

# Adults are expected to take responsibility for their problems, especially when those problems are congruent with traditional gender role expectations

John A. Barry<sup>1</sup>, Martin Seager<sup>2</sup>, Louise Liddon<sup>2</sup>, Jordan Holbrook<sup>2</sup>, & Linda Morison<sup>3</sup>

<sup>1</sup>University College London, United Kingdom

<sup>2</sup>Male Psychology Network, United Kingdom

<sup>3</sup>University of Surrey, United Kingdom

john.barry@ucl.ac.uk

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Some research suggests that we attribute responsibility differently for men and women. For example, Reynolds et al. (2019) found women are more easily typecast as victims and men as perpetrators. The present study was a cross-sectional online survey of 408 male and female adults aged 18 to 65, stratified by UK region. Participants saw 14 vignettes depicting a wide variety of scenarios featuring either a male or female character (a man or woman, or a boy or girl), about which participants were asked to make attributions. The gender of the vignette character was randomly assigned for each vignette. There was no overall difference in total internal attribution of responsibility to boys compared to girls (Cohen's  $d = -0.01$ ,  $p < .862$ ). For the vignettes about adults, there was a non-significant overall trend towards total internal attribution being higher for male characters ( $d = 0.061$ ,  $p < .065$ ). However, in terms of each vignette separately, participants agreed more strongly that: boys were more responsible for how depressed they feel ( $p < .013$ ), and men were more responsible for avoiding workplace accidents ( $p < .002$ ) and finding work ( $p < .003$ ). Girls were attributed as more responsible for being physically fit ( $p < .034$ ), and women attributed as more responsible for making sure their children don't have a playground accident ( $p < .034$ ). Findings of this exploratory study are discussed about attributions of responsibility being based on traditional gender role expectations. Implications for social issues, for example, encouraging help-seeking for mental health problems by boys, are discussed.

**Keywords:** attribution of responsibility; gamma bias; sex difference; traditional gender roles; victim-blaming

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Some previous research has noted sex differences in attribution of responsibility to individuals in various circumstances, but there is not a comprehensive body of work covering the variety of social contexts in which this occurs. Although research on the factors that affect the attribution of responsibility to men compared to women is far from complete, there are some interesting examples. In the context of health, a study presented participants with vignettes (short scenarios) about a 'positive thinking' strategy used by a hypothetical patient with bone cancer, and it was found that a male patient was seen as more responsible than a female patient if they continued to have cancer (Ruthig & Holfeld, 2016). In another study using vignettes, undergraduate nursing students were randomly allocated to reading material emphasizing either sociocultural or biological causes for the development of anorexia nervosa (Crisafulli et al., 2008). Participants who were exposed to the biological explanation were less inclined to blame people with anorexia than those exposed to the sociocultural explanation.

It could be that the more salient the gender of the protagonist is compared to other characteristics in the vignette, the more participants will be inclined to make attributions based on gender rather than other characteristics, such as their social class (Baron et al., 1995). If this is the case, then research that makes gender salient, or describes situations that are typically thought of as gendered, might be more likely to elicit judgements based on gender. For example, men are more likely than women to commit a violent crime, and although a small minority of men commit most of the violent crime (Falk et al., 2014), the association of men with violence appears to influence our judgements of male criminality. In support of this hypothesis, experimental studies by Reynolds et al. (2019) found women are more easily typecast as victims and men as perpetrators, even in cognitive tasks where animated shapes instead of people were shown perpetuating harm. Because of attitudes to gender, we would expect scenarios that are based on situations that evoke gender norms to invoke attitudes based on these norms.

It seems that even when we are presented with information that is contrary to our assumptions about gender, our judgements may still be interpreted according to our expectations if the situation is seen as gender-typical. One example is domestic violence, an issue that tends to be seen more as a problem faced by women, though around 30% of victims are male (Powney & Graham-Kevan, 2019). A study using vignette methodology to manipulate perpetrator and victim sex found that compared to female victims, violence against men was seen as less serious and more justified, and male victims were seen as more blameworthy than female victims (Erickson et al., 2017). The authors suggested that this victim-blaming was due to traditional gender role attitudes.

Apart from gender, other facts might make a difference in how much responsibility we attribute to someone's actions. For example, the law in most countries has a threshold 'age of responsibility', and perpetrators under this age are held less responsible for their actions (Cipriani, 2016). Similarly, those with severe mental health issues at the time of committing a crime may be seen as having 'diminished responsibility' (Catley, 2019). Thus, as well as gender, other variables might impact our attribution of responsibility.

Apart from attributes of the individual (such as gender, age, mental health etc), details of the context in which the individual finds themselves can influence attributions of responsibility. The classic finding of the *fundamental attribution error* was that we tend to believe that other people's behaviour (though not necessarily our own) is caused by their personality rather than their context (Jones & Harris, 1967). Thus, when a person is having problems, observers tend to blame the person, rather than the person's context, for their problems. It has been found that non-Western people are more likely to blame the context than are Western people, possibly related to how collectivist a culture is (Miller, 1984).

The existing evidence base on sex differences in responsibility attributions is relatively sparse, so the objective of the present study was to explore, in a wide variety of hypothetical situations, how responsibility is attributed differently depending on the age and sex of the character (or protagonist) in a vignette.

## METHODS

### Design

This was a cross-sectional online survey during which participants saw a series of vignettes, each vignette featuring either a male or female character, about which they were asked to make attributions of responsibility. The survey included a manipulation such that for each vignette, half of the participants were randomly allocated to see a female character and half saw a male character, allowing a between-group comparison by gender of the vignette character.

### Participants

Participants were recruited from the research panel of *Lightspeed* (now called *Kantar*), a data collection company who are certified by the British Healthcare Business Intelligence Association. Adults aged 18 to 65 were a quota sample by gender and age and stratified by UK region.

### Procedure

During June–July 2017 a quota sample of potential participants who met the inclusion criteria was identified by *Lightspeed* from their online panel of thousands of people across the UK. Invitations were sent and potential participants were told they would be asked to look at and comment on several short scenarios. After giving consent they accessed the survey via a link. Participants were first asked for some demographic details and then asked to rate, for each of 14 vignettes, how much responsibility the characters have for their predicament, and how much responsibility society has for their predicament. The main objective of the study was to examine how attributions differed according to the gender of the vignette characters. For each vignette half, the sample saw a male character and half a female character. At the end of the survey, the debrief form told participants that the age and gender of the characters had been varied so that their ratings wouldn't be influenced by the character's age or gender. The survey used Qualtrics survey software Version 4.2.

### Measures

Participants were first asked to give their age, gender, ethnicity, educational level and relationship status. Following this, they were presented with 14 vignettes (fully described in Table S1). The vignettes covered a wide variety of topics, reflecting the exploratory nature of this study. The situations were described in a way that meant that the most obvious features of the protagonist were the gender and their age. The order of the vignettes was randomised and whether the participant saw a male or female character(s) depended on which pattern they were randomly allocated to (see Table S2). For each vignette, participants were asked to respond how much they agreed with a statement indicating that it was the individual concerned who was responsible for fixing it. They were then asked to respond how much they agreed with a statement indicating that the context needed to change.

An example of one of the 14 vignettes is:

*A health spokesperson recently stated that the depression rate had increased for girls [or boys] aged 10-12 and that it was time that we started taking depression in girls [or boys] more seriously.*

*How much do you agree with the following statements?*

*Girls [or boys] should take more responsibility for how depressed they feel.*

*The government should do more to reduce depression in girls [or boys].*

*[Scored as 1 = Totally disagree to 6 = Totally agree]*

The first statement was designed to measure the degree of responsibility attributed to the person or people affected, thus a high score indicated higher attribution of responsibility to the individual or individuals concerned. The second statement was designed to measure the degree of responsibility attributed to the context, thus a high score indicated higher attribution to external factors. From these, an additional measure was calculated by subtracting the context attribution score from the individual

attribution score, as is common in studies of attribution (Kouabenan et al., 2001). This variable was called 'total internal attribution' and has a possible range of values of -5 to +5.

Five of the vignettes focused on children or adolescents (girls or boys as characters in each vignette) and covered mental health (depression, as shown above), physical health (fitness), isolation (having no friends) and academic issues (confidence in maths/science and grades). Nine vignettes focused on adults (men or women as characters in each vignette) and covered workplace issues (obtaining a sales job and causing workplace accidents), adverse effects of internet usage, crime (being mugged and the home being robbed), physical health (liver cancer in a drinker and emphysema in a smoker), homelessness and a playground accident. Details of all the vignettes can be found in Table S1.

## Ethics

Participants gave their informed consent to participate in this study, and the guidelines of the Declaration of Helsinki were followed. As is usual when panel members complete a survey, participants were paid a small fee for participation. Contact details were given at the end of the survey for those who might need further information or support from Samaritans (a UK helpline). Ethical approval was granted by University College London's Research Ethics Committee (REC Reference: 4075/012).

## Statistical methods

For each vignette and each of the three attribution measures, effect sizes for the difference between male and female vignette characters were calculated and *t*-tests performed. Following this, ANOVA was used to examine whether the difference by gender of the vignette character changed after adjusting for participant age (categorised as 18–34; 35–49; 50+), gender (categorised as male, female), ethnicity (categorised as white or Black or Asian Minority Ethnic Group [BAME] and educational level (categorised as nongraduate, graduate). That is, this analysis examined whether the characteristics of the participant confounded the results. ANOVA was used to examine whether participant age, gender, ethnicity, or educational level modified any differences by vignette character gender. As this was an exploratory study, all significance values were two-tailed. Statistical analysis was conducted using SPSS statistical software for Windows, Version 25. Overall standardised effect sizes for adults, children and adults plus children were calculated by combining the standardised effect sizes for each vignette using a fixed-effects meta-analytic method in Stata, Version 16 (Statacorps).

## Sample size

The sample size was calculated to give 80% power to detect an effect size (Cohen's *d*) of 0.25 for the difference between genders at the 5% level of significance. Using these criteria G\*Power v3.1 (Faul et al., 2007) produced an estimate of 199 in each group requiring a minimum overall sample size of 398. A sample of 414 individuals consented to participate and completed the online questionnaire. A summary of participant's demographic characteristics can be found in Table 1.

## RESULTS

Table 1  
*Demographic Characteristics of Participants*

<b>Characteristics</b>	<b>N</b>	<b>% (Non-missing)</b>
<i>Gender</i>		
Male	186	44.9
Female	228	55.1
<i>Age</i>		
18–34	152	36.7
34–49	120	29.0
50+	142	34.3
<i>Ethnicity</i>		
White	353	85.3
BAME	61	14.7
<i>Academic qualification</i>		
No qualification	7	1.7
GCSE or lower qualification	124	30.5
NVQ/BTEC	129	31.8
A Level; higher NVQ/BTEC	113	27.8
Undergraduate	33	8.2
Postgraduate	8	–
Missing	–	–
<i>Relationship status</i>		
Single	144	35.5
Married/engaged/cohabiting	234	57.7
Widowed/divorced	28	6.9
Missing	8	–

Table 2

*Difference in Scores Between Male and Female Vignette Characters for the Three Types of Attribution*

	Individual(s) responsible Male minus female scores <sup>a</sup>					Context need to change Male minus female scores <sup>b</sup>					Total internal attribution Males minus female scores <sup>c</sup>				
	<i>M</i>	<i>SE</i>	<i>t</i> (412)	<i>p</i>	<i>d</i>	<i>M</i>	<i>SE</i>	<i>t</i> (412)	<i>p</i>	<i>d</i>	<i>M</i>	<i>SE</i>	<i>t</i> (412)	<i>p</i>	<i>d</i>
<i>Children</i>															
Depressed children <sup>d</sup>	0.20	.129	1.57	.117	.15	-0.21	.120	-1.74	.083	-.17	0.41	.165	2.49	.013	.25
Unfit children <sup>c</sup>	-0.13	.101	-1.31	.190	-.13	0.11	.098	1.08	.280	.11	-0.24	.112	-2.13	.034	-.21
Children with no close friends <sup>e</sup>	0.08	.124	0.64	.522	.06	0.28	.128	2.21	.027	.22	-0.20	.198	-1.02	.306	-.10
Low confidence in science/math <sup>s</sup> <sup>d</sup>	0.10	.102	0.98	.328	.10	-0.03	.087	-0.34	.738	-.03	0.13	.105	1.23	.219	.12
Poor academic grades <sup>e</sup>	-0.08	.104	-0.74	.459	-.07	0.07	.127	0.55	.582	.05	-0.15	.154	-0.96	.340	-.09
<i>Adults</i>															
Getting into sales jobs <sup>d</sup>	0.04	.126	0.35	.723	.03	-0.42	.134	-3.13	.002	-.31	0.46	.154	3.02	.003	.30
Workplace accident <sup>e</sup>	0.71	.138	5.15	<.001	.51	0.14	.123	1.12	.263	-.11	0.57	.188	3.05	.002	.30
Adverse effects of social media <sup>d</sup>	0.00	.106	0.05	.963	.00	-0.21	.128	-1.68	.095	-.16	0.22	.166	1.32	.187	.13
Being mugged <sup>d</sup>	0.31	.151	2.02	.044	.20	-0.06	.113	-0.53	.594	-.05	0.37	.197	1.86	.063	.18
Being burgled <sup>e</sup>	0.10	.139	0.75	.451	.07	0.13	.123	1.01	.312	.10	-0.02	.203	-0.10	.920	-.01
Emphysema among smokers <sup>d</sup>	-0.01	.156	-0.06	.953	-.01	-0.16	.118	-1.39	.165	-.14	0.15	.203	0.76	.447	.07
Liver cancer among drinkers <sup>e</sup>	-0.04	.153	-0.27	.786	-.03	0.25	.113	2.25	.025	.22	-0.30	.199	-1.49	.138	-.15
Where homeless can sleep <sup>e</sup>	-0.08	.151	-0.56	.578	-.05	0.10	.158	0.63	.526	.06	-0.18	.255	-0.72	.469	-.07
Playground accident	-0.21	.133	-1.57	.118	-.15	0.12	.108	1.16	.247	.11	-0.33	.158	-2.11	.035	-.21

<sup>a</sup> Positive sign indicates stronger attribution to the individual(s) concerned when the character(s) of the vignette were male<sup>b</sup> Positive sign indicates stronger attribution to the context when the character(s) of the vignette were male<sup>c</sup> Positive sign indicates stronger total internal attribution when the character(s) of the vignette were male<sup>d</sup> 209 participants saw male vignette character(s); 205 saw female vignette character(s)<sup>e</sup> 205 participants saw male vignette character(s); 209 saw female vignette character(s)

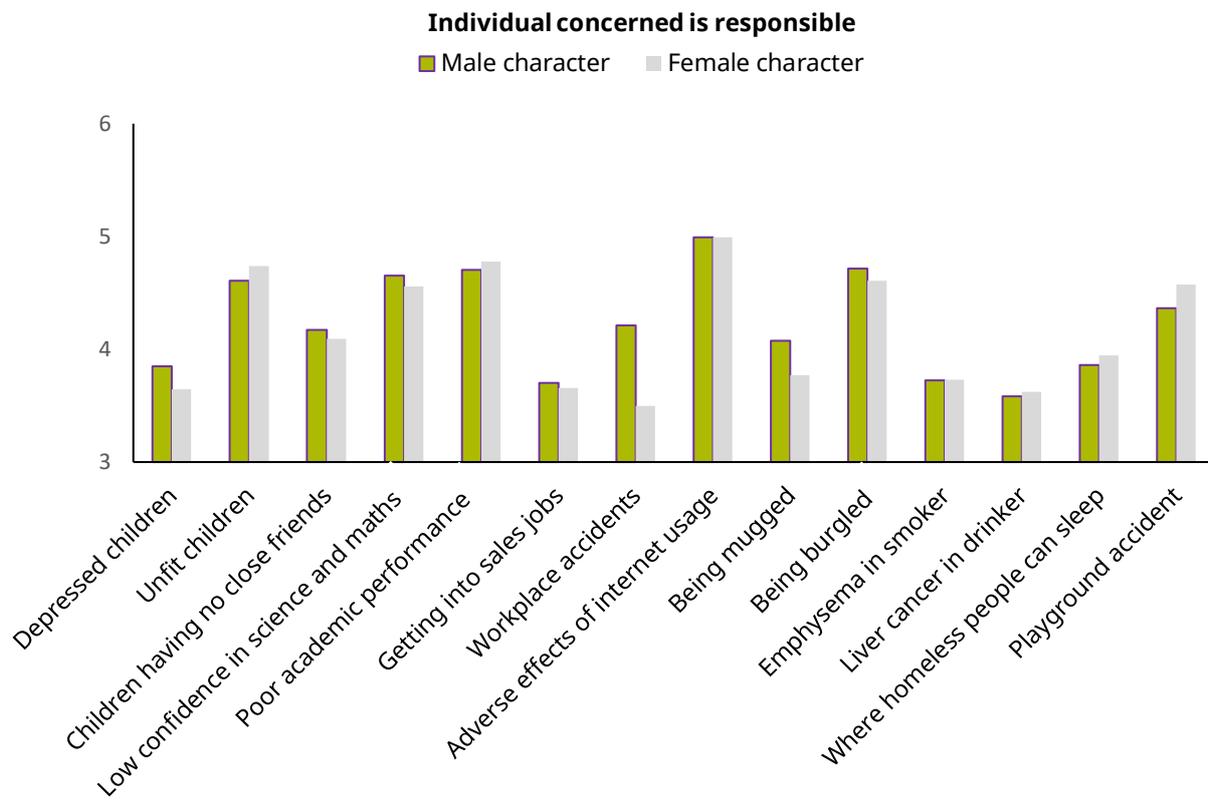
Table 3  
 Means by Gender of Vignette Character Shown for Different Levels of Effect Modifiers

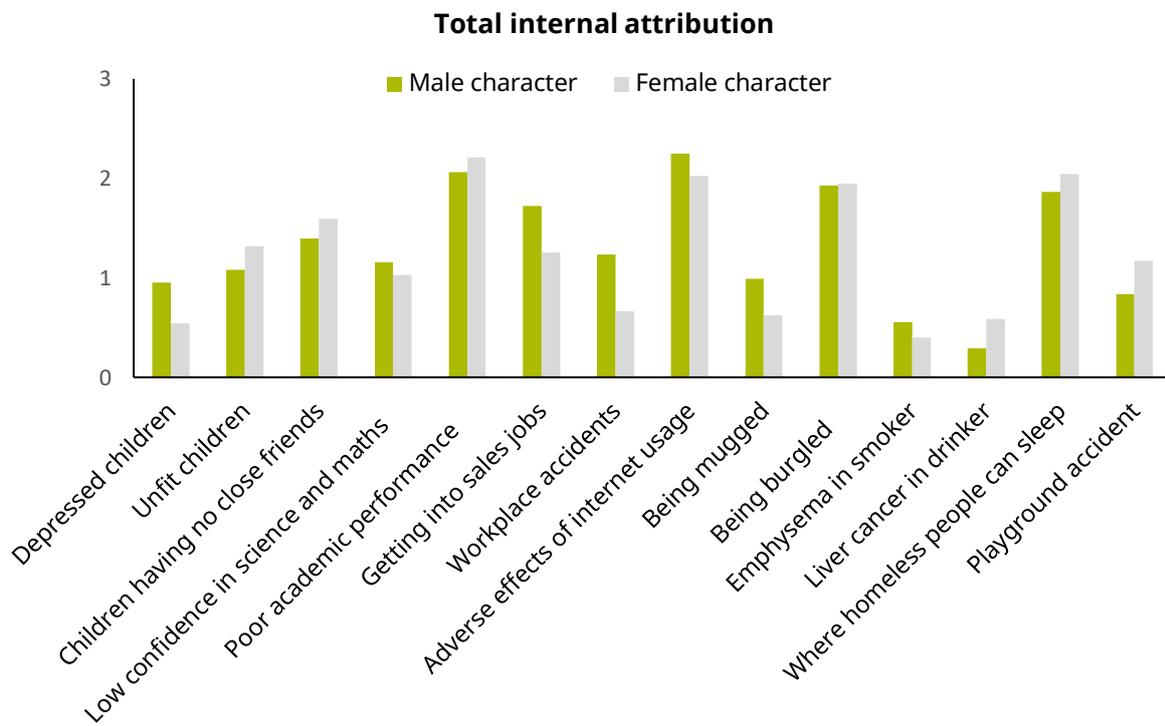
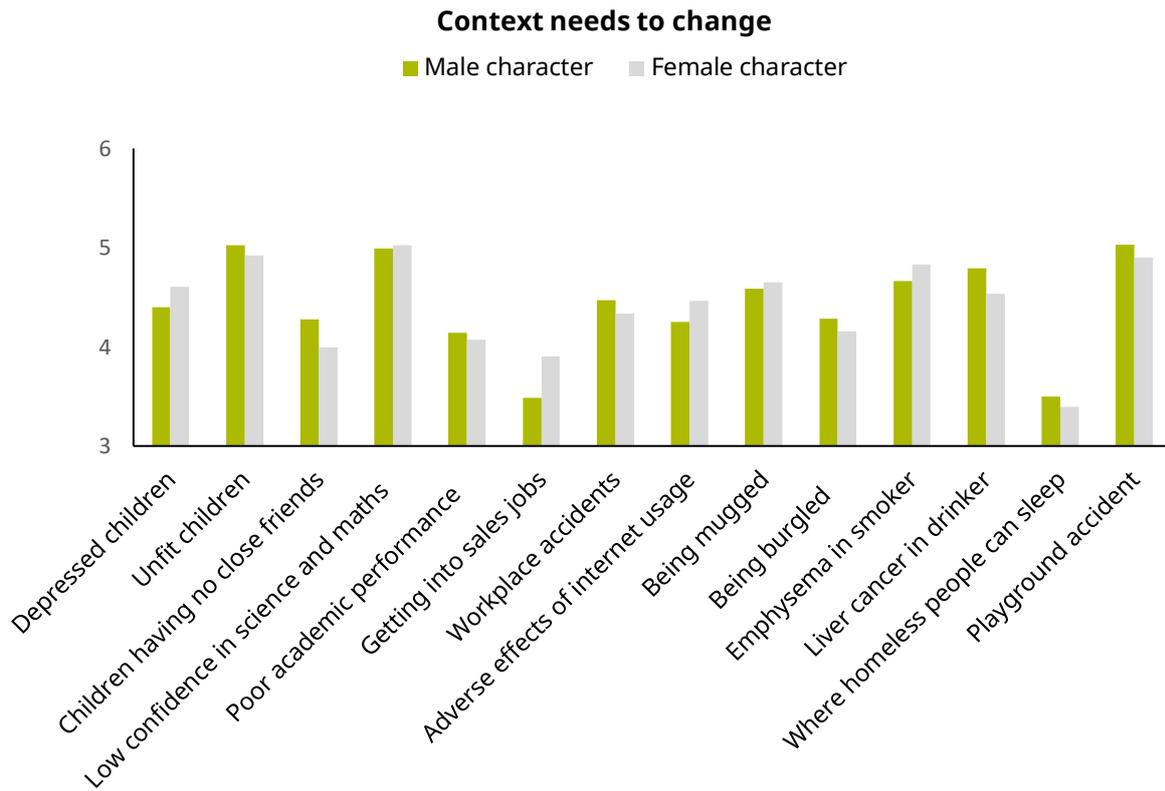
Attribution	Effect modifier	Gender of vignette character						F <sub>(1,398)</sub>	p
		Male			Female				
		n	M	SE	n	M	SE		
<i>Ethnicity of participant</i>									
Depressed children (individual responsible)	White	178	3.88	.101	169	3.53	.100	6.97	.009
	BAME <sup>a</sup>	28	3.77	.249	31	4.38	.236		
Depressed Children (total internal attribution)	White	178	-.53	.131	169	-1.07	.129	3.92	.049
	BAME <sup>a</sup>	28	-.64	.320	31	-.25	.304		
<i>Gender of participant</i>									
Workplace accident (individual responsible)	Male	83	4.43	.164	99	4.01	.162	4.61	.032
	Female	117	4.25	.146	107	3.24	.152		
<i>Age of participant</i>									
Getting into sales jobs (individual responsible)	18-34	75	4.03	.157	72	3.67	.157	F <sub>(2,397)</sub>	p
	35-49	61	3.89	.177	57	3.73	.138		
	50+	70	3.66	.180	71	4.08	.175		
Home robbed (total internal attribution)	18-34	72	-.28	.252	75	.35	.251	3.75	.024
	35-49	57	.56	.292	61	-.18	.284		
	50+	71	.51	.280	70	.67	.289		
Playground accident (individual responsible)	18-34	72	4.55	.163	75	4.27	.163	3.85	.022
	35-49	57	4.01	.190	61	4.61	.184		
	50+	71	4.61	.182	70	4.94	.187		

<sup>a</sup> BAME: Black or Asian Minority Ethnic Group

Figure 1 shows mean scores by gender of vignette character for each of the vignettes and each of the three attribution outcomes. Table 2 shows effect sizes for the difference in scores between male and female vignette characters, along with the *p*-value from the t-test. Table S3 shows a similar table but with the results adjusted for participant demographic characteristics. Table 3 shows summary statistics where significant effect modification by participant demographic characteristics occurred.

Figure 1. Mean attribution scores by gender of vignette character(s) for each vignette. The top graph shows the how much responsibility was attributed to the individual (protagonist). The middle graph shows how much responsibility was attributed to the context in which the protagonist was placed. The bottom graph shows the difference between these two scores, calculated by subtracting the context attribution score from the individual attribution score, yielding a 'total internal attribution score'.





Note: 1.5 was added to the total internal attribution scores to make them all positive for ease of interpretation of the graph.

## Vignettes with children as characters

The mean scores illustrated in Figure 1 show that overall, participants agreed more strongly that boys should take responsibility for how depressed they feel. They also agreed more strongly that the Government should do more to reduce depression for girls. Table 2 shows that this translated into a significant difference between genders ( $p = .013$ ) with higher total internal attribution for boys ( $d = .25$ ; a small effect size). This difference remained after adjusting for potential confounders ( $p = .017$ ). However, there was significant moderation by ethnicity ( $p = .009$  for individual responsibility;  $p = .049$  for total internal attribution) with those of white ethnicity attributing more individual responsibility for boys while those in the BAME group attributed more individual responsibility for girls (Table 3).

Figure 1 shows the opposite overall pattern for physical fitness, with participants agreeing more strongly that girls should take responsibility for improving their physical fitness while health promotion should be given in schools to help boys improve their fitness. This translated into total internal attribution being significantly higher for girls ( $p = .034$ ) with a small effect size ( $d = .21$ ). However, this effect weakened after adjusting for potential confounders ( $p = .058$ ) and there was no effect moderation.

Figure 1 and Table 2 show that there was little difference in the attribution of individual responsibility for having no close friends between girls and boys but that participants agreed more strongly that outreach programmes are needed for boys ( $p = .027$ ,  $d = .22$ , small effect size). This effect remained after adjusting for potential confounders ( $p = .037$ ).

For the two vignettes about academic achievement (low confidence in maths/science and poor grades), there was little difference in attribution between the male and female vignette characters. The meta-analytic approach used to combine effect sizes across vignettes showed that there was no overall difference in total internal attribution of responsibility attributed to boys compared to girls (Cohen's  $d = -0.01$ ,  $p < .862$ ).

## Vignettes with adults as characters

In the context of the workplace, Figure 1 and Table 2 show that participants agreed more strongly that sales jobs should be created for women than that sales jobs should be created for men ( $p = .002$ ,  $d = .31$ , a small effect size). This translated into significant differences in total internal attribution ( $p = .003$ ,  $d = .30$ , small effect size). However, there was some moderation by age ( $p = .030$ ). Table 3 shows that participants younger than 50 years old agreed more strongly that men were responsible for getting themselves sales jobs whereas older participants (aged 50 or more) agreed more strongly that women were responsible for getting themselves sales jobs.

Looking at attribution for workplace accidents, Figure 1 and Table 2 show that participants agreed more strongly that men need to be more careful to avoid workplace accidents ( $p < .001$ ,  $d = .51$ , a medium effect size). This translated into a significant difference for total internal attribution ( $p = .002$ ). Table 3 shows that there was some moderation by gender of participant ( $p = .032$ ) in that while both male and female participants were more likely to say men needed to be more careful to avoid accidents, the difference was more marked for female participants.

For the vignette on what is needed to avoid the adverse effects of internet usage, there was little difference between male and female vignette characters in individual responsibility for the amount of time they spend on the internet or whether more research is needed (context).

For the vignettes on crime, participants agreed more strongly than male victims of mugging should have taken more care of their belongings than when the victim was a woman ( $p = .044$ ;  $d = .20$ , a small effect size). The effect for total internal attribution was weaker ( $p = .063$ ) but became stronger after adjusting for demographic characteristics of the participants ( $p = .020$ ). For the other crime-related vignette - a person's home being robbed after they accidentally left the door ajar - there was little overall difference in the attribution of responsibility. However, there was some moderation by age ( $p = .024$ ) in that in the youngest participant age group (18–34 years) total internal attribution was highest for females whereas in 35–49-year-olds it was highest for males. In over 50s it was similar for both genders.

For the health-related vignettes, there was little difference between the genders in attributions about emphysema in a smoker. However, for the vignette on liver cancer in drinkers, participants agreed more strongly that outreach should be provided to prevent alcoholism in men ( $p = .025$ ,  $d = .22$ , a small effect size) although this effect weakened after adjusting for demographic characteristics of participants ( $p = .078$ ).

For the vignette about where homeless people should be allowed to sleep there was little difference in attributions for male or female homeless people.

Figure 1 shows that in the case of a playground accident, participants agreed more strongly that mothers should have focused more on their child rather than chatting with a friend than when it was fathers. Figure 1 also shows that participants agreed slightly more strongly that playgrounds should be made safer for children when the accident occurred under a father's supervision. These translated into significantly higher internal attribution of responsibility for playground accidents for mothers ( $p = .035$ ,  $d = .21$ , a small effect size) although this weakened after adjusting for participant demographic characteristics. There was also some moderation by age of the participant in those younger participants (18–34 years) attributed slightly more individual responsibility to fathers in contrast to those 35 who attributed more responsibility to mothers.

The meta-analytic approach combining effect sizes over vignettes showed that there was a non-significant overall trend towards total internal attribution being higher for male characters ( $d = 0.061$ ,  $p < .065$ ).

## DISCUSSION

This exploratory survey of over 400 men and women found that when presented with vignettes of male and female characters in similar situations, there was a trend towards attributing more responsibility to male characters for their predicament ( $d = 0.061$ ,  $p < .065$ ), though the effect size is very small and was not statistically significant. However, some of the sex differences in attribution of responsibility in the individual vignettes were significant (Table 2). There was no evidence of overall gender differences regarding the responsibility of boys and girls, with the total internal attributions for all vignettes being statistically nonsignificant ( $d = -0.01$ ,  $p < .862$ ), though again some of the sex differences in the individual vignettes were significant (Table 2). Interestingly, attributions of responsibility tended to fall along the lines of traditional gender roles, with men be ascribed more responsibility for male-typical situations, and women for female-typical situations. For example, men's greater responsibility for workplace accidents can be seen as related to the traditional provider role (see the section below on *Male and female traditional gender scripts*).

Table 3 shows that demographic differences in participants made little difference in scoring. Apart from workplace accidents, responsibility scores did not appear to be significantly different in male or female participants. Apart from depression in children, responsibility scores did not appear to be significantly different by ethnicity. The main demographic difference was by age, where the responsibility scores were significantly different according to the age of the participants for vignettes about the sales jobs, burglary and the playground accident.

### Vignettes with children as characters

There is a popular notion that 'children are innocent', and children are generally held less responsible than adults for their actions, even when these actions are criminal (Cipriani, 2016). This may go some way to explaining the overall lack of sex difference in the attribution of responsibility for their predicaments ( $d = 0.01$ ). However, there were some interesting contrasts in some of the individual vignettes e.g. boys taking more responsibility for their depression, whereas for girls government intervention was more likely seen as necessary. A similar contrast was seen for physical fitness, with girls seen as needing to take more responsibility, but boys needing more health promotion. Participants agreed more strongly ( $d = .22$ ) that outreach programmes are needed for boys who had few friends, but there were no sex differences regarding the two vignettes regarding academic achievement.

## Vignettes with adults as characters

In the case of some vignettes (internet usage, homelessness, burglary, emphysema in a smoker), there was little difference in the attribution of responsibility. A previous study had found that a hypothetical male patient with bone cancer was seen as more responsible than a female patient for their long-term cancer status (Ruthig & Holfeld, 2016), but the present study found little difference between the genders in attributions about emphysema in a smoker. In fact, in the present study participants agreed more strongly that outreach should be provided to prevent alcoholism in men with liver cancer ( $d = .22$ , a small effect size) though this effect weakened after adjusting for demographic characteristics of participants ( $p = .078$ ).

Some vignettes elicited interesting differences, in some cases related to the demographic characteristics of the participants. Age made a difference to opinions about sex differences in responsibility in three vignettes. For example, participants younger than 50 years old agreed more strongly that men were responsible for getting themselves sales jobs, whereas participants aged 50 or more agreed more strongly that women were responsible for getting themselves sales jobs.

Reynolds et al. (2019) found men are less likely than women to be typecast as victims. This finds support in the present study where participants agreed more strongly than male victims of mugging should have taken more care of their belongings. This effect became stronger after adjusting for demographic characteristics of the participants ( $p = .020$ ).

Participants – especially female participants – agreed more strongly that it is men's responsibility to avoid workplace accidents. By contrast, participants agreed more strongly that mothers had more responsibility for their child's playground accident.

## Male and female traditional gender scripts

The pattern of the findings of 'total internal attribution scores' (Table 2) fits with the notion that responsibility for situations is attributed according to traditional gender role expectations. An example of traditional gender role expectations (or social scripts) is described by Seager et al. (2014). These 'traditional gender scripts' drive men to (1) be a fighter and a winner in life e.g., earn a top salary; (2) be a provider and protector to one's family; (3) have mastery and control over one's emotions. Correspondingly, the traditional female gender script drives women to (1) be glamorous/attractive; (2) bear children; (3) nurture children and family life. In the present study, we can see how the finding regarding men's greater responsibility for workplace accidents relates to the provider role, men's greater responsibility for getting a job relates to being a fighter and winner, and boys' men's greater responsibility for overcoming depression relates to the drive for mastery and control of one's feelings. Similarly, the findings that girls' greater responsibility for being physically fit might relate to being attractive, and women's greater responsibility for making sure their children don't have a playground accident might relate to the drive to nurturance.

The traditional gender scripts are suggested to be archetypes rather than stereotypes, having come about through evolutionary forces and complementing sex differences in reproductive function (Seager, 2019). Whether these scripts are biologically driven (by nature) socially defined (by nurture) is a moot point, though there is evidence that sex differences that are seen internationally map onto our notions of masculinity and femininity (Liddon & Barry, in press).

It is notable in the present study that when the age of the protagonist was salient, the sex difference in responsibility was applied more significantly to adults. This echoes the 'women and children first' phenomenon, and suggests evolutionary roots in terms of protection of the future population growth of a community. This gender-related pattern of these findings was not hypothesised, and this interpretation is presented here as descriptive rather than prescriptive.

We might speculate how the view of women as being responsible for issues related to the traditional female role might impact how much responsibility women are seen as having when they are in male-

traditional roles. It could be that, for example, being seen as being less responsible in such roles might be associated with them being seen as less suited to such roles.

### Impact of context vs person

Jones & Harris (1967) suggested that when someone is having problems, we tend to blame the person rather than their context, and this is possibly related to the culture of the observer (Miller, 1984). This 'fundamental attribution error' finds some support in this study, though only partial. Table 2 shows that the context was held responsible slightly more than the individual was, which is in contrast to the fundamental attribution error.

The results could indicate that men are perceived as having more personal agency than women have. Because the sample is from the UK in 2017, a relative individualist culture which values agency and autonomy, the finding of greater attribution of responsibility could be interpreted as something positive about men and women.

### Strengths and limitations

Previous research has not highlighted the relevance of traditional gender roles across a spectrum of everyday situations, so the strength of this study is that it presents the issue of sex differences in responsibility in a new way. Another strength is that the large sample was stratified by UK region, meaning that the findings cannot be attributed to regional differences in the UK. A limitation of this study is that it does not address the issue of whether the findings are a result of archetypes or stereotypes.

### Future research

The present study was exploratory, and the findings suggest many paths for future research. The present study presented participants with a wide variety of everyday situations, and apart from future research testing whether the present findings are replicable, it would be interesting to explore other types of attributions in other situations, especially about how responsible men compared to women are in situations related to the female gender role e.g. a man who tries to make himself look glamorous but fails, or a stay-at-home-dad who knocks over and breaks a lamp while vacuum cleaning.

The findings could also be tested about gamma bias. The vignettes used in the present study correspond with the 'victimhood' cell of the gender distortion matrix, and future research could explore the other three cells of the matrix. For example, a vignette about a person achieving success in the workplace would test the 'celebration' cell, and it might further be interesting to see whether a hypothetical man or woman is differently celebrated depending on whether the workplace is male-typical (e.g., construction site) or female-typical (e.g. nursing). It could be that in the absence of other information about a protagonist, people fall back on archetypes, but other information (e.g., information about the protagonist's social class) (Baron et al., 1995), or level of education, might impact attributions of responsibility independently of gender.

Future research might examine the degree to which responsibility and suitability are linked concerning women experiencing problems in traditionally male roles (see above). Future research might also test the degree of correlation between the constructs of responsibility and gamma bias, and the contexts in which each might vary. Future research might also examine the degree to which responsibility and suitability are linked (see also *agency*, above in the section on *Impact of context vs person*).

Features of the participants (age, ethnicity and gender) might be further investigated, as should features of the vignette character. For example, future research could test the effect of systematically varying information about the protagonist (e.g. whether they had often previously found themselves in a similar predicament), so see how much this moderates the effect of the protagonist's gender on their responsibility score.

In the present study, the age of the boys and girls was not clear, apart from the vignette about not having friends, which specified the characters as teenage boys or girls. It would be interesting to vary the age more specifically to see at what age males begin to be attributed with more responsibility than females.

The present study looked at the opinions of the general public. It would be valuable for future studies to look at the opinions of people working within various relevant fields e.g. the opinions of teachers regarding sex differences in responsibility for grades.

It would be useful to address in future research the issue of whether the findings are a result of archetypes (which are related to the traditional gender scripts) or of stereotypes (widely held views of men and women which are not related to gender scripts), perhaps by comparing similarities and differences in various gender-related attitudes in cross-cultural samples.

## CONCLUSION

The findings have implications in many fields, such as healthcare, education, and the legal system. For example, if boys tend to be seen as more responsible for how depressed they feel, this might impact strategies for encouraging help-seeking by boys. Although taking responsibility is no doubt a good thing if we have blind spots to how we attribute responsibility to others, this might lead to unequal treatment of others, and how we are treated by others.

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Table S1  
 Description of Vignettes

Title of vignette	Gender of character in example	Situation	How much do you agree with the following statements	
			Attribution to individual concerned	Attribution to context
Depressed children	Female	A health spokesperson recently stated that the depression rate had increased for girls aged 10-12, and that it was time that we started taking depression in girls more seriously.	Girls should take more responsibility for how depressed they feel.	The Government should do more to reduce depression in girls
Unfit children	Male	A social commentator complained that results of physical fitness tests show that boys are less healthy than at any time previously recorded. The recommendation was to increase health promotion in schools aimed at boys.	Boys should take more responsibility for improving their own physical fitness.	More health promotion in schools should be aimed at improving the physical fitness of boys.
Children with no close friends	Male	A YouGov survey suggests that around 28% of teenage boys have no close friends they can turn to in a crisis.	If boys want friends, it is up to them to go out and make some friends.	The Government should create community outreach programs to get boys together so that they have friends.
Low confidence in science and maths	Female	An international report found that girls self-confidence in their ability to solve mathematical and science-based problems is lower today than 10 years ago.	Girls should spend more time practicing mathematics if they wish to improve their confidence.	Teachers and families should spend more time helping girls with their confidence in science and maths.
Poor academic grades	Male	An academic recently highlighted how boys are getting worse grades than girls in a particular subject for the 11 <sup>th</sup> year in a row. The recommendation was that more funding was needed to reduce this disparity.	Boys should take responsibility for improving their school grades.	More funding should be aimed at improving the school grades of boys.

Getting into sales jobs	Female	A government-funded charity produced a report showing that there are too few women in sales jobs. They advised that the government should spend more money on training female salespersons.	Women should work harder to get into sales jobs.	More sales jobs should be created in order to help more women into them.
Workplace accidents	Male	Data from the Office for National Statistics shows that men are significantly more likely to suffer workplace accidents than women.	If men were more careful at work, there would be fewer accidents.	More work should be done for Health & Safety to make the workplace safer for men.
Adverse effects of internet usage	Female	Women's usage of the internet has been cited as a cause for the increase in the number of women suffering from common types of mental disorder e.g., depression and anxiety.	Women should take responsibility for the amount of time they spend on the internet.	More work is needed to research the effects of the internet on women's lives.
Being mugged	Female	A woman was walking home from a social event when she decided to take a short-cut down an alley. Someone approached her from behind, grabbed the laptop bag that was half-hanging off her shoulder, and ran off with it.	She should have taken more care for her personal belongings.	The police should do more work to prevent such crimes occurring.
Being burgled	Male	A man was rushing late for work one early morning and, as he ran out of the door, he forgot to lock it. In fact, when he tried slamming the door behind him when running out, it bounced slightly ajar. When he returned from work, he found he had been robbed.	He is at least in part to blame for the robbery.	More needs to be done for Community Watch programs.
Emphysema in smoker	Female	A woman started coughing blood and was admitted to the emergency room. She was suffering from emphysema after 40 years of smoking cigarettes. She was ordered to stop smoking and was prescribed a medical inhaler.	If smoking caused her condition, then she should pay for the treatment.	More health promotion work is needed to help women stop smoking.
Liver cancer in drinker	Male	A man went to the doctor complaining of abdominal pains. Upon admittance to hospital it was found he was suffering from cancer of the liver after years drinking too much. Because of his financial circumstances, he might have to pay for his medical treatment.	He should pay for his medical bills.	More outreach work is necessary to prevent alcoholism in men.

Where homeless people can sleep	Male	A homeless man almost froze to death outside a major department store and only recovered after a hospital treatment. The department store claimed that it did not allow rough sleeping outside their premises, and therefore denied responsibility for his suffering.	Homeless men should take more responsibility for where they sleep.	Department stores should allow homeless men to the outside of their premises if needed.
Playground accident	Male	A father took his four-year-old child to the playground where the child was playing on an age appropriate climbing frame. While the father was chatting with a friend the child fell and bumped their head and needed to be checked out at A&E.	The father should have been focusing more on their child rather than chatting with a friend.	Playgrounds should be made safer e.g., by using grass areas instead of concrete.

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NB: The vignettes were created for this study by JB and JH, with some suggestions from other members of the Male Psychology Network.

Table S2  
*Gender of Character in Vignettes Shown to Participants*

Vignette title	Pattern 1	Pattern 2
Depressed children	Female	Male
Unfit children	Male	Female
Children with no close friends	Male	Female
Low confidence in science/math	Female	Male
Poor academic performance	Male	Female
Getting into sales jobs	Female	Male
Workplace accident	Male	Female
Adverse effects of social media	Female	Male
Being mugged	Female	Male
Being burgled	Male	Female
Emphysema among smokers	Female	Male
Liver cancer among drinkers	Male	Female
Where homeless can sleep	Male	Female
Playground accident	Male	Female

NB: Each participant was shown male or female vignette characters according to the two patterns shown in the table but the order in which the vignettes were shown to each participant was random.

**Table S3***The Difference in Attribution Scores Between Male and Female Vignette Characters for Each Vignette, Adjusted for Gender, Age, Ethnicity and Education Level of Participant*

	Individual(s) responsible male minus female scores <sup>a</sup>				Context needs to change male minus female scores <sup>b</sup>				Total internal attribution males minus female scores <sup>c</sup>			
	<i>M</i>	<i>SE</i>	<i>F</i> <sub>(1,399)</sub>	<i>p</i>	<i>M</i>	<i>SE</i>	<i>F</i> <sub>(1,399)</sub>	<i>p</i>	<i>M</i>	<i>SE</i>	<i>F</i> <sub>(1,399)</sub>	<i>p</i>
Depressed children	.21	.131	2.49	.116	-.19	.121	2.58	.109	.40	.168	5.71	.017
Unfit children	-.13	.103	1.58	.209	.09	.101	.79	.375	-.22	.115	3.63	.058
Children with no close friends	.10	.240	.59	.443	.27	.129	4.38	.037	-.17	.198	.75	.387
Low confidence science/math	.08	.102	.65	.422	-.04	.090	.218	.641	.12	.106	1.38	.242
Poor academic grades	-.06	.107	.34	.561	.06	.128	.194	.659	-.12	.156	.58	.447
Getting into sales jobs	.03	.129	.04	.845	-.47	.134	12.31	.001	.50	.157	9.93	.002
Workplace accident	.75	.138	29.47	<.001	.12	.126	.98	.323	.63	.190	10.81	.001
Adverse effects social media	.01	.106	.01	.929	-.16	.129	1.51	.220	.17	.163	1.07	.303
Being mugged	.36	.152	5.58	.019	-.11	.115	.85	.356	.46	.199	5.45	.020
Home robbed	.09	.142	.40	.528	.16	.126	1.55	.214	-.07	.206	.11	.744
Emphysema in smoker	-.03	.157	.04	.843	-.12	.121	1.04	.309	.16	.207	.56	.455
Liver cancer in drinker	-.04	.156	.06	.803	.20	.116	3.11	.078	-.24	.205	1.41	.235
Where homeless can sleep	-.06	.150	.15	.703	.09	.151	.32	.571	-.14	.244	.34	.558
Playground accident	-.19	.134	2.02	.156	.12	.111	1.21	.273	-.31	.160	3.82	.051

*N* = 406; 8 individuals did not answer the question on academic qualifications<sup>a</sup> Positive sign indicates stronger attribution to the individual(s) concerned when the character(s) of the vignette were male<sup>b</sup> Positive sign indicates stronger attribution to the context when the character(s) of the vignette were male<sup>c</sup> Positive sign indicates stronger total internal attribution when the character(s) of the vignette were male<sup>d</sup> 206 participants saw male vignette character(s); 200 saw female vignette character(s)<sup>e</sup> 200 participants saw male vignette character(s); 206 saw female vignette character(s)