Basic human values and their contexts: A multilevel analysis of support for the use of armed drones in the USA, UK, and Turkey

Emma O'Dwyer*

Kingston University,

London,

UK

Ahmet Çoymak

Süleyman Demirel University,

Isparta,

Turkey

Armed drones are now a key component of military strategy; however, little empirical research has explored the phenomenon in terms of psychological processes. Previous research has emphasised the importance of basic human values (Schwartz, 1992) for structuring understandings of and opinions towards foreign policy events (e.g. Rathbun, Kertzer, Reifler, Goren, & Scotto, 2016). Using a social representations approach (Elcheroth, Doise, & Reicher, 2011; Moscovici, 1961/76), we used a multi-level modelling approach to explore the link between values and support for the use of armed drones in the United Kingdom, United States of America, and Turkey. In line with our predictions, high priority of self-transcendence values negatively predicted, and high priority of conservation values positively predicted support for armed drones. Furthermore, given our theoretical framework, we specified that values should be conceptualised as prioritised or devalued within a particular context, and when values were specified as country-level, as well as individual predictors, this led to an increase in model fit. These findings are discussed in light of a developing line of research on meta-representations and their consequences for political opinion, and directions for future research are advanced.

Keywords: values, multilevel, precision weapons, armed drones, social representations

Previous research within political psychology that has explored the way in which people take positions on foreign policy issues and events has tended to focus on *individual* characteristics or prerequisites, including, but not limited to national identification (Hermann, Isernia, & Segatti, 2009), perceived trust (Brewer & Steenbergen, 2002), perceived threat, (Huddy, Feldman, & Weber, 2007) and values (Cohrs, Moschner, Maes, & Kielmann, 2005; Rathbun, Kertzer, Reifler, Goren, & Scotto, 2016). By contrast, other work has applied a social representations approach (SRA) to shed light on the way in which people come to make sense of, as well as take positions on, foreign policy issues and events (e.g. O'Dwyer, Lyons, & Cohrs, 2016; Wagner, Valencia, & Elejabarrieta, 1996). The SRA proposes that knowledge about such issues is socially-elaborated, and describes particular processes that shape the content of this social knowledge. The way in which people come to take different positions on foreign policy issues and events needs to be understood as occurring within unique social and political contexts. Certain positions towards a foreign policy issue may be read as normative or deviant within a given context, for example, or they may be commonly interpreted by people with reference to particular value or belief systems. In this sense, the ways in which *others* around us understand, and orient towards, foreign policy issues and events will play a role in the positions we ourselves adopt (Elcheroth, Doise, & Reicher, 2011; Portelinha & Elcheroth, 2016).

In this study, we focus on the link between one set of individual characteristics - basic human values (Schwartz, 1992) – and support for the use of armed drones. We conceptualise values as psychological frameworks which are mobilised by individuals to interpret, construct, and evaluate novel phenomena, such as armed drones (e.g. Spini & Doise, 1998). Additionally, and, in line with the SRA, we conceptualise values as *contextual* characteristics, as goals which are specified as normative or deviant within particular national contexts,

which will uniquely predict support for the use of armed drones as well as provide a normative value context for individual attitudes.

The Social Representations Approach

The theory of social representations (Moscovici, 1961/76) is an explanatory framework for the existence of common sense knowledge and the processes which give rise to these shared understandings. Two interdependent processes account for the creation, change, and maintenance of social representations – objectification and anchoring. Objectification relates to "constructing an iconic aspect for a new, difficult to grasp concept, theory or idea, which makes it literally visible" (Wagner & Hayes, 2005; p. 208). This might denote the linking of imagery or metaphor to the issue; for example representations of the Vietnam War are inextricably linked to certain war photographs which now signify this particular conflict. The second process, anchoring, connotes the way in which unfamiliar, obscure, or remote information is 'made familiar' through its accommodation within an existing knowledge or belief structure (Moscovici, 1984). The process "involves shared references to common meaning systems by people who locate or position themselves differently within this common framework" (Clémence, Devos, & Doise, 2001, p. 89). Individual differences in social representations of human rights, for example, were organised systematically depending on value priorities (Spini & Doise, 1998), perceptions and experiences of social conflict (Doise, Spini, & Clémence, 1999), and group memberships (Spini & Doise, 1998). Each of these psychological and group-based structures serves as a prism through which unfamiliar, novel, or remote phenomena are interpreted, constructed, and evaluated.

Recent work using the SRA has suggested the importance of 'meta-representations' for the understanding of political behaviour and opinion. These meta-representations are

"perceptions of what most others value or reject… along with beliefs regarding what relevant others know, think or intend to do more generally" (Portelinha & Elcheroth, 2016, p. 662). A longitudinal and experimental study conducted at a traditionally left-wing Parisian university found that manipulating the perceived social norms about the far-right National Front, specifically the belief that other students agreed with their policies, had an effect on political expression. Specifically, when students were told that the majority of French students were positive about the party, they were less willing to voice opposition towards it by signing up to discussion workshops about its politics. However, competing alternative explanations for this lower willingness to speak out, such as conflict avoidance (e.g. Mutz, 2002; Vraga et al., 2015) are also plausible, and reflect a broader debate about the effect of a hostile (or otherwise) 'opinion climate' on political expression, as well as potential moderators of this effect (e.g. Louis et al., 2010; Matthes, Rios Morrison, & Schemer, 2010; Noelle-Neumann, 1974).

In a similar vein, other work has sought to model quantitatively the political climate and its effect on individual attitudes and behaviours by including measures of the political climate at the group (rather than individual) level. Sarrasin and colleagues (2012) conducted an analysis of attitudes towards antiracism laws in Switzerland using a multilevel approach. In addition to individual psychological factors (e.g., perceived threat), contextual factors were also included in the model. Of specific interest here was the 'ideological climate' (conservative/progressive) of the Swiss canton in which individuals were located, determined by the canton's voting record in national referenda. The analysis showed that a conservative opinion climate increased opposition towards antiracism laws *over and above* the effect of individual psychological factors, structural features of the municipality (e.g., proportion of immigration) or demographic or ideological characteristics of participants. This finding

suggests that accounting for the shared understandings and normative beliefs tied to particular contexts may increase our understanding of individual positions towards political issues.

We use the SRA to explore the phenomenon of armed drones for a number of reasons. Firstly, armed drones are a relatively recent technological development, and social representations theory has been usefully applied in various contexts to understand the ways in which scientific, technological, and political novelties are integrated into common sense (e.g. Gilles et al., 2013; Wagner, Kronberger & Seifert, 2002), as well as to investigate individual and group positions on war, peace, and military intervention (Cohrs & O'Dwyer, 2018). Secondly, through the process of anchoring, the approach offers an account of the ways in which individual differences towards a representation may occur. Following the work of Doise and colleagues, we propose that values will operate as organising principles that shape systematically different orientations towards the social representation of armed drones across different national contexts. Finally, we propose that the understandings and positions of individuals and groups towards particular issues cannot be fully understood without modelling the social and political climate. Thus the relationship between characteristics generally conceptualised at the psychological level, such as values, and support for the use of armed drones, needs to be understood *in context*. By this we mean that values at the *contextual* level will predict support for the use of armed drones, but further, that as values will either be prioritised or devalued within a particular national context, the value context will also alter the relationships between values at the individual level and attitudes. Thus, we understand values as prioritised or devalued by individuals, but also by the contexts in which they are located.

We chose to explore attitudes towards the use of armed drones in three nations – the United States (US), United Kingdom (UK), and Turkey – which were selected primarily because of differences in the use of armed drones of their respective militaries. The US is the

most extensive, most well-known, and arguably most controversial user of armed drones and has conducted drone strikes (both covert and official) in Iraq, Syria, Afghanistan, Pakistan, Somalia and Yemen. The UK has deployed drones in Afghanistan, Iraq, and Syria, but unlike the US, does not have a well-defined official drone program as part of its military strategy. A further key difference between the US and UK in terms of their drone usage relates to their rules of engagement, particularly the 'targeted killings' (killing a *known* individual away from formal battlefields) and 'signature strikes' (killing an *unknown* individual whose behaviour flags them as terrorist or insurgent), which are components of the US drone program, but which have been widely criticised by the international community, including the UK. Turkey has recently developed drones with strike capabilities and its use of drones also differs from the US and UK in terms of the objectives attached to them; while the US and UK have only launched drone strikes abroad, Turkey has used drone strikes in the southeast of the country as part of counter-terrorism operations against the Kurdistan Workers' Party (PKK), in addition to outside its national borders in Iraq and Syria. Thus, each of the countries included in this study differ from each other in relation to the scope and extent of their usage of armed drones as well as the ends to which they are employed.

Public Opinion on the Use of Armed Drones

The use of armed drones or unmanned combat aerial vehicles is, at the time of writing, an integral component of military strategy in formal conflict zones such as Syria and Iraq. The US is the most prolific and well-known user of these weapons, but, at the time of writing, 27 other countries, including the UK, Turkey, Israel, Nigeria, France, and Pakistan, had or were in the process of developing drones with attack capabilities (New America Foundation, 2017). The use of armed drones is controversial, particularly in the context of US Central Intelligence Agency (CIA) operations, with scholars debating their use in relation to

moral and legal principles (e.g. just war theory) as well as casting doubt on their strategic effectiveness (e.g. Chamayou, 2013; Kaag & Kreps, 2014).

Opinion polls conducted between 2011 and 2013, showed that 48 to 86 per cent of US respondents supported the use of drone strikes to kill suspected terrorists (Kreps, 2014). However, support for the use of armed drones may be influenced by framing effects. In an experimental study, when the compatibility of drone strikes with international humanitarian law was problematized, US participants were *less* supportive of drone strikes (Kreps, 2014). Research has also indicated that support for drone strikes may be affected by features of the operational context, such as the probability of civilian casualties and the characteristics of the target of the proposed drone strike (Beier, 2003; Faulker Rogers, 2013; Walsh, 2014). Outside of the US, little research has explored attitudes towards armed drones (see Fair, Kaltenthaler, & Miller, 2016; Faulker Rogers, 2013) and most research has focused on support for *US* drone strikes. An international survey of participants from twenty countries recorded widespread opposition to US drone strikes outside of formal conflict zones (e.g. Somalia, Yemen, and Pakistan), with disapproval highest in predominantly Muslim countries (Pew Research Center, 2014).

The Value Basis of Foreign Policy Opinion

Values are "desirable, transsituational goals, varying in importance, that serve as guiding principles in people's lives" (Schwartz et al., 2001, p. 521). The relevance of these psychological variables to political opinion and behaviour, including foreign policy opinion, has been researched extensively, with Schwartz's theory of basic human values (1992) the conceptualisation of values which has been most commonly used. This theory describes ten values—security, conformity, tradition, benevolence, universalism, self-direction, stimulation, hedonism, achievement and power—which "serve as standards for judging *all*

kinds of behaviour, events and people" (Schwartz, Caprara & Vecchione, 2010, p. 422, emphasis in the original). The theory specifies a particular pattern of relationships between these ten different values, with values occupying positions within a circumplex structure marked out by the poles of two orthogonal dimensions – conservation/openness to change and self-transcendence/self-enhancement. Values which are located nearest to each other in the circumplex structure will be positively correlated because they possess similar motivational foundations, while values which are distant from each other will be negatively correlated because of conflicting underpinning motivations. To illustrate, individuals who ascribe high priority to the value of security in their lives will assign less priority to the value of stimulation as these values occupy opposite ends of the conservation/openness to change dimension and so are distant to each other within the circumplex value structure.

Given the motivational structure specified by the theory, four superordinate value categories may also be formed by combining adjacent values in the value structure (Schwartz, 2003). Conservation values (tradition, security, and conformity) refer to the maintenance of the current social order, self-restraint, and adherence to established current social practices and tradition. Opposed to this, openness to change values (self-direction and stimulation) relate to "independent action, thought and feeling and readiness for new experience" (Schwartz, 2003, p. 269). Self-enhancement values (power and achievement) prioritise the pursuit of self-interest at the expense of other individuals and groups if required. The value of hedonism shares elements with both self-enhancement and openness to change, however most previous research has found it lies closer to the latter values (Schwartz, 2003). Finally, self-transcendence values (benevolence and universalism) relate to concern for the welfare of other individuals, groups, and society as a whole.

The value basis of foreign policy opinion has been investigated in relation to (1) the relationship between values and positions on specific foreign policy issues and events,

including support for the use of armed drones, and (2) the way in which values are predictive of broader foreign policy orientations, e.g. cooperative internationalism. On the first point, high priority of conformity and low priority of universalism were associated with higher levels of support for the Kosovo war among French students (Bègue & Apostolidis, 2000). Among German participants, high priority of security, power, conformity, and achievement values were positively related to, and high priority of benevolence and universalism were negatively related to support for the Kosovo and Afghanistan wars (Cohrs et al., 2005). Using data from US participants, Crawford, Wiley, and Ventresco (2014) showed that right-wing ideology was positively related to high relevance of the value of security (e.g. to what extent did the value of security affect your decision?), which in turn positively predicted support for US drone strikes in Pakistan. On the other hand, right-wing ideology negatively predicted relevance of universalism, which then negatively predicted support for drone strikes. Furthermore, how the drone strikes were framed influenced this process. Particularly, framing the drone strikes in terms of civilian casualties predicted relevance of universalism, which then negatively predicted support for drone strikes. Conversely, framing the drone strikes as necessary in terms of national security predicted relevance of security, which in turn positively predicted support for drone strikes.

As noted above, research has also explored the extent to which values are related to broader foreign policy orientations or postures. Among a representative US sample, high priority of universalism predicted cooperative internationalism (the propensity to engage cooperatively and in a solidaristic fashion with other nations towards the achievement of common goals) while high priority of conservation values predicted support for militant internationalism, or the perspective that the use of force in international relations is legitimate, important, and effective (Rathbun et al., 2016). Self-enhancement values, being individually-focused, were less predictive of foreign policy postures. Also using data from

US participants, Schoen, Rattinger and Pötzschke (2011) reported that high priority of conservation values was negatively related to support for international involvement and multilateralism, and positively related to support for military force, while associations with priority of self-transcendence values displayed the reverse pattern. Openness to change values were only significantly related to increased support for multilateralism, while high priority of self-enhancement values was linked to decreased support for international involvement and increased support for militarism.

Taken together, this research suggests that values, in particular conservation and self-transcendence values, are linked to positions on specific foreign policy events and phenomena, as well as broader dimensions of foreign policy opinion. However, previous work which has examined the relationships between values and support for the use of armed drones has been limited to the US context. This study will address this limitation by examining the relationship of values to support for the use of armed drones in three contexts – the US, UK, and Turkey – each of which uses armed drones to differing extents, and for different objectives. Furthermore, we propose that previous research has paid insufficient attention to the influence of the socio-political context, which encompasses shared understandings and normative beliefs, on individual positions; therefore we believe it necessary to adopt both the theoretical and methodological tools to enable us to account for the influence of contextual factors.

The Present Study

This study was conducted with samples from the US, UK, and Turkey to examine the effect of basic human values (Schwartz, 1992) on support for the use of armed drones. Prior research on this issue has adopted either a micro perspective (e.g., individuals/values) *or* macro perspective (e.g., differences across countries). However, a multilevel design was

adopted here to allow us to examine support for the use of armed drones from both micro and macro perspectives simultaneously. Thus, individuals are treated in this study as nested within the national contexts of the US, UK, and Turkey.

At the individual level, four superordinate value categories (Schwartz, 2003; Rathbun et al., 2016) – self-transcendence, conservation, openness to change, and self-enhancement - were used as predictors. Following previous research, we hypothesised that self-transcendence would negatively, and conservation would positively predict support for the use of armed drones (e.g. Crawford et al., 2014; Rathbun et al., 2016). We did not expect openness to change or self-enhancement to be related to support. Also at the individual level, we included gender, in line with previous research which has suggested that women may be less supportive of military intervention than men (e.g. Eichenberg, 2003; Togeby, 1994). We further specified age and years of education as individual-level variables. Age was included in order to address a possible age-related response bias (detailed below) while we included years of education in order to account for the possibility that it may have been related to access to written or digital media, which could influence 'textbook knowledge'. In line with our theoretical framework, which underscores the importance of understanding individual attitudes as located within particular social and political contexts, we specified the effect of values on attitude towards armed drones as *random* across nations, i.e. the effects of the value dimensions were allowed to vary across countries. Finally, we controlled for some other contextual variables such as knowledge of drones at both the individual and national level.

Method

We adopted a cross-sectional survey format for this study. Data were collected online, using an international external panel company between April and May 2016. This company sent invitations randomly to potential participants from nationwide representative participant

pools in the three countries, which they could then accept or reject (see Researchnow, 2017). The survey took an average of 18 minutes (with outliers 60.47) to complete, and participants were rewarded with website credit which could then be exchanged for vouchers.

Participants and Sampling Strategy

Following Stegmueller (2013), we calculated the minimum sample size needed to test our hypotheses. We required a sample size of no fewer than 375 participants per country with an associated power value of .90. The sample was composed of 1776 participants from three countries – the US (N = 573), UK (N = 638), and Turkey (N = 565). Multiple imputation analysis showed that participants who completed the survey in less than ten minutes had at least one value missing on the study variables, therefore these participants (N = 116) were dropped from further analysis.

We conducted a series of Little's Missing Completely at Random (MCAR) tests with an Expectation Maximisation (EM) algorithm to determine whether there were systematic patterns of missing values on the study variables (Little, 1988; Enders, 2003). Univariate analysis showed that younger respondents were less likely to complete items measuring support for the use of armed drones. When these attitude items (N = 3) were missing, the mean ages of participants from the US, the UK, and Turkey were 38.66, 38.92, and 38.23, compared to 48.84, 48.88, and 48.97 when these items remained in the dataset. Through careful inspection of the data's accuracy, 72 participants were dropped from the data. Therefore, the final sample was composed of 1588 citizens of the US (488), UK (576), and Turkey (524), forty-nine per cent of which were women. All participants were aged 18 years or over (M = 40.88, SD = 15.51).

Measurements

Language options were provided to ensure participants' ease of understanding. The survey was written in English by the first author and the second author provided the Turkish translation. Participants could select in which language (English or Turkish) they wished to complete the survey via a drop-down menu. Eight Turkish participants chose to complete the survey in English; all other Turkish participants completed the Turkish-language version.

Portrait value questionnaire (PVQ). The survey contained a short form of the Portrait Value Questionnaire (e.g., Davidov, 2008), which includes 21 items measuring ten motivational values (Schwartz, 1992): power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security. Following previous work (Rathbun et al., 2016; Schwartz, 2003), self-transcendence was measured using benevolence and universalism items, openness to change with self-direction, stimulation, and hedonism items, self-enhancement with power and achievement items, and conservation using the items gauging priority of security, conformity, and tradition values. Responses to each of these items were measured on a 6-point scale (*1* = very much like me; *6* = not like me at all) but were transformed before computing the latent mean as explained below so that a higher score indicated higher priority of this value.

Support for the use of armed drones. This was measured using a three-item scale (adapted from Crawford et al., 2014, α = .96). Participants were asked to respond to three items - "Using armed drones is good military policy", "I agree with people who support using armed drones" and "I do not support the military's use of armed drones" – on a 6-point scale (*1* = strongly disagree, *6* = strongly agree). The last item was reversed before calculating the overall score. A higher score indicated higher support for the use of armed drones.

Knowledge about armed drones. Following previous research on social representations of biotechnology (Wagner et al., 2002), this measure tapped participants'

'textbook' knowledge about armed drones. Participants were asked to indicate whether they thought seven facts about drones were true or false, or whether they didn't know (see Appendix S1). Each item which was correctly answered was given one point, giving a maximum possible score of seven.

Conceptual Equivalence of Measurements across Countries

In order to ensure the conceptual equivalence of values and support for the use of armed drones across the countries, we performed a multigroup confirmatory factor analysis using R (R Core Team, 2016) and the Lavaan software package (Rosseel, 2012). To examine invariance across national groups, a series of models was tested to focus on the equivalence of factor loadings, factor covariances, and structural regression paths (Brown, Harris, O'Quin, & Lane, 2017). Each of the measurements, except the PVQ, was found to be conceptually equivalent across the national groups and provided good fit indices, thus we calculated the weighted scores for all measures except the value measures to obtain the predicted latent means and standard deviations in terms of the strict invariance model. We used the partial strict invariance model to obtain the predicted latent means and standard deviations for the PVQ as measurement invariance was partially supported for this measure. The detailed results of these analyses are provided in Appendix S2 due to space constraints.

Analytic Strategy

A linear mixed effects analysis was conducted with a restricted maximum likelihood (REML) estimation method, using R with the Lme4 software package (Bates, Maechler, Bolker, & Walker, 2015). To reduce over-correlation among predictors (Paccagnella, 2006), predictor variables for fixed slopes were standardised using the grand mean centre method, while random slope variables were standardised using the group mean centre method - the country's mean of that variable was subtracted from each individual's latent score. As fixed

effects, the model included the four basic value categories – openness to change, self-transcendence, self-enhancement, and conservation, and the effects of gender, age, years of education, and knowledge of armed drones were controlled in the same model. As random effects, we specified the intercepts for the different national contexts as well as the by-context random slopes for the effect of values.

We used REML estimation and the Kenward-Roger adjustment to reduce the inflated type-I error rate since the cluster size was limited to three countries (Kenward & Roger, 2009; McNeish & Stapleton, 2016). In addition to REML estimation, we checked our results again using an alternative approach, the Robust Bayesian Linear Mixed-Effects approach (Ruli, Sartori, & Ventura, 2017). This was done as an additional precaution to avoid drawing theoretical conclusions as a result of biased standard errors due to the small number of countries included in the model. Although the likelihood ratio test provides a better understanding of model fit (Douglas, 2009), we also provide a calculation of traditional *p*-values for each fixed and random effect in the multilevel models, by calculating the Kenward-Roger approximation using the Pbkrtest software package in R (Halekoh, & Højsgaard, 2014). Besides REML, Maximum Likelihood was also calculated in order to produce a *p* value and facilitate model comparison (Bolker et al., 2009; Pinheiro & Bates, 2000). Using an extension of Nakagawa and Schielzeth's R2GLMM method (2013), developed by Johnson (2014), two types of variance were calculated using the MuMIn software package in R (Barton, 2016). The first - marginal R^2- refers to the proportion of total variance explained by the fixed variables, while the second - conditional R^2- denotes the proportion of variance explained by both the fixed and random variables.

Results

Descriptive Statistics

Descriptive statistics for the whole sample as well as by country are presented in Table 1. Mean values of support for the use of armed drones and knowledge of armed drones were at or just above the scale mid-points.

----------**Insert Table 1 here**----------

A Multilevel Model of Support for the Use of Armed Drones

Testing the assumptions of the multilevel model. Preliminary analysis did not reveal any problems with the assumptions of the multilevel model (e.g. homoscedasticity and normality), and no multicollinearity was detected among the variables. By calculating Mahalanobis' distance for each participant, nineteen multivariate outliers were identified with a value higher than the cut-off point (29.59). Accordingly, they were also dropped from further analysis. Therefore, the total numbers of participants was 1569 (*N* for Turkey = 520, UK = 566, and US = 483). All simple correlations between support for the use of armed drones and the four superordinate value categories are presented in Table 2.

----------**Insert Table 2 here**----------

Testing the multilevel model of support for armed drones. Firstly, to determine whether there was variability in support across the countries, a random intercept only model, also known as an unconditional mixed model (Model A), was tested, to be used as a baseline model for the goodness-of-fit of the following models. Shown in Equation 1, $\boldsymbol{\gamma_{00}}$ was the overall mean of the dependent variable and $\boldsymbol{U_{0j}}$ was the random effect of the countries. Therefore, we estimated $\boldsymbol{U_{0j}}$ as the variance of the mean for each country around the overall mean score of support for the use of armed drones.

Equation 1: Intercept only model

$$Attitude_{ij} = \gamma_{00} + U_{0j} + e_{ij}$$

The analysis showed that there was far more variation within the nations (1.19) than between the nations (0.15), and the mean of support for the use of armed drones across the nations was 4.05. The conditional R^2 for the intercept only model suggested that 11.41 per cent of the variance in support was distributed at the national level. Using the likelihood ratio test statistic, we compared the random intercept only model to the ordinary least squares model, which suggested overwhelming evidence of country-level effects on support for the use of armed drones, $\Delta\chi^2(1) = 60.54$, $p < .001$.

In our second model (Model B), we added theoretical covariates into Model A as predictors. In this random intercept model, gender, age, years of education, and knowledge of drones were specified as fixed slopes. Compared to the intercept only model, Model B showed a significant improvement in explaining the variance in support, $\Delta\chi^2(4) = 69.83$, $p < .001$. The fixed effect of gender (β=.14, p.KR < .001) was significant, with women less supportive of the use of armed drones. No significant main effect was found for the other variables - years of education, age, and knowledge of armed drones. The marginal R^2 also indicated that 4 per cent of the total variance in support was accounted for by these covariates while the conditional R^2 for this model suggested that 15 per cent of the variance in support for the use of armed drones was distributed at the national level. We also tested the random slope model of knowledge of drones, which was close to zero, suggesting that the effect of knowledge on support was the same across the countries. A trivial amount (.0002) of between-country variance was accounted for by knowledge.

Model C was our theoretical mixed model in which we tested the relationship between values and support for the use of armed drones. To test this, controlling for Model B, the fixed effects of the value categories (self-transcendence, conservation, self-enhancement, and openness to change) were then included. Compared to Model B, Model C showed a

significant improvement in explaining the variance in support for the use of armed drones, $\Delta\chi^2$ (9) = 112.08, $p < .001$.

As Table 3 shows, after controlling the fixed effects of Model B variables and the random effect of knowledge of drones (σ^2=.003, s.e.= .017), the main effect of self-transcendence (β= -.28, p.KR = .007) was as hypothesised, with higher levels of self-transcendence associated with lower levels of support. The main effect of conservation (β= .38, p.KR=.001) was also significant as hypothesized, with higher levels of conservation associated with higher levels of support. The effects of predictor and control variables on support for the use of armed drones are displayed in Figure 1 (coefficients and 95% CIs for Model C are presented using Coefplot2; Bolker, & Su, 2011).

----------**Insert Figure 1 here**----------

Also as expected, self-enhancement and openness were not significantly related to support. In this model, the marginal R^2 indicated that nine per cent of the total within-nation variance in support was accounted for by values (removing the 2% explained by gender). Self-transcendence explained 3 per cent, and conservation explained 6 per cent of the *within*-nation variance in support for the use of armed drones. The conditional R^2 for this model was .177, thus 18 per cent of the total variance in support was explained by both the fixed and random variables. All levels of explained variances and estimations are presented in Table 3.

----------**Insert Table 3 here**----------

By subtracting the within-nation variance (11%) from the total variance in support (18%), it can be seen that conservation and self-transcendence together explained 7 per cent of the *between*-nation variance in support.

Discussion

The results of a multilevel model of support for the use of armed drones in the US, UK, and Turkey revealed that there were country differences in support, with the Turkish participants endorsing their use to the greatest extent, followed by the US and UK participants. In each of the countries, conservation and self-transcendence values were, respectively, positively and negatively related to support, and women were less likely to support the use of armed drones. Openness to change and self-enhancement were not related to support. Additionally, we postulated that values should be conceptualised as contextual as well as individual predictors, and when we specified this in our model, it resulted in a significant increase in model fit.

The analysis supports work which has emphasised the link between values and positions on foreign policy issues and events, as well as with broader foreign policy orientations (e.g. Cohrs et al., 2005; Rathbun et al., 2016). In line with this research, support for the use of armed drones was linked to high priority of conservation values, which are those linked to concerns about maintenance of the status quo and protection of the ingroup. Conversely, high priority of self-transcendence values (those linked to concern for the welfare of others) was negatively related to support for the use of armed drones. While at the individual level, openness to change was related to support, when included in our multilevel model, this was no longer the case. As expected, due to its focus on individual self-interest, which may not be as relevant in the domain of foreign policy, self-enhancement was not related to support for the use of armed drones. Taken together, these findings suggest that support for the use of armed drones is anchored in a comparable way to positions on other foreign policy and military issues.

However, we treated these values as contextual, as well as individual factors. Values, such as those related to conservation and self-transcendence, we proposed, would be more or less normative in the different countries. Our analysis showed that values were related to

support at the individual level; however, values in context (specified at the country-level) were also related to support for the use of armed drones. This is key as it suggests that values, which are signalled as normative in the social/political milieu, may have a role to play in explaining support for the use of armed drones, and foreign policy opinion more generally. Our analysis complements and adds to existing research using a social representational approach, which models ideological climates and meta-representational processes in explanations of individual positions (e.g. Elcheroth et al., 2011; Sarrasin et al., 2012).

Across the three countries, support for the use of armed drones was not related to either participants' level of knowledge about drones, or the years of education. It was not then the case that an absence (or excess) of textbook or 'factual' knowledge about the technology was driving individual positions. By comparison, values at both the individual and country level were more important predictors. These findings, taken together, may suggest that, in the foreign policy domain at least, political elites may have a lot of scope to frame policies in ways which tie them to particular values. This could mute the potential of citizen resistance to the use of armed drone strikes, as elites may choose to frame policies or military actions in ways which (1) chime with their own values, on a personal level but which also (2) 'fit' with the values which are legitimised in that particular context. This assertion supports previous research which has found public opinion on drone strikes to be influenced by the ways in which they are framed and tied to particular values (e.g. Crawford et al., 2014).

To the best of our knowledge, this study is the first that has explored people's *general* attitudes towards the use of armed drones from a comparative standpoint. Interestingly, and contrary to the only survey of public opinion on drones in Turkey (Pew Research Center, 2014), Turkish participants reported the highest levels of support for armed drones here. While our results are not based on a representative sample, they still suggest that Turkish participants would appear to be critical of the US drone program, but are more supportive of

the use of armed drones in general. This is in line with previous research which has emphasised the importance of features of the operational context for attitudes towards drone strikes (e.g. Faulkner Rogers, 2013; Walsh, 2015). As the previous survey of Turkish opinion referred to the US drone program in non-designated conflict areas, it seems plausible that the perceived international legitimacy of drone strikes is another such feature (Kreps, 2014). Further cross-national research with representative participant samples is needed to explore this possibility further.

There are a number of limitations to this study. Firstly, although we tried to mitigate the inflated risk of a Type I error associated with multilevel modelling, the study would have benefited from the addition of data from more countries (McNeish & Stapleton, 2016). While these countries were selected to optimise differences in experiences of the use of armed drones, nevertheless the key finding of this study - that the value context influences the relationship between values and support for the use of armed drones - would have been stronger had more countries been included. In particular, the addition of data from countries in the Middle East in which armed drone strikes have been, or are currently being deployed would have provided a stronger test of our contextual hypothesis as well as within-nation support for the use of armed drones against another country through perceived international legitimacy.

Secondly, our analysis displayed a systematic non-response bias as younger people were less likely to complete the measure gauging support for the use of armed drones. One possible account of this finding may be related to interest in of awareness of foreign policy issues, which could plausibly be lower among younger adults. Due to this observed bias, we included age as a covariate in our subsequent analyses in order to account for the role of this variable, but did not find a significant effect. Nevertheless, the factors underpinning the non-

response bias need to be further investigated through research on the way in which younger adults understand and orient towards armed drones.

Thirdly, much of the polling on drone strikes asks people to consider them as an alternative to other forms of intervention, rather than asking for their judgements on the acceptability of strikes in isolation. Indeed research has suggested that people may favour drone strikes over other types of operations in specific circumstances, but not in others (Walsh & Schulzke, 2015). As with alternative military operations, it would be expected that different features of the proposed operation, such as expectations of operational success (Lyon & Malone, 2009), would also influence individual positions. We used a relatively blunt measure to gauge general attitudes due to our interest in a specific multilevel hypothesis. However, further research, particularly using qualitative methods, would be useful here to disentangle the process in which citizens engage; weighing up these relevant operational features against each other, as well as other military options, to come to a decision (O'Dwyer et al, 2016).

While our analysis suggests that variation in support for armed drones across the three countries may be related to value priorities as individual and contextual variables, nevertheless other explanations of these differences are possible, and would be fruitful avenues for future research. Perceived security threat has been found to be a significant predictor of support for military action in the US (Huddy et al., 2007). Given the proximity of Turkey to areas in which drone strikes occur, and the existence there of two prominent sources of domestic security threat (Islamist, Kurdish), it also seems likely that perceived national security threat may influence support for the use of armed drones. Previous research has also emphasised the importance of national identity as a multi-dimensional construct (e.g. centrality, content) for positions towards foreign policy events and issues (e.g. Hermann et

al., 2009) thus differences on these dimensions of national identity may be another explanation of the between-country differences in attitudes.

Furthermore, while this study utilised Schwartz's theory of human values (e.g. 1992), which are conceptualised as psychological properties of *individuals*, the study of the relationship between foreign policy opinion and values could also be usefully extended by integrating Schwartz's theory of *cultural* values (e.g. 1994), which are the values which are prioritised by *cultures* for fulfilling societal goals. From aggregated individual data, this theory specifies three dimensions across which cultures will differ in their priorities: autonomy/embeddedness, egalitarianism/hierarchy, and harmony/mastery. According to this theoretical framework, culture is external to individual psychological functioning, and so, these values are determined on the basis of aggregate rather than individual data. Research which has examined the effect of values on political behaviour and opinion, including foreign policy opinion, has tended to focus on the values as individual rather than cultural factors. However, clearly the values which an individual prioritises will be oriented pragmatically to those which are emphasised as cultural values (Schwartz & Bardi, 1997), therefore future research needs also to model these cultural values in its analyses.

Guided by the SRA, **t**his study utilised the novel technique of multilevel modelling to investigate support for the use of armed drones across national contexts, and so makes the case for its wider usage by researchers working with this theoretical framework. However, we acknowledge that in order to understand the process by which social representations of armed drones are shaped by value contexts, the use of other methods is necessary. For example, future research could examine media representations of armed drones, which would shed light on the different arguments which are mobilised to justify or critique the use of drone strikes, and to identify particular frames which are applied to the technology in order to facilitate public understanding and communication. The 'surgical strike' metaphor may be

one salient objectification of armed drones which has served to legitimate their continued usage, and its prevalence in the media would be potentially fruitful to examine.

To conclude, our results show that basic human values, particularly conservation and self-transcendence values, matter for explanations of support for armed drones. Our adoption of the SRA and the methodological technique of multilevel modelling enabled us to find that values, when specified as contextual (country-level) factors, were also significant predictors of support for the use of armed drones. Thus, we suggest here that values should not just be conceptualised as individual characteristics, but also as part of the broader meta-representational fabric, which are legitimised, prioritised or devalued within a particular social/political context. In effect, values need to be understood as properties of citizens *and* the contexts in which they are located, for a fuller appreciation of their role in explanations of individual positions towards foreign policy issues.

Acknowledgements

We thank five anonymous reviewers for their constructive and helpful comments. Many thanks also to Chris Cohrs, Joel Devonshire, Felicia Pratto, and James Tapp for useful feedback provided on earlier drafts of this paper. This research was supported by funding received from the Kingston University First Grants Scheme. Correspondence concerning this article should be addressed to Dr Emma O'Dwyer, Department of Psychology, Kingston University, Penrhyn Road, Kingston-upon-Thames, Surrey, KT1 2EE, UK. Email: e.odwyer@kingston.ac.uk.

References

Barton, K. (2016). MuMIn: Multi-model Inference. R package version 1.15.6. Retrieved from https://CRAN.R-project.org/package=MuMIn, access date: 29.09.2016

Bates, D., Maechler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*, 1-48.

Bègue, L. & Apostolidis, T. (2000). The 1999 Balkan War: Changes in ratings of values and pro war attitudes among French students. *Psychological Reports*, *86*, 1127-1133.

Beier, J. M. (2003). Discriminating tastes: 'Smart' bombs, non-combatants, and notions of legitimacy in warfare. *Security Dialogue*, *34*, 411-425.

Bolker, B. M., Brooks, M. E., Clark, C. J., Geange, S. W., Poulsen, J. R., Stevens, M. H. H., & White, J. S. S. (2009). Generalized linear mixed models: a practical guide for ecology and evolution. *Trends in Ecology & Evolution*, *24*, 127-135.

Bolker, B., & Su, Y. S. (2011). Coefplot2: coefficient plots. *R package version 0*, *1*, 3.

Brewer, P. R. & Steenbergen, M. R. (2002). All against all: How beliefs about human nature shape foreign policy opinions. *Political Psychology*, *23*, 39-58.

Brown, G. T., Harris, L. R., O'Quin, C., & Lane, K. E. (2017). Using multi-group confirmatory factor analysis to evaluate cross-cultural research: identifying and understanding non-invariance. *International Journal of Research & Method in Education*, *40*, 66-90.

Chamayou, G. (2015). *Drone theory*. London: Penguin.

Clémence, A., Devos, T., & Doise, W. (2001). Social representations of human rights violations: Further evidence. *Swiss Journal of Psychology*, *60*, 89-98.

Cohrs, J. C., Moschner, B., Maes, J., & Kielmann, S. (2005). The motivational bases of right-wing authoritarianism and social dominance orientation: Relations to values and attitudes in the aftermath of September 11, 2001. *Personality and Social Psychology Bulletin, 31*, 1425-1434.

Cohrs, J.C. & O'Dwyer, E. (2018). "In the minds of men…" – Social representations of war and military intervention. In P. Hammack (Ed.). *Oxford Handbook of Social Psychology and Social Justice* (pp. 331-350). Oxford, New York: Oxford University Press.

Crawford, J. T., Wiley, S., & Ventresco, N. (2014). Examining Americans' attitudes toward drone strikes on the eve of the 2012 presidential election. *Analyses of Social Issues and Public Policy, 14*, 46-60.

Davidov, E. (2008). A cross-country and cross-time comparison of the human values measurements with the second round of the European Social Survey. *Survey Research Methods, 2*, 33-46.

Doise, W., Spini, D., & Clémence, A. (1999). Human rights studied as social representations in a cross-national context. *European Journal of Social Psychology, 29*, 1-29.

Eichenberg, R. C. (2003). Gender differences in public attitudes toward the use of force by the United States, 1990–2003. *International Security, 28*, 110–141.

Elcheroth, G., Doise, W., & Reicher, S. (2011). On the knowledge of politics and the politics of knowledge: How a social representations approach helps us rethink the subject of political psychology. *Political Psychology, 32*, 729-758.

Enders, C. K. (2003). Using the expectation maximization algorithm to estimate coefficient alpha for scales with item-level missing data. *Psychological Methods, 8*, 322-337.

Fair, C. C., Kaltenthaler, K., & Miller, W. J. (2016). Pakistani opposition to American drone strikes. *Political Science Quarterly, 131*, 387-419.

Faulkner Rogers, J. (2013). The public view: British attitudes to drone warfare and targeted killing. In M. Aaronson & A. Johnson (Eds.), *Hitting the target? How new capabilities are shaping international intervention* (pp. 7-18). RUSI Whitehall Report 2-13.

Gilles, I., Bangerter, A., Clémence, A., Green, E. G. T., Krings, F., Mouton, A., Rigaud, D., Staerklé, C., & Wagner-Egger, P. (2013). Collective symbolic coping with disease threat and othering: A case study of avian influenza. *British Journal of Social Psychology, 52*, 83–102.

Halekoh, U. & Højsgaard, S. (2014). A Kenward-Roger approximation and parametric bootstrap methods for tests in linear mixed models–the R package pbkrtest. *Journal of Statistical Software, 59*, 1-30.

Herrmann, R. K., Isernia, P., & Segatti, P. (2009). Attachment to the nation and international relations: Dimensions of identity and their relationship to war and peace. *Political Psychology, 30*, 721-754.

Huddy, L., Feldman, S., & Weber, C. (2007). The political consequences of perceived threat and felt insecurity. *The Annals of the American Academy of Political and Social Science, 614*, 131-153.

Johnson, P. C. (2014). Extension of Nakagawa & Schielzeth's R2GLMM to random slopes models. *Methods in Ecology and Evolution, 5*, 944-946.

Kaag, J. & Kreps, S. (2014). *Drone warfare*. Cambridge: Polity Press.

Kenward, M. G. & Roger, J. H. (2009). An improved approximation to the precision of fixed effects from restricted maximum likelihood. *Computational Statistics and Data Analysis*, *53*, 2583–2595.

Kreps, S. (2014). Flying under the radar: A study of public attitudes towards unmanned aerial vehicles. *Research & Politics*, *1*, 1-7.

Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*, 1198-1202.

Louis, W. R., Duck, J. M., Terry, D. J., & Lalonde, R. N. (2010). Speaking out on immigration policy in Australia: Identity threat and the interplay of own opinion and public opinion. *Journal of Social Issues*, *66*, 653-672.

Lyon, A. & Malone, M. (2009). Was Woodrow Wilson right? Assessing American attitudes towards humanitarian intervention. *Journal of Peace, Conflict and Development*, *13*, 1–41.

Matthes, J., Rios Morrison, K., & Schemer, C. (2010). A spiral of silence for some: Attitude certainty and the expression of political minority opinions. *Communication Research*, *37*, 774-800.

McNeish, D. M. & Stapleton, L. M. (2016). The effect of small sample size on two-level model estimates: A review and illustration. *Educational Psychology Review*, *28*, 295-314.

New America Foundation (2017, March 16). World of drones. Retrieved from https://www.newamerica.org/in-depth/world-of-drones/

Moscovici, S. (1976*). Psychoanalysis: Its image and its public*. Cambridge, UK: Polity Press. (Original work published in 1961.)

Moscovici, S. (1984). The phenomenon of social representations. In R. Farr & S. Moscovici (Eds.), *Social representations* (pp. 3–70). Cambridge: Cambridge University Press.

Mutz, D. (2002). Cross cutting social networks: Testing democratic theory in practice. *American Political Science Review*, *96*, 111–126.

Nakagawa, S. & Schielzeth, H. (2013). A general and simple method for obtaining R2 from generalized linear mixed-effects models. *Methods in Ecology and Evolution*, *4*, 133-142.

Noelle-Neumann, E. (1974). The spiral of silence: A theory of public opinion. *Journal of Communication*, *24*, 43-51.

O' Dwyer, E., Lyons, E., & Cohrs, J. C. (2016). How Irish citizens negotiate foreign policy: A social representations approach to neutrality. *Political Psychology*, *37*, 165–181.

Paccagnella, O. (2006). Centering or not centering in multilevel models? The role of the group mean and the assessment of group effects. *Evaluation Review*, *30*, 66-85.

Pew Research Center (2014, July 14). Global opposition to U.S. surveillance and drones, but limited harm to America's image. Retrieved from http://assets.pewresearch.org/wp-content/uploads/sites/2/2014/07/2014-07-14-Balance-of-Power.pdf

Pinheiro, J. C., & Bates, D. M. (2000). Linear mixed-effects models: basic concepts and examples. *Mixed-effects models in S and S-Plus*. New York: Springer.

Portelinha, I., & Elcheroth, G. (2016). From marginal to mainstream: The role of perceived social norms in the rise of a far-right movement. *European Journal of Social Psychology*, *46*, 661-671.

R Core Team (2016). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

Rathbun, B., Kertzer, J., Reifler, J., Goren, P., & Scotto, T. (2016). Taking foreign policy personally: Personal values and foreign policy attitudes. *International Studies Quarterly*, *60*, 124-137.

Research Now (2017, January). *Research Now panel book.* Retrieved from http://www.researchnow.com/wp-content/uploads/2017/02/Panel-book_UK_Jan17.pdf

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*, 1-36.

Ruli, E., Sartori, N., & Ventura, L. (2017). Robust approximate Bayesian inference with an application to linear mixed models. *arXiv preprint arXiv:1706.01752*.

Sarrasin, O., Green, E. G., Fasel, N., Christ, O., Staerklé, C., & Clémence, A. (2012). Opposition to antiracism laws across Swiss municipalities: A multilevel analysis. *Political Psychology*, *33*, 659-681.

Schoen, H., Rattinger, H., & Pötzschke, J. (2011). Personality, values and attitudes toward foreign and security policies (2011). APSA 2011 Annual Meeting Paper. Available at SSRN: https://ssrn.com/abstract=1900636

Schwartz, S. H. (1992). Universals in the content and structure of values: Theory and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology* (pp. 1-65). New York: Academic Press.

Schwartz, S. H. (1994). Beyond individualism/collectivism: New cultural dimensions of values. In Kim, U., Triandis, H. C., Kagitcibasi, C., Choi, S.C., & Yoon, G. (Eds.), *Individualism and collectivism: Theory, method, and applications* (pp. 85-119). Thousand Oaks, CA: Sage.

Schwartz, S. H. (2003). A proposal for measuring value orientations across nations. In *Questionnaire development report of the European Social Survey* (chap. 7). Retrieved from https://www.europeansocialsurvey.org/docs/methodology/core_ess_questionnaire/ESS_core_questionnaire_human_values.pdf

Schwartz, S.H., & Bardi, A. (1997). Influences of adaptation to communist rule on value priorities in Eastern Europe. *Political Psychology, 18*, 385-410.

Schwartz, S. H., Caprara, G. V., & Vecchione, M. (2010). Basic personal values, core political values, and voting: A longitudinal analysis. *Political Psychology, 31*, 421–452.

Schwartz, S. H., Melech, G., Lehmann, A., Burgess, S., Harris, M., & Owens, V. (2001). Extending the cross-cultural validity of the theory of basic human values with a different method of measurement. *Journal of Cross-Cultural Psychology, 32*, 519-542.

Spini, D. & Doise, W. (1998). Organizing principles of involvement in human rights and their social anchoring in value priorities. *European Journal of Social Psychology, 28*, 603-622.

Stegmueller, D. (2013). How many countries for multilevel modeling? A comparison of frequentist and Bayesian approaches. *American Journal of Political Science, 57*, 748-761.

Togeby, L. (1994). The gender gap in foreign policy attitudes. *Journal of Peace Research, 31*, 375-392.

Vraga, E. K., Thorson, K., Kligler-Vilenchik, N., & Gee, E. (2015). How individual sensitivities to disagreement shape youth political expression on Facebook. *Computers in Human Behavior, 45*, 281-289.

Wagner, W. & Hayes, N. (2005). *Everyday discourse and common sense: The theory of social representations*. New York, NY: Palgrave Macmillan.

Wagner, W., Kronberger, N., & Seifert, F. (2002). Collective symbolic coping with new technology: Knowledge, images and public discourse. *British Journal of Social Psychology, 41*, 323-343.

Wagner, W., Valencia, J., & Elejabarrieta, F. (1996). Relevance, discourse and the 'hot' stable core social representations: A structural analysis of word associations. *British Journal of Social Psychology, 35*, 331–351.

Walsh, J. I. (2015). Precision weapons, civilian casualties, and support for the use of force. *Political Psychology, 36*, 507-523.

Walsh, J. I. & Schulzke, M. (2015). The ethics of drone strikes: Does reducing the cost of conflict encourage war? Army war college Carlisle Barracks, PA Strategic Studies Institute. Chicago.

Table 1

Means and standard deviations for SUAD, age, years of education, knowledge of armed drones, and basic human values

Measure	Turkey	UK	US	Total Sample
N	524	576	488	1588
SUAD	4.47(1.07)	3.66(1.13)	4.01(1.09)	4.04(1.14)
Age	33.88(10.63)	44.52(15.47)	44.11(15.35)	40.91(14.84)
Years of education	14.79(2.99)	15.00(4.10)	15.27(3.07)	15.01(3.46)
Knowledge	3.60(1.27)	4.56(1.20)	4.61(1.17)	4.26(1.30)
Self-enhancement	2.83(1.15)	3.42(0.98)	3.26(0.96)	3.18(1.06)
Self-transcendence	2.25(1.29)	2.75(1.03)	2.57(1.09)	2.53(1.17)
Openness to change	2.75(1.24)	3.55(0.97)	3.43(1.01)	3.25(1.13)
Conservation	2.39(1.19)	2.97(0.91)	2.76(0.97)	2.71(1.04)

Note. SUAD=Support for the use of armed drones. Standard deviations are given in parentheses.

Table 2

Pearson correlations of SUAD with basic human value categories

Measure	SUAD	Self-enhancement	Self-transcendence	Openness to Change
SUAD				
Self-enhancement	-0.03			
Self-transcendence	-0.13**	0.41**		
Openness to change	-0.06*	0.66**	0.68**	
Conservation	0.21**	-0.12**	-0.32**	-0.59**

Note: SUAD = support for the use of armed drones.

* $p < .01$ ** $p < .001$

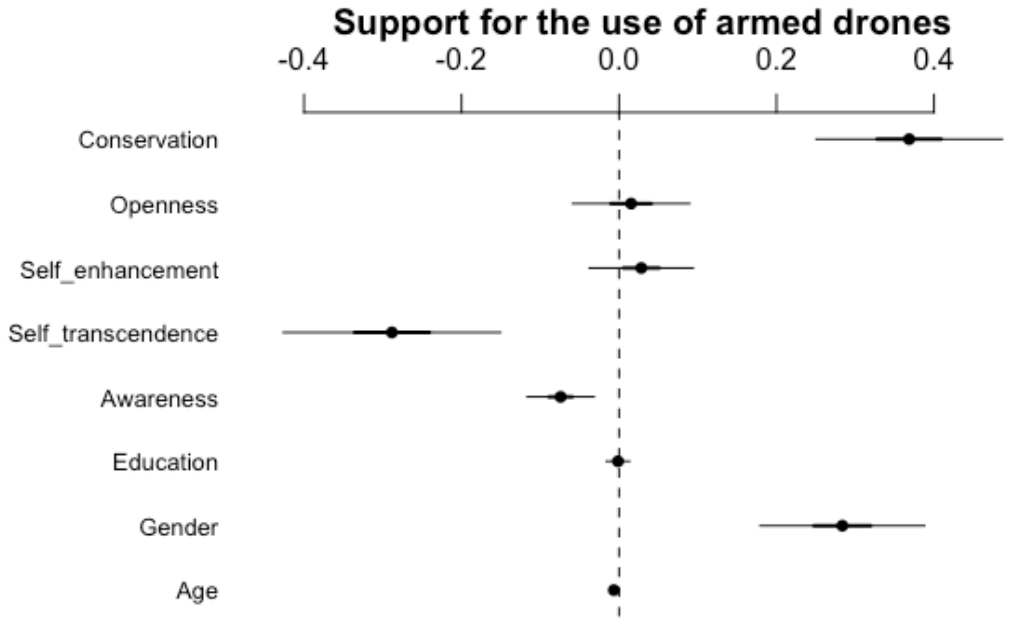
Table 3

Multilevel regression models predicting SUAD

Parameter	*Model A*		*Model B*		*Model C*	
	Estimate	(s.e.)	Estimate	(s.e.)	Estimate	(s.e.)
Fixed						
Intercept	4.052	(.228)*	4.058	(.263)*	4.051	(.237)*
Age			.007	(.001)	.006	(.071)
Gender			.329	(.055)*	.329	(.053)*
Years of education			-.007	(.008)	.000	(.007)
Knowledge of armed drones			.067	(.024)	.074	(.024)
Self-enhancement					.007	(.033)
Self-transcendence					-.268	(.072)*
Openness to change					-.010	(.038)
Conservation					.381	(.061)*
Residual Variance						
Country-level variance	0.153	(0.391)	0.205		0.165	
Individual variance	1.190	(1.09)	1.141		1.060	
Log likelihood (χ^2)	2398.193		2377.126		2303.9	
Deviance			4724.9		4607.8	
Modeled variance						
R^2m			.039		.095	
R^2c	.114		.185		.222	

*$p < .05$, Gender (0 = Women, 1 = Men)

Note: For Model B $\Delta\chi^2$ (6) = 70.158, $p < .001$, for Model C $\Delta\chi^2$ (9) = 112.24, $p < .001$.



Note: Gender (0 = Women, 1 = Men)

Figure 1: The effects of predictor and control variables (coefficients and 95% CIs) on support for the use of armed drones in Model C (theoretical mixed model)

Appendix S1

Table 1

Items measuring knowledge of armed drones

Item #	Item text	Correct response
1	Unmanned combat aerial vehicles are fully autonomous and do not require the involvement of humans to carry out strikes.	False
2	MQ-1 Predator is the nickname of a specific model of drone	True
3	All ‘drones’ used by the UK/US/Turkish military are armed.	False
4	Israel is the world’s largest exporter of armed drones and drone technology.	True
5	Armed drones have never been used outside a conventional United Nations authorised armed conflict.	False
6	Osama bin Laden was killed by an armed drone strike.	False
7	An armed Reaper drone costs approximately $100 million.	False

Appendix S2

Measurement Invariance across the USA, UK, and Turkey

In order to ensure the conceptual equivalence of values and attitudes towards armed drones across the countries, a multigroup confirmatory factor analysis was performed using R and the Lavaan software package (Rosseel, 2012). To examine invariance across national groups, a series of models were tested to focus on the equivalence of factor loadings (configural and week factorial), factor covariances (strong invariance), and structural regression paths (strict invariance). Before testing these models, the model for each country was tested separately. In the configural invariance model, all items of the corresponding measure were freely estimated. Following that, we compared sequentially more constrained models to a less constrained model. These models were: a weak factorial model, in which the factor loadings were constrained to be equal across national groups, a strong invariance model in which both the factor loadings and intercept of items were constrained to be equal, and a strict invariance model in which error variances were constrained along with factor loadings and intercepts. Although the relative chi-square test has been suggested as a global test for testing the congruence between the data and the theoretical model (e.g. Carmines & McIver, 1981; Marsh & Hocevar, 1985), several other fit indices such as RMSEA, CFI, TLI, AIC, and SRMR were also used to assess model fit given its sensitivity to sample size. After conceptual and statistical equivalence of measurements were established, latent variables were calculated to further use in study analyses by predicting their means and standard deviations based on the invariance model.

Multigroup CFA on portrait value questionnaire. The measurement model, which was tested separately for each country, indicated similar goodness of fit indices (see Table S1). Then, the four value dimensions, namely openness to change, self-transcendence, self-enhancement, and conservation, were included in the model. The results showed that the

configural model fit the data adequately, $\chi 2$ (549, *N*= 1784) = 3336.127, *p*<. 001; CFI=.86, TLI =.84, SRMR = .08, and RMSEA = .09. Compared to the configural model, the weak factorial model, in which the factor loadings were constrained to be equal across national groups, $\chi 2$ (583, N= 1784) = 3456.111, *p*<. 001; CFI=.86, TLI =.85, SRMR = .09, and RMSEA = .09, suggested that the factor loading could be assumed to be equal since ΔCFI (.005) was smaller than proposed cut-off point .01, but $\Delta\chi 2$ significantly increased, $\Delta\chi 2$ (34) =120.111, *p*<.001 (Cheung & Rensvold, 2002). However, the strong invariance model, in which both the factor loadings and intercepts of items were constrained to be equal, $\chi 2$ (617, N= 1784) = 3832.451, *p*<. 001; CFI=.84, TLI =.84, SRMR = .09, and RMSEA = .09, revealed some systematic response bias on the scale across the countries. According to model comparison to test for weak and strong invariance, besides the differences in chi-square values between the models, $\Delta\chi 2$ (34) =376.34, *p*<.001; a significant change in CFI was found, ΔCFI (.017). Finally, the strong invariance model was compared to the strict invariance model, in which error variances were constrained along with factor loadings and intercepts, $\chi 2$ (659, N= 1784) = 4088.675, *p*<. 001; CFI=.83, TLI =.84, SRMR = .09, and RMSEA = .09. A significant increase in chi-square, $\Delta\chi^2$ (42) =256.224, *p*<.001, and a relatively large increase in CFI, ΔCFI (.011), suggested that the data did not meet the strict invariance assumption.

The model was examined further in terms of individual parameters in both the scalar invariance and strict invariance models to consider partially scalar and strict invariance models. According to the scalar invariance results, the intercepts of item 11 (“It is important to her/him to make her/his own decisions about what she/he does. She/He likes to be free and not depend on others”), item 10 (“Having a good time is important to her/him. She/He likes to 'spoil' herself/himself”), and item 7, (“She/He believes that people should do what they are

told. She/He thinks people should follow rules at all times, even when no-one is watching") had the largest differences across the countries. The intercepts of item 11 for the UK, USA, and Turkey were 2.44, 2.49, and 2.84 respectively. The intercepts of item 10 for the UK, USA, and Turkey were 3.51, 3.63, and 3.10 respectively. The intercepts of item 7 for the UK, USA, and Turkey were 3.60, 3.33, and 2.98 respectively. Therefore, these intercepts were set to be free across the countries, and the ΔCFI (.007) decreased under the cut-off point accordingly. Regarding the strict invariance results, the residual of item 2 ("It is important to him to be rich. He wants to have a lot of money and expensive things") differed the most across the countries: .07 (UK), .12 (USA) and .08 (Turkey). Therefore, these residuals were set free across the countries, and ΔCFI (.009) decreased under the cut-off point accordingly. All fit indices and model comparisons are presented in Table S2. Due to the fact that measurement invariance was partially supported, the weighted scores were calculated to obtain predicted latent means and standard deviations by using the partial strict invariance model.

Multigroup CFA on attitudes towards the use of armed drones. The results indicated that the configural model fit the data perfectly, $\chi 2$ (0, N= 1820) = 0, NA; CFI=1, TLI =1, SRMR = 0, and RMSEA = 0. Compared to the configural model, the weak factorial model, in which factor loadings were constrained to be equal across national groups, $\chi 2$ (4, N= 1820) = 15.360, p=.004; CFI=.996, TLI =.99, SRMR = .04, and RMSEA = .07 suggested that the factor loadings could be assumed to be equal since ΔCFI (.004) was smaller than the proposed cut-off point .01, but $\Delta\chi 2$ significantly increased, $\Delta\chi 2$ (4) =15.360, p=.004 (Cheung & Rensvold, 2002). Besides, the strong invariance model, in which both factor loadings and intercepts of items were constrained to be equal, $\chi 2$ (8, N= 1820) = 33.069, p<.001; CFI=.99, TLI =.99, SRMR = .05, and RMSEA = .07, revealed that the intercepts could be assumed to

be equal since ΔCFI (.005) was smaller than the proposed cut-off point. However, the strong invariance model, in which error variances were constrained along with factor loadings and intercepts, $\chi 2$ (14, N= 1820) = 206.862, p<.001; CFI=.93, TLI =.95, SRMR = .08, and RMSEA = .015, revealed some systematic response bias on the scale across countries. A significant increase in chi-square, $\Delta\chi 2$ (6) =173.793, p<.001, and a relatively large increase in CFI, ΔCFI (.06), suggested that the data did not meet the strict invariance assumption.

Regarding the strict invariance results, the residuals of reverse item 3, "I do not support the military's use of armed drones" (.61, .65 and .91 for the UK, USA and UK respectively) and item 2 "I agree with people who support using armed drones" (.12, .11 and .27) differed the most across the countries. Therefore, these residuals were set free across the countries, and ΔCFI (.003) decreased under the cut-off point accordingly. Because the measurement was the same across the national groups, the weighted scores were calculated to obtain predicted latent means and standard deviations in terms of the strong invariance model.

When using a multilevel modelling approach, it is not common practice to report Cronbach's alpha for measures, given that this statistic does not provide a measure of the reliability of the measure *between* countries. However, for additional information, we calculated the general and country-specific Cronbach's alpha for support for the use of armed drones. For the overall sample, alpha was .95, while it was .96, .96, and .92 for the USA, UK, and Turkey, respectively.

Table S1

Separate group model indices for Portrait Value Questionnaire

	Turkey	UK	USA
CFI	0.934	0.778	0.827
TLI	0.924	0.745	0.802
RMSEA	0.075	0.103	0.095
SRMR	0.055	0.101	0.088
$X^2(183)$	770.588	1430.766	1134.773

Table S2

Results of multigroup confirmatory factor analysis of Portrait Value Questionnaire

Model	χ^2(df)	RMSEA	SRMR	CFI	Change CFI =<.01 ***	Difference
All groups	2664.29 (183)	.09	.07	.88	Na	Na
The USA	1134.77 (183)	.10	.09	.83	Na	Na
Turkey	(770.59 (183)	.08	.06	.93	Na	Na
The UK	1430.77 (183)	.10	.10	.78	Na	Na
Configural Invariance	3336.12 (549)	.09	.08	.86	Na	Na
Weak (Metric) Invariance	3456.11 (583)	.09	.09	.86	.004***	Not-exist
Strong (Scalar) Invariance	3832.45 (617)	.09	.09	.84	.017	Exist
Strict Invariance	4088.68 (659)	.09	.09	.83	.011	Exist
Partial Scalar Invariance (Item 1 and 6 free)	3490.53 (577)	.09	.08	.85	.007***	Not-exist
Partial Strict Invariance (Item 6 free)	3586.44 (589)	.09	.08	.85	.009***	Not-exist