**Abstract**

**Purpose:** Previous studies suggest that officers’ level of rape myth acceptance (RMA) is predictive of their case decision making and judgements towards victim-survivors. However, few studies have directly assessed the relationship between RMA and responsibility and authenticity judgments.

**Methods:** 808 UK police officers categorised as ‘high’ or ‘low’ in rape myth acceptance made judgements of victim and perpetrator responsibility, and case authenticity, towards one of 16 vignettes depicting a hypothetical rape scenario varying on *victim-perpetrator relationship*, *victim reputation*, and *initial point of resistance*.

**Results:** Officers categorised as ‘high’ in RMA rated victims as more responsible, perpetrators as less responsible, and cases as less authentic than those deemed to be ‘low’ in RMA. When rape-myth related factors were present, both individually and in combination, judgements by officers ‘high’ in RMA were more negative than those ‘low’ in RMA.

**Conclusions:** Results suggest that officers ‘high’ in RMA may judge victims of rape differently to those ‘low’ in RMA, particularly when rape myth-related extra-legal case factors are present. The potential implications for training and selection are discussed.

**Keywords**

Rape, Rape Myths, Police Officers, Judgments, Objective Policing

**Introduction**

It is broadly acknowledged that rape cases suffer chronic and severe levels of attrition (Hohl & Stanko, 2015; Horvath & Brown, 2009). As such, efforts have been made to understand the progression of cases within the criminal justice system; specifically, the barriers which prevent or disrupt the reporting, investigation, and prosecution of these crimes. Importantly, whilst several researchers have acknowledged that rape cases are fundamentally characterised by substantial legal complexities (e.g., that such incidences are rarely witnessed by a third party), they highlight that such cases are also open to unique levels of unwarranted speculation and extra-legal judgement by those within the criminal justice process (Frohmann, 1997; Spohn & Tellis, 2012, 2014). Such judgements are typically informed by rape myths, defined as ‘descriptive or prescriptive beliefs about rape (i.e., about its causes, context, consequences, perpetrators, victims, and their interaction) that serve to deny, downplay or justify sexual violence that men commit against women’ (Bohner, 1998, p.14). Examples of rape myths include specific beliefs regarding victims (e.g., if a woman wears revealing clothing she is partly responsible for her victimization), and perpetrators (e.g., once men reach a certain level of sexual arousal, they are unable to control their actions), as well as broad ideas about rape as a crime, such as the ‘real rape stereotype’ (i.e., the belief that legitimate rape cases occur suddenly, at night, by an aggressive stranger, with a weapon, and typically involve visible victim resistance and emotional trauma for the victim; Estrich, 1987; Horvath and Brown, 2009). Indeed, a number of studies have already examined the impact of such myths on the reasoning, behaviour and judgements of specialist populations, such as jurors (see Dinos et al., for review), lawyers and barristers (Temkin, 2000; Temkin & Krahé, 2008), and judges (Temkin & Krahé, 2008).

However, between half and two thirds of cases ‘drop-out’ of the system during the investigative stage (Brown, Hamilton, & O’Neill, 2007; Kelly, Lovett, & Regan, 2005), leading a number of researchers to highlight the possible impact of negative attitudes held by police officers on both victim experience (Alderden & Ullman, 2012; R. Campbell, Wasco, Ahrens, Sefl, & Barnes, 2001) and case progression (Hohl & Stanko, 2015; Spohn & Tellis, 2012). Such observations are particularly important considering the vital role played by officers as gatekeepers to the criminal justice system (Sleath & Bull, 2015). Thus far, studies have principally assessed the manifestation of rape myths within officer populations in three ways: first, by examining levels of rape myth acceptance (RMA) in officers (see Sleath & Bull, 2017, for review); second, by identifying the presence of rape myths in officers’ definitions and/or classifications of rape (e.g., Mennicke et al., 2014); and third, by examining the influence of rape myth-related information on officers’ judgements (of, for example, victim credibility, e.g., Page 2007, 2008a, 2008b, 2010; or victim responsibility, e.g., Hine & Murphy, 2017). Few studies have however, at present, directly explored the *relationship* betweenofficers’ rape myth acceptance and their judgements of the crime and those involved. Doing so may provide important insight as to how officers’ attitudes and actions are related, thus providing evidence to help develop and deliver informed training and selection of officers. The present study therefore examined the influence of officers’ rape myth acceptance (‘high’ vs. ‘low’) on judgements of victim and perpetrator responsibility, as well as rape authenticity, within the same population.

**Rape Myth Acceptance in Police Officers**

Several studies have examined rape myth acceptance in officers, summarised in Sleath and Bull’s (2017) systematic review of police perceptions and case decision-making. They conclude that studies generally highlight low levels of rape myth acceptance in officers (e.g., Mennicke et al., 2014). Moreover, studies comparing police officers to other populations, such as undergraduate students, find that overall levels of RMA do not significantly differ between groups, with both exhibiting low levels of acceptance (Sleath & Bull, 2017). A recent study (not included in the above review) conducted by Murphy and Hine (2018) found similarly low levels of rape myth acceptance in a large UK sample. Examination of specific myths has also highlighted that police officers in the UK tend to subscribe to ‘she lied’ myths to a greater extent than psychology and law students, while endorsing ‘she asked for it’ and ‘he didn’t mean to’ myths to a lesser extent (Sleath & Bull, 2015). Additionally, endorsement of specific myths, even when general rape myth acceptance is low, has been noted (Page, 2007, 2008a, 2008b, 2010). For example, whilst officers in the U.S. agreed that “any woman can be raped”, 20% suggested that provocatively dressed women are inviting sex and that any victim can resist a rape if they want to (22.7%), thereby violating the broader notion to which they previously agreed (Page, 2007). Overall, it is fair to suggest that, whilst officers’ have generally low levels of RMA, and are similar or slightly lower in their overall levels of RMA to other populations, a substantial minority of officers exhibit some level of agreement with such attitudes.

**Rape Myths and Officer Judgements**

A number of studies have examined the impact of rape myths on officers’ reasoning and behaviour, though these assessments have been largely indirect in nature. For example, when assessing officers’ own definitions of rape, extra-legal factors (including those related to rape myths) are frequently present (R. Campbell & Johnson, 1997; Hazelwood & Burgess, 1995; Mennicke et al., 2014). Officers’ classification of cases (as “good” or “legitimate”) also appears to be guided by schematic thinking constructed around particular myths, as shown by Venema (2016b). Assessments of victim credibility are equally influenced by the presence/absence of rape myth-related information, such as negative victim reputation (Page, 2008a, 2008b, 2010), an unexpected emotional response to the incident (Ask & Landström, 2010; Bollingmo, Wessel, Eilertsen, & Magnussen, 2008; Maddox, Lee, & Barker, 2011; Venema, 2016b), voluntary alcohol consumption (B. A. Campbell, Menaker, & King, 2015; Schuller & Stewart, 2000; Sims, Noel, & Maisto, 2007), and a closer victim-perpetrator relationship (Felson & Paré, 2008); all of which prompt more negative assessments from officers. Such studies suggest that, when officers’ expectations of victims are violated, there is an associated impact on levels of belief, as officers evaluate reports of rape against their predetermined ideas of what rape should look like (Hazelwood & Burgess, 1995). Furthermore, as noted in Sleath and Bull (2017), officers perceptions of victim credibility also predict case processing (Bollingmo et al., 2008; B. A. Campbell et al., 2015; Goodman-Delahunty & Graham, 2011; Schuller & Stewart, 2000), suggesting that perceived credibility may be a mediating factor between rape myths and the processing of cases.

Similar findings are provided by studies assessing officers’ judgements of victim and perpetrator blame/responsibility, and rape authenticity. For example, several myths concerning adherence to societal norms of femininity, such as victim sexual promiscuity/history (B. A. Campbell et al., 2015), and profession (i.e., sex work, Page, 2007, 2008b, 2010), have been shown to influence officers’ judgements of victim credibility and responsibility, and classification of incident as rape (Venema, 2016b). In addition, other myths relating to victim behaviour, notably voluntary consumption of alcohol (Goodman-Delahunty & Graham, 2011; Schuller & Stewart, 2000), and the presence/absence, degree and/or timing of resistance (Hine & Murphy, 2017; Venema, 2016b) also have substantial effects on officers’ allocations of victim and perpetrator responsibility. Characteristics relating to the context of the incident, such as the degree of relationship between victim and perpetrator demonstrate further significant effects (with cases involving a stranger garnering the most favourable judgements, Areh, Mesko, & Umek, 2009; Hine & Murphy, 2017; Sleath & Bull, 2012). Moreover, studies examining several myths in combination, for example those concerning victim behaviour (victim reputation and initial point of resistance) and context (victim-perpetrator relationship), find that myths operate both in isolation, and in combination, to influence officers’ judgements (Hine & Murphy, 2017).

**The Present Study**

Considering the above, it is evident that officers utilise rape myths when reasoning about cases and those involved, and that officers respond differently depending on the presence or absence of such information. However, at present, few studies have directly assessed the relationship between officers’ acceptance of rape myths, and judgements made, by measuring both within the same population. Those that do demonstrate that officers higher in RMA are: less likely to believe a victim who does not fit the ‘genuine victim’ stereotype (Page, 2008a); allocate higher victim responsibility and lower credibility judgements (Goodman-Delahunty & Graham, 2011); allocate greater victim blame (Sleath & Bull, 2012), and are less likely to deem a case as “good” or act in a way that indicates case seriousness (Venema, 2016a). However, such studies either a) have not been conducted in UK populations, b) have small sample sizes, c) only assess victim variables (omitting perpetrator and case variables), d) have utilised measures of rape myth acceptance which suffer from numerous methodological flaws (such as the Illinois Rape Myth Acceptance Scale; Payne, Lonsway, & Fitgerald, 1999), and/or e) do not assess the relationship between RMA and judgements regarding specific rape myths (rather, they utilise scenarios that are simply ‘high’ or ‘low’ in rape myth-related information). Furthermore, as Sleath and Bull (2017) note, research on police officers’ utilisation of rape myths is still scant, and greater understanding of the relationship between officers’ attitudes and their behaviour is still needed.

Providing such evidence is important for two reasons. First, a number of influential government reports (Angiolini, 2015; Stern, 2010), academic reviews (Parratt & Pina, 2017; Sleath & Bull, 2017), and individual studies (Hine & Murphy, 2017; Sleath & Bull, 2012) have suggested that police officer training regarding rape and serious sexual assault requires substantial improvement, in relation to improving both procedural elements and negative attitudes (e.g., promoting critical awareness of rape myths). Such observations are supported by studies assessing both specific interventions (Lonsway, Welch, & Fitzgerald, 2001; Muram, Hellman, & Cassinello, 1995) and existing specialist training programmes (Goodman-Delahunty & Graham, 2011; Sleath & Bull, 2012) which suggest neither are currently effective at changing officers’ attitudes. Thus, further evidence on the relationship between such attitudes and judgements made by officers, and on which rape myths prompt the employment of officer’s schematic thinking, may be highly valuable in shaping more effective training programmes.

Second, considering the limited evidence outlined above regarding the relationship between officers’ rape myth acceptance and their judgements of credibility and blame (e.g., Venema, 2016a), there is a substantial argument for acknowledging the attitudes of officers within selection processes. Specifically, if studies were to reliably demonstrate that officers low in rape myth acceptance made more positive judgements towards victims, it could be reasoned that such officers would be better suited to specialist roles which involve high levels of interactions with victim-survivors. This is particularly important when proposed against the backdrop of performance targets and resourcing issues within policing which often force police officers and prosecutors into relying on schematic processing (Frohmann, 1991; Hohl & Stanko, 2015; Munro & Kelly, 2009).

The present study therefore assessed the relationship between police officers’ rape myth acceptance and their judgements of victim and perpetrator responsibility, as well as rape authenticity, in a large UK sample. This study represents a follow-up analysis to two previous studies assessing the attitudes and judgements of officers separately (Murphy & Hine, 2018, and Hine & Murphy, 2017 respectively). Specifically, this study assesses whether officers’ judgements varied based on ‘high’ versus ‘low’ levels of rape myth acceptance, across hypothetical rape vignettes which varied on three specific rape myth-related factors: victim-perpetrator relationship, victim reputation, and initial point of resistance. There were three hypotheses:

H1: Officers ‘high’ in RMA would give significantly higher victim responsibility, lower perpetrator responsibility, and lower rape authenticity ratings than those ‘low’ in RMA

H2: Two-way interactions between officers’ RMA and individual rape-myth related factors would be found (i.e., officers ‘high’ in RMA would give significantly higher victim responsibility, lower perpetrator responsibility, and lower rape authenticity ratings in scenarios where the perpetrator was a partner/when the victim had a ‘bad’ reputation/when the victim resisted ‘late’)

H3: Three- and Four-way interactions between officers’ RMA and rape myth-related factors would also be found (i.e., victim responsibility would be significantly higher, and perpetrator responsibility and rape authenticity significantly lower, in scenarios where the perpetrator was a partner, when the victim had a ‘bad’ reputation, and when the victim resisted ‘late’ and officers’ had ‘high’ rape myth acceptance)

**Methods**

**Design**

This study adopted a between-subjects design with four factors. Three of these factors, *victim-perpetrator relationship* (with four levels: stranger, acquaintance, partner or ex-partner), *victim reputation* (with two levels: ‘good’ versus ‘bad’), and *initial point of resistance* (with two levels: ‘early’ versus ‘late’) were utilised and examined in Hine and Murphy (2017). These particular myths were chosen due to their previous lack of examination in officer populations, as well as their theoretical importance to case progression, as explained fully in Hine and Murphy (2017). An additional factor: Officers’ *level of rape myth acceptance* (with two levels: ‘high’ versus ‘low’) is unique to this study. These factors constitute the independent variables in this study. The dependent variables (as in Hine & Murphy, 2017) were officers’ ratings of: victim responsibility, perpetrator responsibility, and the extent to which they considered the scenario to be rape (rape authenticity rating).

**Participants**

 Participants were 808 police officers (min = 19 yrs., max = 63 yrs., M = 38.12 yrs., SD = 9.52, 513 men) from the Metropolitan Police Service (MPS) in London, United Kingdom. Officers had a wide range of service length (min = 3 months, max = 35 yrs., M = 11.7 yrs., SD = 8.33) and were from a variety of ranks (63.4% Constables, 15.1% Sergeants, and 5.9% Police Community Support Officers, with the remaining percentage accounted for by ranks ranging from Recruit to Chief Superintendent). Participants were from a variety of ethnic backgrounds although most were White (84%). Finally, just over half of the participants (423, 52%) occupied a specialist role (e.g., Safer Neighbourhood Team, Counter Terrorism Unit) and 11% of officers had received specialist Sexual Offences Investigation Training (SOIT) at some point in their career. This constitutes a sample that is largely representative of both the Metropolitan Police Service, as well as the general police population nationwide (Office for National Statistics, 2015).

**Materials**

*Vignettes*

Sixteen vignettes were created based on variations in three of the factors outlined above - *victim-perpetrator relationship*, *victim reputation*, and the *initial point of resistance*. All scenarios met the legal definition of rape as outlined in the Sexual Offences Act (2003), and an example scenario (partner perpetrator, ‘good’ reputation, ‘early’ initial point of resistance) is given below.

Maggie was at a Christmas celebration in her place of work, among those attending were colleagues, friends and people from other departments she had never met. She had brought her husband Craig along, and after some brief introductions Maggie began dancing with him. After a while dancing, Maggie decided she had to go back to her own office, at the other side of the building, to take care of some final emails before returning to the party. Craig and Maggie have never had sex in a public place, as Maggie worried about being caught. He followed her to her office where Maggie was working on her emails, she said, “hey, you” whilst smiling, he said “it’s Christmas, I have some mistletoe here”. Maggie laughed politely; she stopped her work and kissed him under the mistletoe. Craig went to kiss Maggie again, but Maggie pulled away, and put her hands on his chest to stop him. Maggie said “Let’s go back to the party, we can carry on at home” At this point Craig became more forceful, pushing her hand onto his crotch. He then pushed her to her desk, forcibly held her and went on to have sex with Maggie.

Concordant with the methodology employed by Hine and Murphy (2017), after the scenario participants were presented with five questions. Three assessed victim responsibility (α = .90), with the mean score across these questions utilised; the fourth question assessed perpetrator responsibility. Participants answered these questions using a sliding scale, ranging from ‘Not at All’ to ‘Completely’, with no numerical values assigned. The final question asked for officers’ overall rating of the scenario as an authentic rape, using a sliding scale from 0 (Not at all) to 100 (Absolutely).

*Rape Myth Acceptance*

The Acceptance of Modern Myths About Sexual Aggression (AMMSA) scale (Gerger, Kley, Bohner, & Siebler, 2007) provided the measure of rape myth acceptance for this study. Participants answered 30 questions, using a Likert scale ranging from “strongly disagree” to “strongly agree”. Examples include “It is a biological necessity for men to release sexual pressure from time to time” and “As long as they don’t go too far, suggestive remarks and allusions simply tell a woman that she is attractive”. This measure was chosen as it utilises valenced questions and colloquial language to address more modern conceptualisations of sexism and sexist beliefs, and to overcome a number of statistical and practical shortcomings associated with previous measures of rape myth acceptance, such as floor effects and issues of skewness (e.g., Illinois Rape Myth Acceptance Scale – IRMAS; Payne, Lonsway, & Fitgerald, 1999). Cronbach’s alpha level for this scale was .91 in the present study, in keeping with previous levels of .92 (Gerger et al., 2007). This scale was presented as part of a randomised battery of measures, including scales measuring hostility towards women, ambivalent sexism (hostile and benevolent), and the relationship between power and sex. For more details of these scales, see Murphy and Hine (2018).

**Procedure**

Participants were invited to take part in the study via an online link, with the questionnaire battery and vignettes presented using the survey software Qualtrics. The link to the questionnaire was emailed to the professional email accounts of all police officers and police community support officers in the MPS (approx. 33,600 in total). Officers could only complete the questionnaire whilst on an MPS computer, ensuring participation occurred in a semi-controlled work environment. 1750 officers (approx. 5.05% of total force) opened the link to the questionnaire and answered at least one question. The final sample of 808 officers (46.17%, approx. 2.4% of total force) consisted of those who completed the questionnaire battery in full.

Upon opening the link, participants were first presented with an information sheet and consent form. Participation was voluntary and was stressed as such in their initial email. Considering the sensitive nature of the study, it was also strongly emphasised that participating in this study would not affect their career in any way, that results were completely anonymous and confidential, and that they had the right to withdraw at any time. It was also stressed that nobody in the police force, including senior officers, had access to the data. Following this, participants were presented with the questionnaire battery (randomised), followed by the vignette, plus accompanying questions. Officers were presented with only one of the sixteen vignettes, with between 41 and 55 officers randomly allocated to each scenario. They were asked to read this carefully, and then provide answers to the five questions relating to the scenario. Finally, a debriefing screen was provided, including the contact details of the researchers.

**Results**

Significant correlations were found between the dependent variables (*p* < 0.001). Therefore, a four (*victim-perpetrator relationship*) x two (*victim reputation*) x two (*initial point of resistance*) x two (*level of rape myth acceptance*) MANCOVA was conducted on participants’ scores for victim responsibility, perpetrator responsibility, and evaluation of the scenario as an authentic rape. A ‘high’ versus ‘low’ level of rape myth acceptance was determined by conducting a median split analysis on officers’ mean scores, with officers scoring above 2.67 deemed as (relatively) ‘high’ and those scoring below deemed as (relatively) ‘low’. This approach was chosen as it produced two similarly sized groups for entry into the statistical model. No alternative non-arbitrary grouping was available, due to the high proportion of officers (92.5%) who indicated overall disagreement with rape myths (i.e., those who fell below the mean point of the scale, 4). *Officer sex* was included as a covariate, as male officers have been shown to exhibit higher levels of rape myth acceptance in previous research (Sleath & Bull, 2017). Descriptive statistics for the main effects of each independent variable on all dependent variables are shown in Table 1. All post hoc analyses were conducted using Tukey’s HSD, and Bonferroni corrections were applied when multiple tests were conducted.

**Factors Relating to Rape Myths**

Several rape myth related factors included in this study were also utilised in Hine and Murphy (2017) and, as such, a number of main effects and interactions are repeated in these analyses. Table 1 details such effects, for example the influence of both *victim reputation*, *F* (1, 775) = 30.94, *p* < 0.001, and *initial point of resistance*, *F* (1, 775) = 162.678, *p* < 0.001, on officers’ judgements of victim responsibility; *victim-perpetrator relationship*, *F* (3, 775) = 7.29, *p* < 0.001, and *initial point of resistance*, *F* (1, 775) = 9.35, *p* < 0.002, on officers’ judgements of perpetrator responsibility; and *victim-perpetrator relationship* on officers’ ratings of rape authenticity, *F* (3, 775) = 21.48, *p* < 0.001. Interactions, such as between *victim-reputation* and *initial point of resistance* on ratings of victim responsibility, *F* (1, 775) = 9.45, *p* < 0.001, and *victim-perpetrator relationship* and *initial point of resistance* on officers’ judgements of rape authenticity, *F* (3, 775) = 3.89, *p* < 0.05, were also found. The covariate *officer sex* also significantly influenced officers ratings of victim responsibility, *F* (3, 775) = 4.59, *p* < 0.05, with male officers giving higher responsibility ratings (M = 22.36, SD = 25.06) than female officers (M = 18.62, SD = 23.46). Full results for these variables are described in Hine and Murphy (2017).

**‘High’ vs. ‘Low’ Rape Myth Acceptance**

The focus in this study was the influence of officers’ rape myth acceptance on officers’ judgements, both in isolation and in combination with rape myth-related factors. A significant main effect was found for *level of rape myth acceptance* on all three dependent variables. As shown in Table 1, officers with ‘high’ rape myth acceptance judged victims as more responsible, *F* (1, 775) = 61.73, *p* < 0.001, perpetrators as less responsible, *F* (1, 775) = 7.19, *p* < 0.01, and scenarios as less authentic, *F* (1, 775) = 26.64, *p* < 0.001. This suggests that officers’ negative attitudes about rape have an important influence on their judgement of rape cases, and those involved.

 Significant interactions between *level of rape myth acceptance* and some rape myth factors were also found. For example, a two-way interaction was found between *level of rape myth acceptance* and *victim-perpetrator relationship* on officers’ judgements of rape authenticity, *F* (3, 775) = 13.54, *p* < 0.002. Two one-way ANOVAs were conducted to assess differences across different victim-perpetrator relationships when rape myth acceptance was ‘high’ versus ‘low’. Results (see Table 2) showed that when rape myth acceptance was ‘low’, judgements of rape authenticity did not significantly differ. However, officers with ‘high’ rape myth acceptance judged partner scenarios to be significantly less authentic than stranger, acquaintance, and ex-partner scenarios, *F* (3, 414) = 30.55, *p* < 0.001.

Further two-way interactions were found. *Level of rape myth acceptance* and *initial point of resistance* produced an interaction effect for victim responsibility, *F* (1, 775) = 18.51, *p* < 0.001. Results from four additional independent measures t-tests suggest an ordinal interaction (see Table 3). Officers judged the woman in the scenario as more responsible in the ‘late’ versus ‘early’ resistance condition in both ‘low’, *t* (391) = 6.35, *p* < 0.001, and ‘high’, *t* (413) = 11.00, *p* < 0.001, rape myth acceptance conditions, and as more responsible when rape myth acceptance was ‘high’ versus ‘low’, in both ‘early’, *t* (394) = 2.79, *p* < 0.01, and ‘late’, *t* (410) = 7.86, *p* < 0.001, resistance conditions (with this having a stronger effect in the ‘late’ resistance condition). A significant interaction was also found between *level of rape myth acceptance* and *initial point of resistance* for perpetrator responsibility, *F* (1, 775) = 4.48, *p* < 0.05. Four further t-tests revealed interesting differences in the judgements made by officers (see Table 3). Those ‘low’ in rape myth acceptance judged perpetrators as similarly responsible across ‘early’ versus ‘late’ conditions, and in ‘early’ resistance scenarios, officers rape myth acceptance had no significant effect on judgements. However, when officers were ‘high’ in rape myth acceptance, they judged perpetrators in ‘late’ resistance scenarios as less responsible than those in ‘early’ scenarios, *t* (413) = 3.77, *p* < 0.001. In addition, officers gave significantly lower responsibility ratings to perpetrators in ‘late’ resistance conditions when they showed ‘high’ versus ‘low’ levels of rape myth acceptance.

Finally, a four-way interaction between *level of rape myth acceptance, victim-perpetrator relationship*, *victim reputation*, and *initial point of resistance* was found for rape authenticity rating, *F* (3, 775) = 3.26, *p* < 0.05. Mean values presented in Table 4 suggest that differences arise in judgements made towards partner scenarios in officers who are ‘high’ versus ‘low’ in rape myth acceptance, particularly when other rape myth information is present in combination. Four t-tests were computed to assess differences in rape authenticity judgements made by officers ‘high’ versus ‘low’ in rape myth acceptance in partner-good-early, partner-bad-early, partner-good-late, and partner-bad-late scenarios. After corrections were applied, significant differences were only found for partner-bad-late scenarios, *t* (39) = 3.97, p < 0.001, suggesting that officers ‘high’ in rape myth acceptance judge scenarios containing many rape myth related pieces of information as ‘less’ of a rape. Two further t-tests were conducted to examine differences in judgements of rape authenticity made by officers who were ‘high’ on rape myth acceptance in partner-good-early, partner-bad-early, partner-good-late, and partner-bad-late scenarios. No differences were found in judgements towards partner-good-early and partner-good-late scenarios. However, significant differences were found between partner-bad-early and partner-bad-late scenarios, *t* (50) = 2.60, *p* < 0.05. Together these results suggest that officers ‘high’ in rape myth acceptance judge some rape scenarios to be less authentic when information pertinent to rape myths is present; particularly when several rape myths coalesce.

**Discussion**

The present study examined judgements of victim and perpetrator responsibility, as well as rape authenticity, in officers ‘high’ versus ‘low’ in rape myth acceptance across scenarios which varied on victim-perpetrator relationship, victim reputation and initial point of resistance. This is the first study to directly assess the relationship between officers’ RMA and the judgements they make towards victims, perpetrators and the crime itself, in a large UK sample. Moreover, this is the only study to do so using a more modern and robust measure of RMA, and to assess the relationship between these attitudes and scenarios constructed around specific myths. Results demonstrated that officers ‘high’ in rape myth acceptance allocate higher victim responsibility, lower perpetrator responsibility, and give lower rape authenticity ratings than those ‘low’ in RMA. Further, officers ‘high’ in RMA gave particularly negative judgements in scenarios where rape myth related information was present, either in isolation, or in combination. Results therefore suggest that there is a direct relationship between the attitudes and judgements of officers in the UK, and that those ‘high’ in RMA may judge victims differently when rape myth-related information is present.

**Judgements in Officers ‘High’ versus ‘Low’ in RMA**

 Hypothesis 1 was supported, as results showed that officers ‘high’ in rape myth acceptance gave less favourable judgements than those ‘low’ in rape myth acceptance across all three dependent variables. This supports previous work suggesting that officers higher in RMA allocate greater victim responsibility (Goodman-Delahunty & Graham, 2011), greater victim blame (Sleath & Bull, 2012), and are less likely to deem a case as “good”(Venema, 2016a), as well as work conducted in non-specialist populations showing such relationships (Grubb & Turner, 2012). Furthermore, this is the first study to assess this relationship in the context of officers’ judgements towards perpetrators, with results from this study again mirroring those utilising undergraduates and members of the general public (Grubb & Turner, 2012). Taken together, such results suggest that officers who demonstrate a higher level of agreement with rape myths may utilise these beliefs when making assessments of the responsibility of both parties, and authenticity of the claim. Moreover, these findings support the characterisation of rape myths as a general cognitive schema, employed to enable the negative attributions to be made about the crime of rape and those involved (Grubb & Turner, 2012).

 Hypotheses 2 and 3 were also supported, as interactions were found between officers’ level of RMA and specific rape myth-related factors. For example, officers ‘high’ in RMA gave lower ratings of rape authenticity in partner scenarios. This supports previous results in studies utilising undergraduates which suggest that rape myth acceptance and the presence of rape myth-related information interact to influence judgements of responsibility and authenticity in scenarios varying by victim-perpetrator relationship (Frese, Moya, & Megias, 2004). Officers may therefore be utilising negative attitudes regarding rape that occurs in the context of close personal relationships when evaluating claims of rape, similar to undergraduates (Grubb & Harrower, 2008). This is particularly important when considering the high proportion of rape cases characterised as occurring within this context in the UK every year (Waterhouse, Reynolds, & Egan, 2016).

 Officers ‘high’ in RMA were also influenced by information relating to initial point of resistance, as they gave higher ratings of victim responsibility and lower ratings of perpetrator responsibility in ‘late’ versus ‘early’ scenarios. This suggests that, similar to results from undergraduate studies (Kopper, 1996), when officers report ‘high’ RMA, information relating to myths regarding resistance may prime the use of those beliefs in evaluating responsibility. Such effects could be due to officers ideas regarding the relationship between resistance and consent (Venema, 2016b), and importance placed on establishing consent when investigating such cases (Hine & Murphy, 2017). Moreover, when information relating to all three factors was present, officers ‘high’ in RMA gave lower judgements of authenticity. This suggests that the presence of such information may evoke attitudes relating to several individual myths, which coalesce to undermine officers’ belief in claim authenticity.

**Implications**

 Considering the limited evidence highlighting the detrimental effect of negative attitudes and judgements on officers’ decision making (Hohl & Stanko, 2015; O'Keeffe, Brown, & Lyons, 2009; Venema, 2016a), it is important to consider how to most effectively train officers on rape myths and their influence during the investigative process. However, previous attempts to mitigate rape myth acceptance in officers, either through specific intervention or delivery of specialist training, have been largely unsuccessful (Parratt & Pina, 2017; Sleath & Bull, 2017). One of the principal explanations put forward for this effect is that, due to budgetary constraints, the provision of in-depth, long-lasting interventions (e.g., Darwinkel, Powell, & Tidmarsh, 2013) is impractical (Sleath & Bull, 2017). However, whilst the authors of this study argue that all officers should receive training in the myths and fallacies which surround rape, the results outlined above suggest that such training could be targeted towards officers for which such beliefs are detrimental to the work of objective evidence gathering and processing. Furthermore, the identification of specific myths which influence said officers’ reasoning (e.g., victim-perpetrator relationship and initial point of resistance in this study) provides further opportunity for more effectively designed and targeted training efforts.

 Such considerations are also highly relevant to the initial selection of specialist officers. In the UK, Specially Trained Officers (STOs)/Sexual Offences Investigative Techniques (SOIT) officers are allocated to those who report sexual crimes. These officers are crucial in guiding victim-survivors through the investigative process, and their interactions are pivotal in ensuring prosecutorial success. However, due to the extreme operational and emotional demands of such positions, few selection criteria are outlined for such roles. Nonetheless, results from this study suggest that level of rape myth acceptance could, and possibly should, form part of such criteria.

**Limitations**

 There are a number of methodological limitations to this study, the first three of which are discussed in detail in Hine and Murphy (2017) & Murphy and Hine (2018), and are summarised briefly here. First, participants in this study were officers from the Metropolitan Police Service (MPS), representing only 1 of the UK’s 43 forces. Moreover, participants in this study constitute only 2.4% of the total force, partly due to the extreme operational demands placed on officers, limiting their participation in external research projects. This limits the generalizability of these results to all UK officers to some extent, although it should be noted that the demographic characteristics of this sample are congruent with MPS overall, and forces nationwide (Office for National Statistics, 2015). Second, the scenarios in this study contained varying information relating to only three rape myths, and it could be argued that other important myths are worthy of study in this population (e.g., those relating to alcohol consumption). However, it can also be contended that such factors were specifically chosen due to their important extra-legal influence on rape cases, as evidenced by previous research. Third, the results from this study do not assess judgements towards real-life cases or victim-survivors, nor do they illuminate patterns of officer behaviour or case processing. In this sense, arguments made here regarding the relationship between officers’ attitudes and their actions are in part theoretical.

 Two additional limitations, unique to this study, present. First, whilst officer sex was included as a covariate in this study, officer rank and years of service were not available for inclusion within the statistical models, as these variables were not able to be split into non-arbitrary and/or similarly sized groups. Future research should seek to investigate the influence of such variables on officer judgements in more detail. Second, officers in this study were designated to ‘high’ versus ‘low’ rape myth acceptance groups via median split. Two issues present. First, by transforming data from continuous to categorical, some of the nuance is inevitably lost. However, as is argued above, this was necessary to conduct the analyses chosen for this study, and to assess how rape myth acceptance interacted with each of the other chosen factors. Second, due to the relatively low cut-off point created during the median split analysis, officers in the ‘high’ RMA group included those who were not objectively high in RMA at all (i.e., those who fell below 4, the mid-point of the scale). Therefore, whilst ‘high’ and ‘low’ labels were utilised in this study for clarity, they should be taken with caution.

**Conclusions**

Officers in this study demonstrated clear variations in their judgements of responsibility and authenticity, based on their membership of ‘high’ vs ‘low’ rape myth acceptance groups. As such, it can be assumed that officers who are ‘high’ in RMA utilise negative attitudes when making such judgements, and that these same officers may make important investigative and case processing decisions based on those same beliefs. Such observations are particularly important considering that police officers act as gatekeepers to the criminal justice system (Sleath & Bull, 2015), and may, in part, explain why cases with rape-myth related characteristics have a lower chance of progressing through the criminal justice system (Hohl & Stanko, 2015; Spohn & Tellis, 2012) and why victim-survivors report frequently report negative interactions with officers (Alderden & Ullman, 2012; R. Campbell et al., 2001). It is therefore recommended that, whilst additional research is needed to further explore the relationship between officers’ attitudes and case decision making, officers’ level of rape myth acceptance should be taken into account in the design and delivery of specialist training programmes, and in the selection of officers for specialist roles.

**References**

Alderden, M. A., & Ullman, S. E. (2012). Gender difference or indifference? Detective decision making in sexual assault cases. *Journal of Interpersonal Violence, 27*, 3-22. doi:10.1177/0886260511416465

Angiolini, E. (2015). *Report of the independent review into the investigation and prosecution of rape in London*. London: Metropolitan Police and Crown Prosecution Service.

Areh, I., Mesko, G., & Umek, P. (2009). Attribution of personal characteristics to victims of rape - police officer’s perspectives. *Studia Psychologica, 51*, 85-100.

Ask, K., & Landström, S. (2010). Why Emotions Matter: Expectancy Violation and Affective Response Mediate the Emotional Victim Effect. *Law and Human Behavior, 34*, 392-401. doi:10.1007/s10979-009-9208-6

Bohner, G. (1998). *Vergewaltigungsmythem [rape myths]*. Landau, Germany: Verlag Empirische Pädagogik.

Bollingmo, G. C., Wessel, E. O., Eilertsen, D. E., & Magnussen, S. (2008). Credibility of the emotional witness: A study of ratings by police investigators. *Psychology, Crime and Law, 14*, 29-40. doi:10.1080/10683160701368412

Brown, J. M., Hamilton, C., & O’Neill, D. (2007). Characteristics associated with rape attrition and the role played by scepticism or legal rationality by investigators and prosecutors. *Psychology, Crime and Law, 13*, 355-370. doi:10.1080/10683160601060507

Campbell, B. A., Menaker, T. A., & King, W. R. (2015). The determination of victim credibility by adult and juvenile sexual assault investigators. *Journal of Criminal Justice, 43*, 29-39. doi:10.1016/j.jcrimjus.2014.12.001

Campbell, R., & Johnson, C. R. (1997). Police officers' perception of rape: Is there consistency between state laws and individual beliefs? *Journal of Interpersonal Violence, 12*, 255-274.

Campbell, R., Wasco, S. M., Ahrens, C. E., Sefl, T., & Barnes, H. E. (2001). Preventing the "second rape": Rape survivors' experiences with community service providers. *Journal of Interpersonal Violence, 16*, 1239-1259. doi:10.1177/088626001016012002

Darwinkel, E., Powell, M., & Tidmarsh, P. (2013). Improving police officers' perceptions of sexual offending through intensive training. *Criminal Justice and Behavior, 40*, 895-908. doi:10.1177/0093854813475348

Dinos, S., Burrowes, N., Hammond, K., & Cunliffe, C. (2015). A systematic review of juries' assessment of rape victims: Do rape myths impact on juror decision-making? *International Journal of Law, Crime and Justice, 43*, 36-49. doi:10.1016/j.ijlcj.2014.07.001

Estrich, S. (1987). *Real Rape*. Cambridge, MA: Harvard University Press.

Felson, R. B., & Paré, P.-P. (2008). Gender and the victim’s experience with the criminal justice system. *Social Science Research, 37*, 202-219. doi:10.1016/j.ssresearch.2007.06.014

Frese, B., Moya, M., & Megias, J. L. (2004). Social perception of rape: How rape myth acceptance modulates the influence of situational factors. *Journal of Interpersonal Violence, 19*, 143-160. doi:10.1177/0886260503260245

Frohmann, L. (1991). Discrediting Victims' Allegations of Sexual Assault: Prosecutorial Accounts of Case Rejections. *Social problems, 38*, 213-226. doi:10.2307/800530

Frohmann, L. (1997). Convictability and discordant locales: Reproducing race, class, and gender ideologies in prosecutorial decision making. *Law & Society Review, 31*, 531-556. doi:10.2307/3054045

Gerger, H., Kley, H., Bohner, G., & Siebler, F. (2007). The Acceptance of Modern Rape Myths About Sexual Aggression (AMMSA) Scale: Development and validation in German and English. *Aggressive Behaviour, 33*, 422-440. doi:10.1002/ab.20195

Goodman-Delahunty, J., & Graham, K. (2011). The influence of victim intoxication and victim attire on police repsonses to sexual assault. *Journal of Investigative Psychology and Offender Profiling, 8*, 22-40. doi:10.1002/jip.127

Grubb, A., & Harrower, J. (2008). Attribution of blame in cases of rape: An analysis of participant gender, type of rape and perceived similarity to the victim. *Aggression and Violent Behavior, 13*, 396-405. doi:10.1016/j.avb.2008.06.006

Grubb, A., & Turner, E. (2012). Attribution of blame in rape cases: A review of the impact of rape myth acceptance, gender role conformity and substance use on victim blaming. *Aggression and Violent Behavior, 17*, 443-452. doi:10.1016/j.avb.2012.06.002

Hazelwood, R. R., & Burgess, A. W. (1995). *Practical aspects of rape investigation: A multidisciplinary approach* (2nd ed.). New York, NY: CRC Press.

Hine, B., & Murphy, A. (2017). The impact of victim-perpetrator relationship, reputation and initial point of resistance on officers' responsibility and authenticity ratings towards hypothetical rape cases. *Journal of Criminal Justice, 49*, 1-13. doi:10.1016/j.jcrimjus.2017.01.001

Hohl, K., & Stanko, E. (2015). Complaints of rape and the criminal justice system: Fresh evidence on the attrition problem in England and Wales. *European Journal of Criminology, 12*, 324-341. doi:10.1177/1477370815571949

Horvath, M., & Brown, J. (2009). *Rape: Challenging contemporary thinking*. New York, NY: Routledge.

Kelly, L., Lovett, J., & Regan, L. (2005). *A gap or a chasm? Attrition in reported rape cases*. Retrieved from

Kopper, B. A. (1996). Gender, gender identity, rape myth acceptance, and time of initial resistance on the perception of acquaintance rape blame and avoidability. *Sex Roles, 34*, 81-93. doi:10.1007/BF01544797

Lonsway, K. A., Welch, S., & Fitzgerald, L. F. (2001). Police training in sexual assault response: Process, outcomes, and elements of change. *Criminal Justice and Behavior, 28*, 695-730. doi:10.1177/009385480102800602

Maddox, L., Lee, D., & Barker, C. (2011). olice empathy and victim PTSD as potential fac-tors in rape case attrition. *Journal of Police and Criminal Psychology, 26*, 112-117. doi:10.1007/s11896-010-9075-6

Mennicke, A., Anderson, D., Oehme, K., & Kennedy, S. (2014). Law enforcement officers' perception of rape and rape victims: A multimethod study. *Violence and Victims, 29*, 814-827. doi:10.1891/0886-6708.VV-D-13-00017

Munro, V. E., & Kelly, L. (2009). A vicious cycle? Attrition and conviction patterns in contemporary rape cases in England and Wales. In M. A. Horvath & J. Brown (Eds.), *Rape: Challenging contemporary thinking* (pp. 281-300). Devon, UK: Willan Publishing.

Muram, D., Hellman, R., & Cassinello, B. (1995). Prevalence of negative atttiudes among police officers towards rape victims. *Adolescent and Pediatric Gynecology, 8*, 89-91. doi:10.1016/S0932-8610(19)80131-7

Murphy, A., & Hine, B. (2018). Investigating the demographic and attitudinal predictors of rape myth acceptance in U.K. Police officers: developing an evidence-base for training and professional development. *Psychology, Crime and Law*. doi:10.1080/1068316X.2018.1503663

O'Keeffe, S., Brown, J. M., & Lyons, E. (2009). Seeking proof or truth: Naturalistic decision-making by police officers when considering rape allegations. In M. Horvath & J. Brown (Eds.), *Rape: Challenging contemporary thinking* (pp. 229-254). New York, NY: Routledge.

Office for National Statistics. (2015). *Police workforce, England and Wales: 31 March 2015*. London: Office for National Statistics.

Page, A. D. (2007). Behind the blue line: Investigating police officers' attitudes toward rape. *Journal of Police and Criminal Psychology, 22*, 22-32. doi:10.1007/s11896-007-9002-7

Page, A. D. (2008a). Gateway to reform? Policy implications of police officers' attitudes toward rape. *American Journal of Criminal Justice, 33*, 44-58. doi:10.1007/s12103-007-9024-9

Page, A. D. (2008b). Judging women and defining crime: Police officers' attitudes toward women and rape. *Sociological Spectrum, 28*, 389-411. doi:10.1080/02732170802053621

Page, A. D. (2010). True colors: Police officers and rape myth acceptance. *Feminist Criminology, 5*, 315-334. doi:10.1177/1557085110384108

Parratt, K. A., & Pina, A. (2017). From “real rape” to real justice: A systematic review of police officers' rape myth beliefs. *Aggression and Violent Behavior, 34*, 68-83. doi:10.1016/j.avb.2017.03.005

Payne, D. L., Lonsway, K. A., & Fitzgerald, L. F. (1999). Rape Myth Acceptance: Exploration of Its Structure and Its Measurement Using the *Illinois Rape Myth Acceptance Scale*. *Journal of research in Personality, 33*, 27-68.

Schuller, R. A., & Stewart, A. (2000). Police responses to sexual assault complaints: The role of perpetrator/complainant intoxication. *Law and Human Behavior, 24*, 535-551. doi:10.1023/A:1005519028528

Sims, C. M., Noel, N. E., & Maisto, S. A. (2007). Rape blame as a function of alcohol presence and resistance type. *Addictive Behaviors, 32*, 2766-2775. doi:10.1016/j.addbeh.2007.04.013

Sleath, E., & Bull, R. (2012). Comparing rape victim and perpetrator blaming in a police officer sample: Differences between police officers with and without specialist training. *Criminal Justice and Behavior, 39*, 646-665. doi:10.1177/0093854811434696

Sleath, E., & Bull, R. (2015). A brief report on rape myth acceptance: Differences between police officers, law students, and psychology students in the United Kingdom. *Violence and Victims, 30*, 136-147. doi:10.1891/0886-6708.VV-D-13-00035

Sleath, E., & Bull, R. (2017). Police perceptions of rape victims and the impact on case decisionmaking: A systematic review. *Aggression and Violent Behavior, 34*, 102-112. doi:10.1016/j.avb.2017.02.003

Spohn, C., & Tellis, K. (2012). The criminal justice system's response to sexual violence. *Violence Against Women, 18*, 169-192. doi:10.1177/1077801212440020

Spohn, C., & Tellis, K. (2014). *Policing and prosecuting sexual assault: Inside the criminal justice system*. Boulder, CO: Rienner Publishers.

Stern, V. (2010). *The Stern review: A report by Baroness Vivien Stern CBE of an independent review into how rape complaints are handled by public authorities in England and Wales.* London: Government Equalities Office/Home Office.

Temkin, J. (2000). Prosecuting and defending rape: perspectives from the bar. *Journal of Law and Society, 27*, 219-248. doi:10.1111/1467-6478.00152

Temkin, J., & Krahé, B. (2008). *Sexual assault and the justice gap: A question of attitude*. Portland, OR: Hart Publishing.

Venema, R. M. (2016a). Making judgments: How blame mediates the influence of rape myth acceptance in police response to sexual assault. *Journal of Interpersonal Violence*. doi:10.1177/0886260516662437

Venema, R. M. (2016b). Police officer schema of sexual assault reports: Real rape, ambiguous cases, and false reports. *Journal of Interpersonal Violence, 31*, 872-899. doi:10.1177/0886260514556765

Waterhouse, G. F., Reynolds, A., & Egan, V. (2016). Myths and legends: The reality of rape offences reported to a UK police force. *The European Journal of Psychology Applied to Legal Context, 8*, 1-10. doi:10.1016/j.ejpal.2015.04.001

**Tables**

**Table 1.**

Means (and standard deviations) for participants’ ratings for each dependent variable across *Victim-Perpetrator Relationship*, *Victim Reputation*, *Initial Point of Resistance* and ‘*High’ versus ‘Low’ Rape Myth Acceptance* conditions

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|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Victim-Perpetrator Relationship |  | Victim Reputation |  | Initial Point of Resistance |  | Rape Myth Acceptance |
|  |  | Stranger | Acquaintance | Partner | Ex-Partner |  | ‘Good’ | ‘Bad’ |  | ‘Early’ | ‘Late’ |  | ‘Low’ | ‘High’ |
| Victim responsibility |  | 21.87 (24.16) | 24.11(24.93) | 20.18 (24.79) | 22.49 (26.66) |  | 16.89c (21.57) | 25.49d (26.72) |  | 11.17e (18.51) | 30.49f (25.89) |  | 14.61g (19.81) | 27.09h (26.95) |
| Perpetrator responsibility |  | 93.73a (15.78) | 92.87a(18.63) | 87.04b(23.11) | 95.14a (13.84) |  | 92.24 (19.32) | 92.33 (17.15) |  | 94.12e (16.96) | 90.52f (19.36) |  | 94.51g (18.25) | 90.17h (18.12) |
| Rape authenticity rating |  | 95.34a (15.91) | 93.44a(19.88) | 79.57b (32.21) | 96.62a (11.94) |  | 92.41 (20.51) | 90.56 (23.81) |  | 93.03 (20.07) | 90.08 (23.93) |  | 95.46g (16.42) | 87.80h (25.95) |

Note: Significantly different values (*p*<.001) are marked with different letters (i.e., in victim-perpetrator relationship, for perpetrator responsibility, strangers are significantly less responsible than partners, but not significantly different from acquaintances.) New letters are used for each independent variable (i.e., a and b indicate differences for victim-perpetrator relationship; c and d indicate differences for victim reputation etc.).

**Table 2.**

Means (standard deviations) for participants’ ratings of rape authenticity across *Rape Myth Acceptance* and *Victim-Perpetrator Relationship* conditions

|  |  |  |
| --- | --- | --- |
|  |  | Relationship |
|  | Rape Myth Acceptance | Stranger | Acquaintance | Partner | Ex-Partner |
| Rape Authenticity Rating | ‘High’ | 92.92a (18.15) | 93.69a (18.69) | **69.01b (37.57)** | 96.15a (09.87) |
| ‘Low’ | 97.54 (13.26) | 93.15 (21.21) | 92.73 (16.33) | 97.69 (13.71) |

Note: Significantly different values (*p*<.001) are marked with different letters

**Table 3.**

Means (standard deviations) for participants’ ratings of victim responsibility across *Reputation* and *Initial Point of Resistance* conditions

|  |  |  |
| --- | --- | --- |
|  |  | Initial Point of Resistance  |
|  | Rape Myth Acceptance  | ‘Early’ | ‘Late’ |
| Victim Responsibility | ‘Low’ | 08.58 (16.48) | 20.67 (21.03) |
| ‘High’ | 13.74 (20.02) | 39.40 (26.69) |
| Perpetrator Responsibility | ‘Low’ | 94.62 (18.84) | 94.40 (17.68) |
| ‘High’ | 93.62 (14.89) | 87.00 (20.16) |

**Table 4.**

Means (standard deviations) for participants’ ratings of rape authenticity across *Reputation*, *Initial Point of Resistance, Rape Myth Acceptance and Relationship* conditions

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | Relationship  |
| Reputation | Initial Point of Resistance | Rape Myth Acceptance | Stranger | Acquaintance | Partner | Ex-Partner |
| ‘Good’ | ‘Early’ | ‘Low’ | 95.04 (20.02) | 95.77 (18.43) | 96.25 (13.93) | 94.63 (19.98) |
| ‘High’ | 93.31 (13.79) | 95.91 (16.16) | 84.89 (25.05) | 94.33 (10.56) |
| ‘Late’ | ‘Low’ | 99.55 (01.74) | 92.21 (22.52) | 90.12 (27.27) | 99.85 (00.78) |
| ‘High’ | 91.31 (22.65) | 86.21 (26.29) | 85.37 (22.39) | 95.19 (16.46) |
| ‘Bad’ | ‘Early’ | ‘Low’ | 96.00 (18.89) | 93.68 (19.30) | 90.83 (23.99) | 99.63 (01.44) |
| ‘High’ | 87.17 (26.01) | 98.63 (04.28) | 91.82 (13.04) | 95.08 (16.89) |
| ‘Late’ | ‘Low’ | 98.93 (02.80) | 91.19 (25.94) | 81.73 (30.06) | 96.54 (06.85) |
| ‘High’ | 98.46 (06.53) | 95.16 (14.94) | **75.83 (23.34)** | 86.82 (16.98) |