; Kowalski & Taylor, 2009; Lilienfeld, Lynn, Ruscio, & Beyerstein, 2010; McCutcheon, 1991; Stanovich, 2009). Misconceptions with specific relevance to issues at the intersection of psychology and law have also been examined. Areas that have been of most interest to date include misconceptions about false confessions (Henkel, Coffman, & Dailey, 2008), sex offenders (Fedoroff & Moran, 1997), legal insanity (e.g., McCutcheon & McCutcheon, 1994; Zilboorg, 1939), Miranda rights (the right to remain silent; e.g., Kassin & Norwick, 2004), deception detection (Strömwall, Granhag, & Hartwig, 2004), the reliability of eyewitness accounts (e.g., Wise & Safer, 2010), and rape myth acceptance (e.g., Suarez & Gadalla, 2010). This literature consistently demonstrates the high prevalence of misconceptions about forensic psychology in law, student, and professional populations. For example, in a study by Henkel et al. (2008), the beliefs of jury eligible individuals regarding false confessions were examined. Most participants acknowledged that 'suspects sometimes confess to crimes they did not commit' (with only 14% of participants disagreeing with this statement); however, participants showed a bias against believing they would ever personally falsely confess. Additionally, participants showed a lack of understanding regarding the dispositional and situational factors that can lead to false confessions. Legal professionals have also demonstrated a lack of understanding regarding such important risk factors for false confessions. However, in a review of the literature on false confession cases and the empirical literature, Gudjonsson (2003) demonstrated that the inclusion of both research and expert testimony in proceedings involving disputed confessions has had an important impact on the practice and ruling of the legal system, particularly in the United Kingdom. This suggests that while legal professionals may carry certain misconceptions, these misconceptions can be changed through education.

Misconceptions of this nature, involving misestimating the risk for false confessions, have had important implications for suspects and the legal system as a whole. Indeed, it has contributed to a large number of individuals waiving their Miranda rights (the right to remain silent; e.g., Kassin & Norwick, 2004), placing them in an environment where self-incriminating statements are likely. In an experimental study by Kassin and Norwick (2004), 81% of innocent participants waived their Miranda rights, mainly because participants had a naïve assumption that their innocence was apparent. Additionally, if individuals with these misconceptions sit on a jury, their lack of understanding about the situational factors that can contribute to confessions may detrimentally affect a defendant's right to a fair trial (Otto, Applegate, & Davis, 2007; Wise & Safer, 2010), contributing to miscarriages of justice and imprisonment of the innocent (e.g., Arkes & Mellers, 2002; Gudjonsson & Pearse, 2011; Porter, ten Brinke, & Gustaw, 2010). Clearly then, decision making in legal situations that is based on misinformation and misconceptions can lead to

terrible outcomes. It is important to understand the prevalence of these kinds of misconceptions so that they may be addressed and rectified by the judicial system and educational outlets.

The present study seeks to assess the prevalence of a wide range of psycho-legal misconceptions in the literature in a comprehensive manner, including a number of misconceptions that have never been considered before (such as misconceptions regarding psychopathy; e.g., Shaw & Porter, 2012). For categorization purposes, five major psych-law domains have been identified in the literature where the prevalence of misconceptions is exceptionally pertinent and detrimental: police and interrogations, service provision, mental illness and memory/cognition, and the role of tough-on-crime beliefs. Ultimately, knowledge in all of these areas makes for more informed individuals whose personal views of punitive sentencing align with the empirical literature.

Police and interrogations

While the literature generally agrees on which police procedures and interrogation methods are most appropriate, lay notions of this topic are often oversimplified or incorrect. For example, guilt-presumptive and confrontational techniques commonly used by police officers to obtain confessions from suspects have long been discredited in the literature, as they are prone to producing false confessions (e.g., Gudjonsson & Pearse, 2011). A component of this technique is the assumption that the interviewer can detect a suspect's guilt or innocence (Kassin et al., 2007), an incorrect belief that is endorsed by many professional interrogators and lay people (as demonstrated in a study by Masip, Barba, & Herrero, 2012). This protocol has been criticized for being based on common sense and opposing the empirical findings on appropriate cues to deception (e.g., Vrij, Mann, Robbins, & Robinson, 2006). This is consistent with the literature indicating that individuals, even professionals, are bad at detecting deception in general (e.g., Vrij & Semen, 1996), largely due to the incorrect stereotypes that individuals hold about the cues that liars employ (e.g., DePaulo et al., 2003). Besides a lack of understanding regarding false confessions, individuals also often fail to understand the factors that affect eyewitness accounts and how much weight these accounts can carry for sentencing decisions (Desmarais & Read, 2011). This was demonstrated by Shaw, Garcia, and McClure (1999), who asked 276 jury eligible participants to indicate what factors may influence eyewitness testimony. Participants demonstrated a lack of understanding regarding the system variables, most notably police procedures, which could contribute to unreliable eyewitnesses. Participants claimed their knowledge about eyewitness accuracy was largely based on common sense and life experience. This clearly indicates that many individuals are unaware of (or ignore) the research on the variety of impairments that can affect eyewitness accounts, such as basic memory distortion and forgetting, and being influenced by individual biases and inappropriate police questioning techniques (Brewer & Wells, 2011). Additionally, individuals who endorse more misconceptions are more willing to convict a defendant solely on the basis of eyewitness testimony, and are less likely to correctly estimate the percentage of wrongful convictions that result from eyewitness error (Wise & Safer, 2010). It appears then that juror biases abound, which is an unwelcome addition to the procedural shortcomings the justice system already faces, such as the inability of most jurors to understand and correctly

apply court instructions (Ogloff & Rose, 2005). Dispelling myths about police procedures, interrogations, and judicial factors can have real-world implications for procedural justice.

Service provision

Misconceptions about prisons are presumably related to a number of widely publicized notions. For example, lay individuals may believe that offenders have easy access to educational services while imprisoned. While many facilities claim to offer educational services, in reality access to education and training programs within prisons is typically either limited or absent entirely (Collins, 2011; Mercer, 2009). Additionally, many offenders are not provided with appropriate reintegration services, leading to very high attrition and recidivism rates (e.g., Lipsey & Cullen, 2007). This rate is so high that a meta-analysis by Shaw (2008) established that, for countries that record recidivism rates, the average recidivism rate is over 51% (after only three years of post-release follow-up). While values vary between 12% (Malta) and 72.9% (New Zealand), most rates are staggeringly high. Increasing understanding of the realities of correctional facilities, including the high cost and poor efficacy of incarceration, should make individuals less prone to giving long (and punitive) sentences. An increase in knowledge on these issues could also shift individuals toward endorsing a more empirical and effective correctional approach.

Mental illness, memory, and cognition

Misconceptions about how mentally ill individuals are processed by the criminal justice system, and how basic memory and cognitive factors impact legal proceedings, also lie at the heart of erroneous beliefs in the area of psychology and law. For example, it has been suggested that jurors' implicit notions of insanity often do not map onto the construct as defined by the law (e.g., Finkel & Handel, 1989). In one study, Daftary-Kapur, Groscup, O'Connor, Coffaro, and Galiotta (2011) demonstrated the abundance of incorrect beliefs regarding the misconceptions that 'the use of the insanity defense is simply to gain acquittals' and 'successful insanity applicants spend less time in custody than non-insane defendants' (83% lay endorsement for each statement). Other studies have also suggested that people often endorse the belief that individuals who suffer from mental illness are significantly more likely to be violent than those who are not mentally ill (Angermeyer & Dietrich, 2006; Douglas, Guy, & Hart, 2009; Elbogen & Johnson, 2009; Morse, 1999; Steadman & Cocozza, 1977). In reality, most individuals with mental disorders are not more likely to be violent than other members of society, and while much has been done to dispel this widely held belief, society as a whole continues to perpetuate it. Understanding the relationship between mental illness and crime is important to prevent a reliance on legally irrelevant factors for sentencing decisions.

It has also been suggested that in order to make informed decisions about witness accounts, it is important for jurors to have knowledge about how memory works and the prevalence of memory errors (especially regarding eyewitnesses; e.g., Clifasefi, Garry, & Loftus, 2007). Jurors also need to be aware of potential inaccuracy of memories retrieved during hypnosis (Kassin & Bardollar, 1992) and 'repressed memories' (Geraerts, Raymaekers, & Merckelbach, 2010), and the role of source

confusion (Mitchell & Johnson, 2000) to evaluate accounts and understand possible origins of false memories (Loftus, 2008). Additionally, the attentional biases of witnesses (Kuhl, 2008), the accuracy of facial memory/recognition (Reisberg & Heuer, 2007), the impact of exciting events and stress on memory (Reisberg, 2006), and the weapon focus effect (Reisberg & Heuer, 2007) must be understood to adequately evaluate eyewitness accounts. Understanding basic memory and cognition mechanisms is thus clearly important for accurately evaluating evidence presented in court. Unfortunately, the general conclusion in the literature has been that beliefs held by lay individuals often differ from those endorsed by experts and the empirical literature for most, but not all, issues related to eyewitness testimony (e.g., Alonzo & Lane, 2010; Benton, Ross, Bradshaw, Thomas, & Bradshaw, 2006). Research on this is important to highlight the importance of expert testimony in court and to promote better education of judges and jurors (Alonzo & Lane, 2010).

Sentencing and tough-on-crime beliefs

Although still in its infancy, the link between misconception endorsement and punitive beliefs has received some attention (Gideon & Loveland, 2011) and punitive beliefs have been shown to facilitate general support for harsh sentencing (Otto, Applegate, & Davis, 2007). In a study of juror misconceptions, Otto et al. (2007) found that jurors held numerous misconceptions about the judicial process and had difficulty understanding jury instructions for capital punishment cases. Such misconceptions have been shown to favor the prosecution (and conviction; e.g., Eisenberg & Wells, 1993), endangering the fairness of capital punishment trials (Otto et al., 2007). While capital punishment is arguably the most extreme form of punitive sentencing, a more global way of conceptualizing individuals' beliefs around punitive sentencing is as 'tough-on-crime' beliefs. Beliefs can be conceptualized as a unique kind of misconception, as they are often held without supporting evidence and can be seen as opinions or convictions. Tough-on-crime beliefs fall into this framework, and involve the belief that a punitive criminal justice system that imposes harsh sentences is the most appropriate way to deal with offenders (e.g., Gideon & Loveland, 2011; Taylor, 2007). These beliefs typically focus on retribution instead of rehabilitation, and assume a strong notion of individual responsibility (even of very young offenders; e.g., Fass & Pi, 2002). Justification for this approach is often a concern about rising crime rates and dissatisfaction with criminal sentencing, notions that are widely propagated by the media (Casey, & Mohr, 2005). These beliefs run contrary to the research findings in the field, which suggest that tough-on-crime policies are often costly (e.g., Cullen, Jonson, & Nagin, 2011; Fass & Pi, 2002) and that longer sentences may actually increase crime (e.g., Smith, Goggin, & Gendreau, 2002). In line with this, individuals who are tough on crime have been demonstrated to be less informed about correctional issues (e.g., Cullen, Clark, & Wozniak, 1985), have more racial animus (racism; Barkan & Cohn, 2005; Unnever & Cullen, 2010), and have different personality and ideology characteristics (Carroll, Perkowitz, Lurigio, & Weaver, 1987), than those who believe in a less punitive system. For example, in a seminal study by Carroll et al. (1987), students and probation officers who endorsed a tough/punitive stance toward crime were also likely to endorse beliefs regarding individual causality for crime, and to receive high scores on measures of authoritarianism, dogmatism, and internal locus of control.

The impact of tough-on-crime beliefs on the real world has been examined in relation to legal decision making. In a study examining legal decision making in a sample of 148 undergraduate students, McKee and Feather (2008) found that justice-vengeance (Ho, ForsterLee, ForsterLee, & Crofts, 2002), right-wing authoritarianism, and retribution attitudes were particularly predictive of endorsing longer sentencing decisions and capital punishment. In line with this, conservative political beliefs have also been demonstrated to be predictive of harsher sentencing decisions (Davis, Severy, Kraus, & Whitaker, 1993), with conservative parties sometimes forming entire political platforms around tough-on-crime agendas (e.g., the conservative party of Canada is implementing the controversial C-10 omnibus crime bill that will make Canada's stance very punitive because the conservative party promised to take a 'tough-on-crime stance' during the election period). The relevance of education for sentencing decisions has also been explored. Without an understanding of the consequences of punitive sentences, such as cost and recidivism rates, individuals seem to be more likely to endorse severe punishment and long sentences (Doob, 2000). This is supported by a study by Applegate and colleagues (1996), who demonstrated that once individuals are informed about the logistics of longer sentences, and are given more time to use in-depth decision making, they become much more lenient and endorse less severe sentences. While lenient sentences are not inherently better, a reduction in sentencing severity represents a real-world effect of psycho-legal beliefs on behavior. This line of research on factors related to sentencing decisions is promising and will help us better understand the behavioral implications of psycho-legal misconceptions and tough-on-crime beliefs.

The present study

As demonstrated, the disparity between empirically based information and common misconceptions about issues in forensic psychology has been addressed by a number of researchers. However, studies in the area of forensic psychology have several limitations (which are addressed by the present study). Previous research has focused on a limited number of misconceptions (not dealing with misconceptions surrounding issues such as female offenders or psychopathy), has primarily treated types of misconceptions in isolation (e.g., misconceptions about sex offenders are examined in isolation from misconceptions about legal decision making), and has not investigated how knowledge in one area may be related to another (begging the question of whether participants are misinformed about all areas equally). Studies to date have also generally lacked experimental measures of potential real-world implications (e.g., sentencing behavior) of misconception endorsement. In addition to these limitations, research consistently shows the difficulty faced by educators attempting to alleviate psychological misconceptions (e.g., Taylor & Kowalski, 2004). Whether and by how much we can change psycho-legal misconceptions through education is an empirical question that warrants further investigation. These limitations are addressed by the present study, which evaluates the prevalence of a wide variety of psycho-legal misconceptions and their amenability to change. It also examines whether misconception endorsement varies for different areas of knowledge within psychology and law. Finally, it relates general misconception endorsement to tough-on-crime beliefs and sentencing decisions (real-world implications). This study seeks

to fill a gap in the literature and inform both legal professionals and educators on misconceptions in forensic psychology.

The present study posits that, as they understand more about psycho-legal topics and the potential implications of sentencing decisions, individuals will presumably move away from the academically discredited tough-on-crime beliefs, and make judgments that are increasingly in line with empirical recommendations. To test this, the present study examines three main predictions of change from the beginning to the end of an introductory forensic psychology course. Because of exposure to empirical (1) endorsement of misconceptions will decrease. If prediction one is found to be true, predictions two and three will be examined. Because of a greater understanding of the criminal justice system and factors related to it, (2) endorsement of tough on crime beliefs will decrease. Because of the decrease in misconceptions and tough-on-crime beliefs (3) endorsement of rehabilitative sentencing decisions will increase (and punitive sentencing will decrease). Overall, it is predicted that participants who endorse higher levels of misconceptions will also endorse more tough-on-crime beliefs and more punitive sentencing. These predictions investigate change in a comprehensive manner, examining knowledge change (misconception endorsement), belief change (tough on crime), and behavioral change (sentencing), and address current gaps in the literature.

Methods

Participants

Pre sample

Two hundred and fifty-six students (82 University of Waterloo students, 174 University of British Columbia students) of at least second year standing volunteered to anonymously participate in the pre-test of this study. All students were enrolled in an introduction to psychology and law course (forensic psychology), and were 20 years of age on average. The sample was predominantly female (192 female, 64 male), Caucasian (191 Caucasian, 65 non-Caucasian), not religious (144 atheist/not religious, 57 mildly religious, 45 moderately religious, 12 fundamentalist), majored in psychology (138 psychology majors, 20 legal studies majors, 98 other), and politically between Liberal and Conservative (116 in between, 91 Liberal, 26 Conservative, 25 other).

Post sample

Because participation was voluntary and the post-test occurred months after the pre-test, the post-test sample was different than the pre-test sample. The primary reasons for the difference in samples were threefold; some participants failed to attend the class in which the pre- or post-test was administered, some participants chose not to complete the study at time one or time two, and some participants failed to provide consent or appropriate identification to allow the researchers to match pre- and post-tests. This resulted in a sample of 148 students (50 University of Waterloo students, 98 University of British Columbia students) of at least second year standing who volunteered to anonymously participate in the post-test of this study. All students had completed an introduction to psychology and law course (forensic psychology)

and were 20 years of age on average. The sample was predominantly female (111 female, 37 male), Caucasian (110 Caucasian, 36 non-Caucasian), not religious (87 atheist/not religious, 35 mildly religious, 22 moderately religious, 4 fundamentalist), majored in psychology (74 psychology majors, 21 legal studies majors, 53 other), and politically between Liberal and Conservative (70 in between, 52 Liberal, 12 Conservative, 14 other).

Repeated sample

Participants were given a study ID based on their date of birth (since any other identifying information may have compromised the anonymity of the study), and we were able to conclusively identify 99 students who completed both the pre-test and the post-test (34 University of Waterloo students, 65 University of British Columbia students). The sample was predominantly female (75 female, 24 male), Caucasian (73 Caucasian, 26 non-Caucasian), not religious (60 atheist/not religious, 20 mildly religious, 15 moderately religious, 4 fundamentalist), majored in psychology (53 psychology majors, 8 legal studies majors, 98 other), and politically between Liberal and Conservative (40 in between, 40 Liberal, 12 Conservative, 38 other). Four participants indicated at pre-test that they had previously completed a forensic psychology course and were omitted from the analyses.

Materials

A 50-item true/false questionnaire assessing misconceptions and beliefs related to forensic psychology was developed through an examination of the literature and an expert-review process. In particular, introductory forensic psychology textbooks (i.e., Bartol & Bartol, 2008; Pozzulo, Bennell, & Forth, 2008) were consulted for overlapping themes, and a panel of 10 experts in various fields of psychology and law examined the questionnaire and provided feedback regarding perceived item validity. This type of questionnaire is standard in the misconception literature (as suggested by Taylor & Kowalski, 2004). Items deemed irrelevant or ambiguous by the panel of 10 volunteer experts and a convenience pilot sample (20 individuals who examined the questionnaire for readability) were discarded (one item was also discarded post-hoc after being deemed ambiguous). The questionnaire was followed by a mock-jury task including four real-world cases. Brief descriptions of case details were provided, and 15 sentencing options were organized into four categories: (1) no sentence, (2) alternative sanctions/diversion (such as therapy), (3) jail (sentences that involved 2 or less years of incarceration), and (4) prison (sentences that involved 2.5 years or more of incarceration). Cases were taken from the online Fayette Circuit Court Kentucky database because accounts provided were easily available to the researcher, were accurate short summaries of actual cases, and were written in a consistent style. Cases were also matched in terms of actual sentence received, with each case receiving a conviction of 10 or more years in prison by an actual judge. This was done to generate a consistent set of cases and to measure change in participant responses. No qualitative judgment was made regarding sentence severity (neither of the original sentences, nor of the sentences given by participants); the cases were simply chosen to evaluate whether participants would exhibit change in sentencing decisions. There is no intention of claiming that lenient sentencing is

necessarily better for these cases; we simply want to evaluate whether change occurs and whether it is related to misconception endorsement. Questionnaires consisted of 25 'true' and 25 'false' statements/beliefs. The questionnaire items were counterbalanced so that every misconception in version 1 was a correct statement in version 2. For example, the question 'Judges are good at detecting deception' became 'Judges are *not* good at detecting deception.' Additionally, the sentencing cases were counterbalanced so that offences increased in severity for version 1 and decreased for version 2. A brief demographics form followed the questionnaire and cases (for a full version of the study materials, please contact the authors).

Procedure

Participants provided consent prior to completing study materials both at pre-test and post-test. Administration for the pre-test occurred in the first week of three introductory psychology and law courses, and post-test was conducted in the last week of all three courses (for the full-year course, the pre-test was administered in the first semester, and the post-test was administered in the second semester, of the course). For the questionnaire, participants indicated whether they believed statements to be true or false. Participants were then asked to imagine they were on the jury for four real-world cases, varying in type and severity, where they determined sentences for offenders. Finally, participants completed a demographics questionnaire. Participants required approximately 20 minutes to complete all study materials. Between the pre- and post-test, students completed a comparable (i) 6-week intensive course, (ii) 3.5-month course, or (iii) 7-month course. Two separate instructors taught the courses independently, using similar course materials. (Note: Both instructors received university teaching awards for teaching these courses by scoring in the top 10% of student course evaluations, attesting to the high quality of both instructors.) Because there were no systematic differences identified in the analyses for the three courses, all results pertain to the entire sample of students who completed the study.

Results

Misconceptions

Pre-post results

Endorsement of the most relevant psycho-legal subscales, police and interrogations, and endorsement of tough-on-crime beliefs are presented in Tables 1 and 2 as item-wise percentages for the pre- and post-test (contact the author for a list of all other questionnaire items with corresponding endorsement rates). A lack of overall item endorsement at pre-test and at post-test may particularly indicate items that are resilient to change, were unclear, or were not adequately addressed in the introductory forensic psychology courses. Overall, the questionnaire showed a decrease in misconceptions from an endorsement rate of 32% to 21%. See Table 3 for a summary of the overall results from all subscales for the entire sample of participants.

Because the pre-test and post-test samples could not be considered independent, inferential tests were only conducted on repeated samples. The sum of correctly

Table 1. Raw percentages of misconception endorsement before and after taking an introductory forensic psychology course for sub-scale 1: police and interrogations.

| Sub-scale 1: police and interrogations | Pre (<i>N</i> = 256) (%) | Post (<i>N</i> = 148) (%) |
|---|------------------------------|-------------------------------|
| People are good at detecting lying ^a | 40 | 6 |
| Judges are good at detecting deception ^b | 47 | 17 |
| Good cop/bad cop is an effective means of truth seeking ^c | 41 | 21 |
| Police can tell when a suspect is lying ^d | 28 | 12 |
| Eyewitnesses are not the most important piece of evidence in most convictions ^e | 65 | 47 |
| Most judges and Jurors fully understand court instructions ^f | 54 | 36 |
| When people lie, they look up and to the left ^g | 66 | 51 |
| Eyewitnesses are always the most reliable source of case-related information ^h | 4 | 1 |
| In-person lineups are the best way for police to narrow down a suspect ⁱ | 24 | 15 |
| Judges and Jurors are good at remembering all the details mentioned during a trial ^j | 14 | 7 |
| Pressuring individuals to confess is the best way to find out the truth ^k | 8 | 5 |
| People only confess when they have actually committed the crime they are being charged with ^l | 6 | 3 |
| <i>The ultimate goal of any interrogation should be gaining a confession</i> ^m | 27 | 29 |
| DNA evidence is all that is needed to convict an individual, because it proves he/she was at the scene ⁿ | 9 | 9 |

^aVrij et al. (2006), ^bVrij and Semen (1996), ^cGudjonsson and Pearse (2011), ^dElaad (2009), ^eDesmarais and Read (2011), Shaw et al. (1999), ^fOgloff and Rose (2005), ^gDePaulo et al. (2003), ^hBrewer and Wells (2011), ⁱWagenaar and Veefkind (1992), ^jPritchard and Keenan (2002), ^{k,l}Kassin et al. (2010), ^mKassin and Gudjonsson (2004), Kassin (2008), ⁿPozzulo Lemieux, Wilson, Crescini, and Girardi (2009).

endorsed statements was calculated for each individual. Application of a paired-samples *t*-test to the data indicated a significant difference between pre- and post-test in the endorsement of misconceptions, $t(98) = 11.35$, $p > 0.001$, $d = 1.08$. Of the 99 repeated participants, 82 decreased in overall misconception endorsement, 9 increased, and 8 remained the same. A number of follow-up paired-samples *t*-test with Bonferroni correction also indicated significance and medium-to-large effect sizes for each subscale: police and interrogations $t(98) = 6.67$, $p > 0.01$, $d = 0.84$, service provision $t(98) = 3.10$, $p > 0.01$, $d = 0.35$, mental illness $t(98) = 3.49$, $p > 0.001$, $d = 0.58$, memory and cognition $t(98) = 5.60$, $p > 0.001$, $d = 0.71$, and tough on crime $t(98) = 7.36$, $p > 0.001$, $d = 0.79$. Demographic information was unrelated to misconception endorsement.

Tough-on-crime beliefs

The unique role of tough-on-crime beliefs in misconception endorsement was also examined. A linear regression was performed to examine the relationship between misconception endorsement (subscales 1–4) and tough-on-crime beliefs (subscale 5).

Table 2. Raw percentages of misconception endorsement before and after taking an introductory forensic psychology course for sub-scale 5: tough-on-crime beliefs.

| Sub-scale 5: tough on crime | Pre (N = 256) (%) | Post (N = 148) (%) |
|--|----------------------|-----------------------|
| We need to be 'tough on crime' by giving convicted felons harsher punishment ^a | 60 | 26 |
| Sentencing offenders to Prison/Jail is a good way to punish them ^b | 66 | 32 |
| Diversion to community service work instead of imprisonment is not good ^c | 32 | 12 |
| Individuals who are granted the insanity plea and are mandated to treatment instead, are 'getting off easy' ^d | 30 | 15 |
| Threatening offenders with jail terms is an effective crime deterrent ^e | 43 | 27 |
| Capital punishment (the death sentence) is an effective way to deter criminal activity ^f | 30 | 16 |
| The death penalty is an effective means of reducing local crime rates ^g | 27 | 14 |
| Adult mentally ill suspects should not be treated differently than normal suspects ^h | 14 | 7 |
| Severely mentally ill adult offenders should not be treated judicially the same as minors ⁱ | 81 | 72 |
| Most incarcerated offenders are not reconvicted ^j | 13 | 20 |
| The way we currently deal with offenders is very good ^k | 27 | 19 |
| Often, minors between the ages of 13 and 18 should be held fully responsible for their actions ^l | 55 | 47 |
| Individuals are less likely to offend again if they have been incarcerated in a prison/jail ^m | 29 | 22 |
| Imprisonment is the best way to deal with offenders ⁿ | 66 | 64 |

^{a,b}Cullen et al. (2011), Fass and Pi (2002); Taylor (2007), ^cWermink, Blokland, Nieuwebeerta, Nagin, and Tollenaar (2010), ^dBloechl, Vitacco, Neumann, and Erickson (2007), ^eGendreau, Goggin, Cullen, and Andrews (2000), ^{f,g}Cheatwood (1993), Hyalmarsson (2008), ^{h,i}Hoge et al. (1996), ^jShaw and Hart (2008), ^kPrimm, Osher, and Gomez (2005) ^lRoper v. Simmons (2005), ^mSmith et al. (2002), ⁿCid, 2009.

Misconception endorsement, calculated by generating an average for each participant combining pre- and post-test scores for each subscale, predicted overall tough-on-crime endorsement in a single regression model (subscales 1–4) ($\beta = 4.23$, S.E. = 0.93, sig. <0.001).

For the pre-test, endorsement of the police interrogations ($\beta = 0.23$, S.E. = 0.07, sig. <0.001), service provision ($\beta = 0.49$, S.E. = 0.17, sig. <0.005), and mental illness ($\beta = 0.29$, S.E. = 0.13, sig. <0.05) subscales predicted endorsement of the tough-on-crime subscale. The memory and cognition subscale was not related to the tough-on-crime subscale ($\beta = 0.14$, S.E. = 0.11, sig. = 0.18). For the post-test, police interrogations ($\beta = 0.39$, S.E. = 0.11, sig. <0.001) and service provision ($\beta = 0.55$, S.E. = 0.21, sig. <0.01) predicted endorsement of the tough-on-crime subscale. Neither the mental illness ($\beta = -0.25$, S.E. = 0.18, sig. = 0.18) nor the memory and cognition ($\beta = 0.02$, S.E. = 0.13, sig. = 0.88) subscales were related to tough-on-crime endorsement at post-test. Demographic information was unrelated to tough-on-crime beliefs.

Table 3. Overall misconception endorsement for each questionnaire subscale, for both pre-test and post-test.

| Sub-scale overall | Pre (<i>N</i> = 256) | Post (<i>N</i> = 148) |
|---------------------------|---|---|
| Police and interrogations | 31% (<i>SD</i> = 15.29, <i>Md</i> = 28.57) | 19% (<i>SD</i> = 13.09, <i>Md</i> = 14.29) |
| Service provision | 34% (<i>SD</i> = 21.06, <i>Md</i> = 25) | 22% (<i>SD</i> = 21.77, <i>Md</i> = 25) |
| Mental illness | 22% (<i>SD</i> = 15.82, <i>Md</i> = 14.29) | 16% (<i>SD</i> = 13.26, <i>Md</i> = 14.29) |
| Memory and cognition | 29% (<i>SD</i> = 14.21, <i>Md</i> = 30) | 20% (<i>SD</i> = 13.35, <i>Md</i> = 20) |
| Tough on crime | 41% (<i>SD</i> = 16.85, <i>Md</i> = 42.86) | 28% (<i>SD</i> = 15.46, <i>Md</i> = 28.57) |
| <i>Overall</i> | 32% (<i>SD</i> = 16.64, <i>Md</i> = 28.14) | 21% (<i>SD</i> = 15.39, <i>Md</i> = 20.43) |

Sentencing

Sentencing behavior was only examined for repeated pre- and post-test scores. Participants could select more than one sentencing option, so three dichotomous variables were created based on legally and theoretically meaningful categories that indicated whether participants selected any (or all) of the options deemed as (i) alternative sanctions/diversion, (ii) jail (<2 years incarceration), and (iii) prison (>2.5 years incarceration). Because of a lack of participants choosing the 'no sentence' option, this option could not be meaningfully examined.

Three independent McNemar tests with continuity correction were conducted, one on each type of sentencing category. This revealed that the number of participants who changed from not selecting alternative sanctions at pre-test to doing so at post-test (22 participants) was significantly higher than the number of participants who changed from selecting alternative sanctions at pre-test to not doing so at post-test (7 participants), $p < 0.001$, $\chi^2 = 6.759$, 95% CI [1.30–8.71]. The number of participants who changed from not selecting jail sanctions at pre-test to doing so at post-test (6 participants) was significantly lower than the number of participants who changed from selecting jail at pre-test to not doing so at post-test (55 participants), $p < 0.001$, $\chi^2 = 37.770$, 95% CI [0.038–0.253]. The number of participants who changed from not selecting prison sanctions at pre-test to doing so at post-test (6 participants) was significantly lower than the number of participants who changed from selecting prison at pre-test to not doing so at post-test (27 participants), $p < 0.001$, $\chi^2 = 12.121$, 95% CI [0.075–0.549]. Overall, this means that significantly more participants chose alternative sanctions at post-test, and that significantly less participants chose jail and prison sanctions. Demographic information was unrelated to sentencing decisions. This indicates that participants were overall more lenient in their sentencing decisions, and chose more alternative sanctions, at post-test than at pre-test.

Discussion

This study examined three main predictions, all of which were supported. In accordance with prediction 1, participants experienced a decrease in misconception endorsement from the first to the last day of an introductory psychology and law course. Participants started with an endorsement rate of 32% and decreased to a rate of 21% (31% to 20% for the repeated sample). This 11% decrease resulted from a decline in every subscale. The level of misconception endorsement at pre-test was on

par with averages reported by previous literature pertaining to general psychological misconception endorsement, as was the observed decrease at post-test (e.g., Taylor & Kowalski, 2004). This decrease is promising, and indicates that students are amenable to significantly changing their beliefs about issues in forensic psychology after being presented with empirically based information. For some items, endorsement dropped by as much as 34% in total (e.g., a drop from 40% endorsement to 6% endorsement for the misconception that 'people are good at detecting lying'), which is a staggering decrease that exceeded expectations. However, other items only changed by small amounts (e.g., a drop from 10% to 7% for the misconception that 'Most mentally ill individuals are violent'), and one misconception increased in endorsement (an increase from 13% to 20% for 'Most incarcerated offenders are not reconvicted'). Note that we do not suggest that a certain percentage (e.g., 10%) of misconception endorsement on this questionnaire indicates that the same amount (e.g., 10%) of the total knowledge an individual has in that area in general is incorrect. We simply suggest that by quantifying the endorsement of certain misconceptions, we can also quantify change with regard to those items. This variation in endorsement change warrants further investigation as to whether some misconceptions are simply more difficult to change than others, or whether these are areas that are poorly conveyed or ignored in introductory forensic psychology courses. Interestingly, previous research on misconceptions has suggested that some misconceptions actually (disturbingly) stem from university courses (Kowalski & Taylor, 2009), alerting us to the possibility that instructors themselves may carry misconceptions, or that they are poorly conveying certain information to students.

When examining the subscales, the largest shifts in misconception endorsement were observed for the police and interrogations (with a shift from 31% to 19%) and the service provision subscales (with a shift from 34% to 22%). It may be that the subscales are fundamentally different, and that the drop in misconception endorsement cannot be appropriately compared between scales; however, the researchers find the differences between subscale endorsement potentially meaningful. While these changes may be attributable to instructors engaging with these topics most extensively in class, it is also possible that students had little exposure to these concepts before taking the course and were thus more amenable to including newly learned information into their knowledge base and rectifying their misconceptions (in accordance with the cognitive change literature; e.g., Dole, 2000). Because of prior knowledge (or the perception of prior knowledge) in the areas of mental illness, and memory and cognition, our participants (who were predominantly psychology majors) may have been less willing to change their beliefs about these topics. The mental illness subscale decreased from an endorsement rate of 22% to 16%, and the memory and cognition subscale decreased from 29% endorsement to 20% endorsement. Finally, the tough-on-crime beliefs subscale decreased from 41% to 28%. Overall, this indicates that individuals learned new information and were able to integrate it into their view of the criminal justice system. These results are even more promising when we recognize that they were not affected by the use of courses of varying length or instructor, which suggests that similar results are likely attainable by other competent instructors teaching this type of course.

In an effort to inform instructors, the item-wise analysis of misconception endorsement indicates misconceptions that may be particularly difficult to change and topics that need to be covered more extensively in this type of course. For

example, students appear to have difficulty rectifying the misconception that ‘the ultimate goal of any interrogation should be gaining a confession’ (an item that increased in endorsement by 2%). Perhaps if instructors explain this type of concept more thoroughly and explain the importance of knowledge gathering, rather than obtaining confessions, this misconception could be changed in the future. This questionnaire (or one like it) is a good method of evaluating both the misconceptions most commonly held by students at the beginning of a course and areas that need to be addressed in future renditions of a course. This iterative process could help maximize the actual and perceived value of psychology and law courses.

Prediction 2 also received support, suggesting that tough-on-crime beliefs are not only reduced after taking a psychology and law course but are also independently related to misconception endorsement. The tough-on-crime subscale dropped from an endorsement rate of 41% to 28%, with a decrease in endorsement from 60% to 26% for the item ‘we need to be tough on crime by giving convicted felons harsher punishment.’ In other words, at the beginning of these forensic psychology courses, most individuals agreed with tough-on-crime policies, but only a quarter endorsed them at the end. Possibly more interestingly, individuals who endorsed these tough-on-crime beliefs also had overall more misconception endorsement (subscales 1–4). In particular, participants who endorsed tough-on-crime beliefs also had high rates of agreement with police interrogation and service provision subscales. In other words, a lack of information and understanding about the justice system and related services was related to beliefs encouraging a more punitive system. In line with this observed relationship, the drop in tough-on-crime endorsement was probably due mainly to participants gaining information that refuted their incorrect assumptions about the criminal justice system. The implications of this are far-reaching, as it appears that we can change individuals’ beliefs and bring them in line with an evidence-based approach. This can have an impact on how individuals view the world, how they treat those involved with the criminal justice system, and the policies and political stances they endorse. Ultimately, if more individuals adhered to evidence-based principles (and rejected tough-on-crime policies) regarding the treatment of offenders, the world would be a safer place.

Finally, in accordance with prediction 3, participants were more lenient in their sentencing decisions after taking one of the psychology and law courses. When given a mock-jury task for four cases of varying severity accompanied by various sentencing options, participants favored alternative sanctions (such as community service, diversion, psychotherapy, parole, or house arrest) and assigned less incarceration at post-test than at pre-test. Participants were significantly less likely to assign jail terms (<2 years incarcerated) and prison terms (2.5+ years incarcerated). Indeed, upon completion of the courses, the majority of participants either favored alternative sanctions over traditional punitive sanctions or chose to assign a combination of alternative sanctions and traditional sanctions (e.g., prison with anger management training for the assault case). This indicates that once participants gained insight into the realities of prison and the justice system through a course, they were less inclined to place offenders into incarcerated settings. The mock-jury task was included as a measure of whether and how psycho-legal beliefs translate into jury decision making and potential real-world sentencing behavior. This study shows that the less informed are more punitive both in their beliefs and in their sentencing behavior. Further research needs to examine whether these mock

sentencing decisions translate into what jurors would actually do if placed on a jury. So far, these results appear promising as they suggest that the implications of misconception reduction through education reach far beyond the classroom.

This study is the most comprehensive overview of different types of misconceptions in forensic psychology to date. Other strengths associated with this study include the evaluation of misconception amenability to change (rather than just considering prevalence rates), whether different areas of knowledge within psychology and law have different levels of misconception endorsement, and how misconceptions relate to (often deeply rooted) beliefs. Additionally, the potential real-world implications were evaluated in a mock sentencing task involving real cases. However, there are also some limitations to the present study. The first limitation is that this study only describes undergraduate students who have voluntarily enrolled in psychology and law courses. This is likely to result in a strong self-selection bias for our study, because not only were these individuals probably more interested in the field than those who did not enroll but they had also taken introductory psychology courses (most of them were even majoring in psychology). This means that our sample likely held less misconceptions at pre-test than the average individual (especially about memory/cognitions and mental illness), limiting the amount of change that was possible. Replications of this study involving police officers, lawyers, judges, lay people, and non-psychology students are recommended to examine how widespread these misconceptions are in other relevant populations. A second limitation is a lack of a control group. While this was a repeated measures design, and the matched sample allowed for a within-subjects analysis, ideally an additional control group would have been employed to rule out spontaneous change in misconception endorsement after taking other types of courses. Thirdly, our sample consisted primarily of females, which may have introduced some systematic bias in our findings, and limit their generalizability to males. Finally, it is possible that this instrument will not be appropriate for use in other countries (e.g., because they have different legal structures and sanctions), for individuals at a lower reading level (lower than undergraduate students), or for individuals who have limited time (when 20 minutes is too long). Alterations are recommended to make the questionnaire as appropriate as possible for the target research sample.

We believe this research makes a strong argument for the usefulness of psychology and law courses in reducing potentially harmful misconceptions. It also suggests that individuals who are less informed and hold misconceptions related to psychology and law are more likely to endorse tough-on-crime beliefs and are more punitive in their (mock) sentencing behavior. Finally, it advocates for the use of teaching efficacy instruments to help us target and improve the information we provide to individuals with no background in psychology and law. We highly encourage replications of this study, or studies like it, and wish to see an increased awareness of the high prevalence of misconceptions in forensic psychology and a targeted effort to reduce them in student, professional, and lay populations.

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