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Introduction

During research in social settings, you are often surprised about the respondents' conceptual precision when defining phenomena from their own life-world. As will be argued in the following, the concept of 'adrenalin junkies' is no exception to that rule. Among professional soldiers, an 'adrenalin junkie' is a person who chooses to be deployed on one mission after another, not because of duty, patriotism, or economic gain, but in order to have his desire for excitement satisfied.

In a *Military Psychology* article from 2012, Parmak, Euwema and Mylle observes that soldiers' level of 'sensation seeking' increases during and following deployment.¹ Using excellent panel data with Estonian soldiers, the authors convincingly show that their findings are accurate. They fail, however, to provide an argument *why* this is the case. This is the empirical puzzle of this article. Why do soldiers return from war with a higher level of excitement motivation than they had before their deployment? Given the transgressive nature of combat, this seems counter-intuitive. It calls for an answer. The answer suggested here is that satisfying our desire for excitement pushes our perceived limit of what qualifies as exciting. A thrilling experience tends to be most thrilling the first time. The theoretical warrant for this claim is that our stimulation optimum is not as stable as is often assumed. Instead, it is affected by contextual factors. Here, this claim is substantiated empirically by focusing on one such factor, combat exposure.

The article is structured as follows. In the next section, the key concept of excitement motivation is explained. This leads to the main hypotheses, stated in section 3: If excitement motivation really is affected by contextual factors, it ought to increase during deployment, and it ought to be susceptible to the soldiers' actual experiences during their deployment. These expectations are tested using panel data from two Danish companies deployed to Afghanistan in 2011. The data and the methods of analysis are presented in section 4. In sections 5 and 6, the findings are reported and discussed, while section 7 concludes.

Before turning to the theoretical argument, a number of points should be emphasised. First, the term 'adrenalin junkie' is a metaphor. Therefore, its truth value depends on its social

meaningfulness, not on its correspondence with objective facts. When this metaphor is claimed to be adequate, it is because describing a soldier as an adrenalin junkie tells us something important about his social behaviour. Whether his level of adrenalin actually changes is not the issue here, and readers will look in vain for medical tests on the following pages.

Second, the overall claim of this article is that combat exposure may help us understand why soldiers return from war with a higher degree of excitement motivation than they had before their departure. Not that combat exposure should be regarded as the only reason why they do so. Military sociology has provided a number of other reasons why soldiers enlist and what makes them 'want to keep going'.² Yet, this article centres on the development of excitement motivation following deployment and only indirectly addresses questions of recruitment motivation. Moreover, due to data limitations, it is only possible to obtain partial support for the role of combat exposure in this regard. Hence, the explanatory structure of this article should not eclipse the fact that its main contribution is exploratory. Its aim is to inquire why soldiers' excitement motivation increases. And while it provides one possible answer why this is the case, it does not seek to close this debate.

Third, although excitement motivation has not been much in focus in military sociology, thrill-seeking behaviour is a well-known subject in the social sciences. In 1920, Freud revised the framework of psychoanalysis, adding the concept of the 'Death Drive' to explain why millions of young men willingly sacrificed their lives in the trenches of World War I.³ Behavioural psychology has later developed measures – most prominently the sensation seeking scale (SSS)⁴ – to estimate thrill-seeking motivation and behaviour. Likewise, the significance of aggression in human conduct has been a recurrent theme in anthropology.⁵ And although military sociology has not focused on excitement motivation, military sociologists have studied the opposite of excitement, 'boredom'.⁶

Theory

What is here called excitement motivation lies conceptually close to what psychologists call sensation seeking. Hence, this construct is the natural point of departure for a description of the

dependent variable of this article. The sensation seeking scale (SSS) was developed by Zuckerman, Kolin, Price, and Zoob in 1964.⁷ As a tool of measurement, the scale constitutes a detailed empirical operationalization of a phenomenon known and studied by psychologists for quite some time as the ‘optimal level of arousal’ or ‘the optimal level of stimulation’ (OLS).⁸

Initially, OLS was understood as a psychological constant, a general level of stimulation determining our behaviour according to the ‘Yerkes-Dodson Law’: If our need for stimulation is not satisfied, we seek more excitement; if we are ‘over stimulated’, (if we are exposed to a higher level of arousal than our need requires), we seek less.⁹ The measurement of sensation seeking has evolved throughout the years, and today, most studies use either the fifth version of the scale, the 40-item SSS-V,¹⁰ or – for practical reasons – an eight-item version hereof, ‘The brief sensation seeking scale’ BSSS-8.¹¹ The SSS has been used to study a vast array of aspects of human conduct, including sexual behaviour, extreme sports, drug use, consumer habits, tourism, and soldiery.¹²

While Zuckerman accepts the notion that our behaviour is determined by the level of arousal we seek, he also emphasises that this level differs from one individual to another. Hence, apart from providing a very useful tool of measurement, Zuckerman also reconceptualises the idea of OLS, or, as reflected in the title of his 1979 book, he goes ‘beyond the optimum level of arousal’.¹³

From a sociologist’s point of view, the question is, of course, whether contextual factors in general, and social factors in particular, play any role at all in regard to the individual’s pursuit of excitement. Zuckerman’s answer would be a clear ‘no’: Each one of us has a certain amount of sensation seeking guiding our individual conduct, and this level is biologically – not socially – determined. Neither Zuckerman nor other researchers studying OLS rejects that arousal seeking is related to the social sphere. But given that that the optimum is either the same for everybody or biologically determined, it would logically precede the behaviour we attempt to predict. Sensation seeking is studied as an independent variable: as a direct cause or as an antecedent moderator.

Yet, the notion that sensation seeking precedes other factors does not logically exclude that it can change over time. First, the notion that the individual’s level of sensation seeking is

biologically determined also implies that this level changes with the individual's biological development. Hence, Zuckerman has shown that adolescents score higher on the sensation seeking scale than adults.¹⁴ Second, accepting the Yerkes-Dodson Law also implies accepting that the arousal seeking behaviour is not stable. Hence, we may explain differences in soldiers' level of sensation seeking from one context (when they leave) to another (when they return home) as a result of the thrill they have experienced while being deployed. Following this interpretation, we should expect soldiers who have seen a great deal of combat to return with a lower SSS score, and vice versa. The expectation stated here is the opposite. As will be explained below, this may also be understood within the OLS framework – but only with a theoretical specification.

Zuckerman defined sensation seeking as 'the need for varied, novel, and complex sensations and experiences, and the willingness to take physical and social risks for the sake of such experiences'.¹⁵ Here, excitement motivation is defined as *the desire for varied, novel, and complex sensations and experiences*. The differences between these two definitions stem from the fact that although Zuckerman's conceptualisation has proven its explanatory potential, it is not undisputed. Thus, Arnett criticises Zuckerman for making the mistake of, first, including both motivational ('the need') and behavioural ('the willingness') aspects in his definition, and, second, of overlooking 'the role of socialisation in modifying any biological and/or generic propensity for sensation seeking'.¹⁶

In the definition of excitement motivation stated above and operationalized in the next section, Arnett's first point of critique is accommodated by focusing solely on the 'motivation causes' and excluding their 'effects'. The second point – that excitement motivation cannot be seen as a stable construct – follows from the replacement of 'need' with 'desire'.

In accordance with a distinction coined by Lacan, a need (in line with Zuckerman's focus on biology) is here regarded as primarily individual, whereas a desire (in line with Arnett's statement above) is seen as intrinsically social.¹⁷ The claim stated here is that the level or the development of excitement motivation is not merely a question of biological predestination. It may also be affected by other, contextual, factors, and in the following, the role of one such contextual

factor, exposure to combat, is addressed.

What is suggested here is that the framework of sensation seeking should be revised. This does not imply giving up the notion that we all strive to fulfil our individually distinct, optimal level of stimulation, nor that this level may be biologically determined. It just means that the optimal level itself is not necessarily stable over time and that it is susceptible to contextual factors.

Hence, although we may all have an optimal level of arousal that we seek to reach, there is no reason to assume that this level, once we have reached it, will remain the same.¹⁸ On the contrary, to use another biological analogy particularly relevant in this context, it is very likely that adrenalin junkies – just as real drug addicts – build up a mental (if not a physiological) tolerance as a result of their thrill seeking behaviour. What goes for the consumption of alcohol, medicine and euphorants also goes for the consumption of adrenaline: The more you take, the more it takes to gain the same effect next time.¹⁹ If we translate this to the sphere of soldiers, this implies that an initial level of excitement motivation may actually be ‘pushed upwards’. On their return, soldiers who have had a lot thrilling experiences will still feel a void because their optimum has been pushed. They will still regard this type of motivation as more important than those of their colleagues who have had fewer thrilling experiences.

Hypotheses

The overall purpose of this article is exploratory. Hence, the aim of stating the hypotheses below is to test one reason why soldiers’ excitement motivation increases following deployment, not to claim that this is the only explanation. On the contrary, as mentioned above, other studies should address other plausible reasons why this might be the case.

Core observations from previous studies in the OLS literature as well as the revision of the OLS framework suggested here lead to six hypotheses. Along with the main independent variable, deployment (H5), and the key control, combat exposure (H6), gender, age, military function and deployment experience constitute potential confounders and are included in the analyses (H1-H4).

Age should be included in the general model, first, because age – in lieu of better data – can be considered as a proxy for other important factors, that is, rank, marital, and parental status. Second, psychological studies have, as mentioned, shown age to correlate with sensation seeking. Given that younger people regard sensation seeking as more important than their counterparts, it is fairly safe to expect that this will also be the case in regard to excitement motivation.

H1: The younger you are, the higher your excitement motivation score will be.

What has just been mentioned in regard to age can more or less also be said of gender. Since Zuckerman's initial studies, sensation seeking has proven to be much more outspoken among men than women (although this pattern seems to have changed over time).²⁰ Accordingly, the second hypothesis is as follows:

H2: Female soldiers score lower on excitement motivation than their male colleagues.

The soldiers analysed here serve in two combat companies, and in order to prevent the development of mistrust between staff and line personnel, all soldiers of all ranks and function had to participate in patrols, where the risk of skirmishes and IED attacks were greater than within the confines of the patrol base. Nevertheless, those who primarily fulfil functions 'outside the fence' are, first, more exposed to the danger of combat than those primarily serving 'inside the fence'. Second, given that the soldiers themselves distinguish sharply between the two groups, they might have self-selected for the role they will actually fulfil. Hence, without controlling for the function of the individual soldier, we cannot exclude the possibility that the explanation suggested here, that soldiers exposed to combat return wanting more, is simply due to differences between the types of soldiers analysed.

H3: Soldiers of the 'line' score higher on excitement motivation than soldiers of the 'staff'.

The soldiers' deployment experience constitutes another plausible confounder. A soldier who has already been deployed is a soldier whose optimum may already have been affected by combat exposure, and, following the argument above, we should expect his initial level of excitement

motivation to be higher than that of his inexperienced colleagues.

H4: Soldiers who have already seen combat score higher on excitement motivation than soldiers with no prior combat experience.

Given that the general purpose of this article is to offer an explanation why excitement motivation increases following deployment, it should be shown that this is actually the case. Therefore, the aim of the fifth hypothesis is simply to reproduce the results of the abovementioned Estonian study.

H5: After their deployment to war, soldiers return with a higher level of excitement motivation than they had before their departure.

The fundamental question is why soldiers return wanting more. Following the assertion that the stimulation optimum is not as stable as often assumed, combat exposure during deployment is expected to affect the individual soldiers' optimal level. As we shall see below, the soldiers already had a high degree of excitement motivation before their deployment, and because they served in combat units, they were actually exposed to the danger of combat during their tour of duty. Instead of expecting this to imply that the soldiers return satisfied, it is, however, seen as one reason why their excitement motivation increases: Their stimulation optimum is 'pushed upwards'. By having their 'desire for varied, novel and complex sensations and experiences' met, they build up a mental tolerance for such experiences, and therefore, it will take more to get the same 'kick' next time. This also means, however, that soldiers who have been exposed to danger, should be expected to return with an even stronger desire for excitement than those of their colleagues who have had a more tranquil deployment.

H6: Soldiers who have seen actual combat are more likely to return wanting more excitement than soldiers who have seen little actual combat.

If this hypothesis finds support, it does not mean that H5 should be rejected. Instead, the purpose of adding combat exposure to the equation is to understand why deployment to war increases excitement motivation. Practically seen, combat exposure is expected to mediate the effect of

deployment on excitement motivation. Yet, as will be addressed in the next section, data limitations confine the explanatory scope of the test conducted here. In that regard as well, it should be emphasised that the value of this study should be assessed according to the hypotheses it manages to inspire rather than to the claim it tests.

Data and Methods

The data used in the following analyses are based on two surveys conducted with Danish combat soldiers before and after their deployment to Helmand, Afghanistan. The soldiers came from two different regiments, the Hussard Guardsmen (*Garderhusarregimentet*) and the Jutland Dragoons (*Jydske Dragonregiment*). Although, formally, there is still compulsory military service in Denmark, the Army does not deploy draftees. Hence, all soldiers interviewed were on a professional contract. The surveys were conducted at the barracks by the author. 78 soldiers participate in both surveys. In the first round, 171 handed in a valid questionnaire. In the second round, 126 soldiers responded. Thus, the response rate in the first round (70 %) was somewhat higher than in the second (50 %). Since background information about the soldiers who did not participate in the surveys has not been available, a proper dropout analysis could not be conducted. However, conditions regarding data collection gave little reason to assume a selection bias in the handed-in questionnaires. Those who responded were those who were present and able to participate in the surveys. Those who did not were, for instance, at the shooting range or handing in equipment. Likewise, a comparison of the soldiers who only participated in the pre-deployment survey with those who handed in a valid questionnaire in both rounds did not show any remarkable differences. Apart from four soldiers who refused to give their service number (the panel key) and other background information in both rounds, the distributions of age, gender, and earlier combat deployments were similar (results not shown). However, in order to take into consideration any unobserved variation between these subsamples and to test the robustness of the results, only findings from the balanced panel are reported below.

Given that the aim of this article is to explore what causes a change over time, a panel design has been chosen. It enables us to ‘track’ such changes and to examine whether they depend on other factors characterising the cases analysed. In the design used here, all respondents participating in the study received the ‘treatment’, deployment to war. Hence, there is only ‘within-case variation’ (before and after) on the independent variable and no ‘between-case variation’. (There is no control group of soldiers who were not deployed). Compared to studies with a control group – for instance, experimental designs – the design of this study does not enable us to control for the effect of exogenous factors. In this case, an experiment proper was not an option, because it is hardly ethically defensible or practically possible to select who is going to be deployed (the test group) and who is not (the control group) by random. Yet, the lack of ‘between-case variation’ on the independent variable nevertheless limits the subsequent tests (for moderation and mediation) that can actually be conducted.

The great advantage of a panel design over a cross-sectional design is that it enables us to study changes over time. Panel regression coefficients are nevertheless interpreted similarly to ordinary least square coefficients. Here, where we only have pre- and post-treatment observations, coefficients report whether and how the dependent variable, excitement motivation, changes between these two points in time. And, in a panel design as this, p-values reflect whether the estimated change can be considered as significantly different from 0.

The dependent variable, excitement motivation, is measured using a three-item reflective index. The exact wording of these items and the factor loadings are reported in table 1, below.

[table 1]

The Cronbach’s Alpha (.84) and the factor loadings (.925-.771) suggest that the internal reliability and (the factorial aspect of) the construct validity of this index are fairly high. Of course, whether the index actually measures what it is intended to measure – in this case, whether the soldiers serve for the sake of ‘novel sensations and experiences’ – cannot be determined sufficiently by empirical means alone. Two points should be mentioned in this regard. First, the three items reflect,

conceptually, three of the four dimensions of the traditional Sensation Seeking Scale (i.e., disinhibition [4f], thrill and adventure seeking [4g] and experience seeking [4h]). In accordance with Arnett's critique, none of these items are behavioural or 'effect' questions. Nevertheless, a three-item index is likely to lack some of the conceptual broadness characterising a 40-item measure. Hence, the last of the traditional four SSS dimensions, boredom susceptibility, is not included in this measure. Likewise, whereas the traditional measures of 'disinhibition' focus on the breach of social norms, the item used here centres on the transgression of personal 'barriers'. Second, in panel studies, the exact same wording should be used in the pre- and post-treatment surveys to ensure that everything else but the differences caused by the treatment itself are kept constant. Nevertheless, as mentioned in table 1, it was necessary for practical and linguistic reasons to change the tense of the wording of the three items in the second round of the study.

To make interpretations easier, the constructed index ranges from 0 to 1, where 0 designates the lowest possible form of excitement motivation and 1 the highest. The index is left skewed with a mean of .80 and a standard deviation of .24. This has consequences for the methods chosen.

The other variables included are used to test whether the changes observed are consistent on a *caeteris paribus* basis. Gender, age, function, and deployment experience are measured using self-reported responses from the pre-deployment survey. The distributions of these four variables in the balanced dataset are reported in table 2, below.

[table 2]

Function is measured using a dichotomous variable indicating whether the soldier is primarily fulfilling functions inside or outside the fence. Whereas, for instance, gunners, NCOs, and officers were categorised as fulfilling combat functions, mechanics and logisticians were regarded as primarily fulfilling support functions.

Qualitative interviews conducted concurrently with the surveys reveal that the soldiers themselves distinguish sharply between 'blue' and 'green missions'. A blue mission is a UN peacekeeping mission, for instance, in Cyprus or Kosovo, primarily expected to include

constabulary tasks. A green mission is a mission to a theatre of war, expected to include actual combat. In accordance with this distinction and with the theoretical expectation that exposure to combat affects excitement motivation, only soldiers who had been on an actual combat mission before were coded as having deployment experience.

Combat exposure is measured using a formative index consisting of four items indicating the frequency of actual incidents during deployment.

[table 3]

As can be seen from the items chosen (9a, 9b, 9c and 9f), two questions (9d and 9e) from this battery were not included. These questions, which regard whether the soldiers have seen dead civilians or dead enemies were excluded from the index because a soldier may experience both without ever firing a shot himself or experience neither although he has seen intense combat. Soldiers who experience actual combat are more prone to have to shoot at others, to try to be shot at, to see comrades go down, and even to run into a road side bomb, than those who only occasionally leave the base. In other words, the variables chosen can be expected to correlate just as if they were used in a reflective index. Yet, given that the items can hardly be said to reflect a latent construct – firing your weapon or being shot at is not an ‘effect’ of engaging in combat, it is what engaging in combat is all about – the measure is regarded as formative.

This index also ranges from 0-1, where 0 designates that the respondent has experienced none of the described during the mission and 1 that he or she has tried them all five times or more. As reflected by the mean (.61) and the standard deviation (.29), this index is also left skewed, although less so than the one used to measure the dependent variable.

The purpose of controlling for combat exposure is to contribute to our knowledge about why excitement motivation increases following deployment. Therefore, H6 claims a mediating effect of combat exposure. Although recent studies have criticised Baron and Kenny’s method as being insufficient for testing mediation, and for having severe limitations in regard to panel designs,²¹ a

stepwise approach will be pursued in the following; (combined with Sobel's test of mediation conducted via a bootstrapping analysis to determine whether adding the mediating variable to the equation causes a significant reduction of the main independent variable's explanatory power). Yet, as already mentioned, the panel design used here limits the possibilities of testing each step exhaustively.²²

As also mentioned, the distribution of the dependent variable may have consequences for the methods of analysis chosen. The problem is not the skewness itself but the suspicion that the residuals are not normally distributed. In this case, where the sum of the standard deviation added to the mean exceeds the variable maximum, we cannot exclude the possibility of a ceiling effect. (We cannot tell an extremely positive answer from a very positive one). Tobit panel regression applies in cases where data are truncated or where there is a clear ceiling effect.²³ However, ordinary panel regressions are easier to interpret, and therefore, the findings reported in tables 4 and 5 below show the results of the tobit panel regression and the random effects regression, respectively. While allowing us to control for time-invariant factors such as gender and former deployment experience, random effects models lack the precision of fixed effects models in which individual characteristics of the respondents examined are kept constant, which is preferable when we want to minimise the risk of any omitted variable bias. Yet, because a Hausman test showed no significant difference between the estimates produced by the two methods, the choice of using random effects is justified.

For a more thorough inspection of the effect of deployment on excitement motivation, the slopes for each control variable category have been estimated using fixed effects regression. (In fixed effects models, the y-intercept corresponds to the average score of the pre-deployment survey, thus making it more directly visualisable than the slope estimates obtained from tobit and random effects models). Likewise, in order to test whether the increase in soldiers' excitement motivation is associated with deployment or combat exposure, table 6 shows the effect of deployment on excitement motivation for soldiers who report to have seen a much combat (i.e., equal to or above the median of .69) and those who report to have seen little (i.e., below the median value).

Findings

Gender, age, function, and deployment experience are expected to correlate with excitement motivation (H1-4). Deployment to war is expected to affect excitement motivation positively (H5), and controlling for combat exposure is expected to diminish this relation (H6). Tables 4 and 5 show the results of the tobit and the random effects regressions in which these hypotheses are tested.

[Tables 4 and 5]

As can be seen from the two tables, the results deviate very little, and they will be reported and discussed together in the following. Model 1 shows the effect of gender, age, function, and deployment experience. Both the expectation that men are more likely to be driven by excitement motivation than women and the expectation that the older you are, the less likely it is that you consider excitement motivation important, are justified (H1-H2). Neither function nor experience seems to correlate with excitement motivation when controlling for gender and age (H3-H4). Most importantly, none of the background variables affect the subsequent analyses of hypotheses H5-H6.

Model 2 tests the hypothesis that being deployed to war affects excitement motivation positively (H5). The expectation is supported: Not only do soldiers on average feel more strongly motivated by excitement after their return, the result is also highly significant, even when controlling for gender, age, function, and experience.

Model 3 tests the hypothesis that soldiers with a high degree of combat exposure return with a high degree of excitement motivation. Following Baron and Kenny's stepwise approach, this hypothesis is partly – but only partly – supported. As shown above, there is a strong correlation between deployment and the increase in excitement motivation, (step 1). Beyond the fact that deployment constitutes a necessary (but not sufficient) condition for being exposed to combat, the lack of between-case variation on the independent variable in this panel design makes it difficult to substantiate a correlation between the independent and the mediating variable (step 2). Likewise,

analyses only partly support the assumption that the mediator correlates with the dependent variable, when controlling for the independent variable, (step 3). Although combat exposure correlates strongly with excitement motivation in the post-deployment data, model 3 shows that when using information included in the panel and hence controlling for deployment, this correlation is only significant on a .1 level and only so when using the tobit model.²⁴ However, the assumption that the mediator diminishes the direct effect of the independent variable is clearly supported (step 4). Hence, introducing combat halves the regression coefficient and doubles the standard error of the deployment variable, and the subsequent Sobel's test using bootstrapping sample estimates also indicates that this reduction is highly significant (results not shown).

Table 6 and graph 1 show the coefficients for the effect of deployment on excitement motivation by soldiers with high and low degrees of combat exposure.

[Table 6 & graph 1]

These findings render further support to the notion that combat exposure affects excitement motivation. Hence, although all soldiers seem to experience an increased level of excitement motivation following deployment, this development is only significant for those who report a high level of combat exposure. It is worth noticing, however, that the two groups were also initially different, a point we shall return to in the discussion below. Likewise, the t-test of the difference between the two slopes show that there is not a moderating effect, neither in the case of combat exposure or, as shown by graphs 2a-d, below, in regard to the other control variables.²⁵

[Graph 2a-d]

Discussion

What Parmak, Euwema, and Mylle observed in regard to Estonian soldiers seems to be true among Danish combat troops as well: The deployment experience does not weaken the soldier's need for

excitement. Instead, in accordance with their empirical finding and with the theoretical expectation formulated on the basis of the revision of the OLS framework, soldiers return wanting more.

Yet, including the level of exposure to combat obliterates the direct effect of deployment on excitement motivation. For soldiers serving in expeditionary forces, deployment to war is a necessary, but not sufficient, condition for combat exposure. Combat follows deployment, not vice versa. Given that the significant decrease of the direct effect of deployment is regarded as sufficient support for the mediation hypothesis, whether or not you have been to Afghanistan is not what determines the increase in excitement motivation. It is whether or not you have entered combat.

If this is true, it suggests that the metaphor ‘adrenalin junkies’ used to describe soldiers volunteering for deployment to war time after time is adequate. Like the drug addict, the adrenalin junkie pursues a kick, the kick of excitement. And like the drug addict, the adrenalin junkie is on a pursuit for the unattainable. The alleged fulfilment of his desire only leads to the craving for more.

Although neither gender, age, function nor experience altered the effects of deployment and combat exposure on excitement, observations made in regard to these background variables lead to questions, that ought to be addressed in future studies. First, female soldiers serve in an organisation saturated with ideals of ‘hypermasculinity’²⁶. Therefore, we may inquire whether the findings in regard to gender, tell us something about the difference between men and women in general or about the difference between women serving in uniform and women in general. This question can hardly be answered on the basis of this small subsample of women or without in-depth interviews.

Likewise, it can be difficult to distinguish age from other age-related factors, such as the responsibilities following promotion, marriage, or having children. Soldiers in their late 20s are more likely to be married, to have children, and to be higher ranking than their younger colleagues. They are responsible for their family and for their subordinates, and they often rely more on duty motivation than the rank and file. Hence, what is most interesting in regard to age may not be the

mere observation that older soldiers' excitement motivation is lower – overall – but rather why this is the case. Again, answering this question lies beyond the scope of the present article.

Although military function did not seem to have an independent effect on excitement motivation, it should be noted that this variable correlates strongly with combat exposure ($p < .000$). This is highly relevant in regard to the main contribution of this article, that the effect of deployment becomes obsolete when controlling for combat. First, as shown in table 6 and graph 1, the slope for soldiers reporting little combat exposure also increases. Hence, although combat may mediate the effect of deployment, we cannot reject the possibility that excitement motivation increases for all soldiers serving abroad. Second, in accordance with the view, that soldiers self-select into combat functions, the y-intercepts differ between the two slopes. In other words, soldiers who were going to see a great deal of combat were already having a higher degree of excitement motivation before their departure.

Contrary to the expectation stated in hypothesis 4, the excitement motivation of experienced soldiers seems to be systematically lower than that of soldiers going on their first tour. Yet, not unlike soldiers in non-combat functions, deployment still appears to have an effect. The findings are insignificant and should probably be seen as an indication of the significant effect of age throughout the analyses. Nevertheless, the observation that an additional tour of duty does not lead to an increased pre-deployment excitement motivation suggests that something important happens between deployments. This is not captured by the pre-/post-deployment data used here.

This study has its strengths and its weaknesses. Its primary strength is its panel design because it enables us to minimise any doubt about the sequence of events and, hence, to strengthen the claim that what we observe is the actual effects of this development. Moreover, although the key variables are skewed, reproducing the findings across different methods of analyses indicates the robustness of the observations made here.

The study's primary weaknesses, however, also relates to the panel design, or rather, to what is missing in this design. First, the lack of a randomly assigned control group (or between-case variation) limits the analyses that can be conducted on the basis of these data. Second, when controlling for deployment, the effect of combat exposure was only moderately significant. This might be a result of the limited number of observation from both before and after deployment. Third, the data only includes two rounds of surveys, one conducted just before their departure and one conducted after their return. Whereas other studies have focused on the long-term effects of deployment in general²⁷ and on the long-term effects of sensation seeking in particular,²⁸ the design of this study allows us to say little about the lasting effects of deployment or of combat exposure. Finally, surveying the soldiers before departure and after their return makes it possible to analyse their level of excitement motivation following deployment. It does not, however, enable us to state with certainty what actually happens to their excitement motivation during deployment. According to H6, soldiers' excitement motivation was expected to increase as a result of exposure to combat. The warrant for this claim was that contrary to the traditional OLS approach, the stimulation optimum should not be regarded as a constant. Instead, the individual's OLS can be affected by contextual factors. The problem is, of course, that if we are only examining the soldiers after their return, we cannot reject the possibility that they actually had their need for sensations satisfied during deployment but that – after their return – they are now longing for more. To minimise this problem, the second round of questionnaires were collected immediately after their return, while they were still at the barracks. And, although this design problem challenges the theoretical explanation, the findings were in accordance with those of Parmak, Euwema, and Mylle, who also surveyed the soldiers during deployment. Most importantly, this problem does not change the core empirical finding that combat exposure may help us understand why soldiers' excitement motivation increases.

While the theoretical claim of this article is that the individual stimulation optimum may be affected by contextual factors, only one such contextual factor – combat exposure – has been in

focus here. Hence, further research is required in order to determine how excitement motivation is affected by other contextual factors. From a sociologist's point of view, it would be particularly interesting to analyse how the social context relates to thrill seeking motivation and behaviour. Psychological studies have already begun doing so, but sociologists would have much to contribute with in this regard. As mentioned above, Arnett criticises Zuckerman for overlooking how processes of socialisation affect sensation seeking. Likewise, Donohew, Clayton, Skinner, and Colon argue that socialisation processes mediate the behavioural effects of sensation seeking. Thus, while agreeing that the optimum logically precedes the socialisation process, they demonstrate how peer groups affect the perception of sensation seeking among drug users.²⁹ Although Donohew, Clayton, Skinner, and Colon do not refer to Becker's path-breaking work on deviance,³⁰ the two studies reach similar conclusions: Using drugs may be one way of achieving the arousal desired, but how to use drugs – and, for instance, enjoy the intoxication – is learned socially. In this context, we may assume that just as the drug addict must learn – socially – to interpret his experience as enjoyable, the adrenalin junkie must also learn – socially – to interpret the terror of combat as an experience worthwhile pursuing.

In a wider societal perspective, studies inquiring how social factors relate to excitement motivation would supplement the findings of this article excellently. The Danish soldiers studied here have grown up with nearly unlimited access to welfare benefits. Hence, they may be more prone for excitement motivation than soldiers enlisting under circumstances with greater social insecurity. Likewise, studies examining the relationship between excitement motivation and other contextual factors, characteristic of the military, (for instance unit cohesion or socialisation during training), would enhance our understanding of excitement motivation in particular, and further the integration between military psychology and military sociology in general.

Conclusion

Why do soldiers return from war wanting more? The article has provided one possible reason, why this is the case. However, its main purpose has been to invite other researchers to offer other explanations as well. The theoretical argument suggested here has been that thrill exposure increases one's mental tolerance towards excitement, causing the measured level of excitement motivation to increase on the soldiers' return. This theoretical notion has been tested and found partial empirical support using a panel study of Danish combat troops deployed to Afghanistan in 2011. Not only are these findings in accordance with Parmak, Euwema, and Mylle's observation that soldiers' sensation seeking increases during deployment. They also align with the expectation that soldiers who have been exposed to the danger of combat return with a higher degree of excitement motivation than soldiers who have seen less fighting.

Data limitations confine the scope of the findings. But if these empirical observations genuinely reflect the effect of combat, they render support for the theoretical notion that our initial – biologically determined – sensation optimum is not as stable as it is usually assumed to be in the various branches of the optimal level of stimulation literature. On the contrary, the optimum is affected by contextual factors. Here, one such factor – combat exposure – has been in focus. While supporting the view that it is what the soldier experiences during deployment and not the deployment itself that affects the soldiers' level of excitement motivation upon his return, this does not leave out the possibility that other factors might also prove relevant in this regard. Accordingly, the article also calls for further studies focusing on how socialisation processes – for instance, how soldiers learn to enjoy combat – relate to excitement motivation.

Tables and Graphs

Table 1: Operationalization of the dependent variable: Excitement motivation

Variable number	Translated wording (Danish original in parentheses)	Factor loadings (unrotated)
4f	I will participate in the mission to transcend my barriers (Jeg deltager i missionen for at prøve mine grænser af)	.925
4g	I will participate in the mission to gain real combat experience (Jeg deltager i missionen for at få egentlige kamperfaringer)	.736
4h	I will participate in the mission for the adventure (Jeg deltager i missionen for oplevelsernes skyld)	.771
Cronbach's Alpha		.84

Notes: All three items were 5 point Likert-scale questions with the opportunity of not answering.

The wording here is from the pre-deployment survey. In the post-deployment survey, the initial part of the wording of these questions was in the present perfect '*I have been participating in the mission to...*'.

Extraction method: Principal axis factoring. 1 factor extracted

Table 2: Distribution of gender, age, function, and deployment experience. Balanced panel

Gender	
Men	74
Women	4
<i>total</i>	78
Age group	
19<24	52
25<29	14
30<42	12
<i>total</i>	78
Function	
Primarily serving outside the fence (gunners, radio operators, NCOs, and officers)	47
Primarily serving inside the fence (medics, drivers, office workers, mechanics, and logisticians)	30
Missing	1
<i>total</i>	78
Deployment experience	
No combat deployment experience	52
Combat deployment experience	26
<i>total</i>	78

Table 3: Operationalization of combat intensity

Variable number	Translated wording (Danish original in parentheses)
9. How often have you experienced one of the following... (Hvor ofte har du oplevet følgende)	
9a	... to shoot at others? (selv at skyde på andre?)
9b	... to experience an IED-attack? (at opleve et IED-angreb?)
9c	... to experience comrades got hit? (at opleve kammerater blive ramt?)
9f	... to be shot at? (at blive beskudt?)

Notes: Only responses from the post-deployment survey. All four items contained the response categories: 'Not at all', 'once', '2-4 times', '5 times or more'.

Table 4: Tobit panel regression of excitement motivation. Regression coefficients (standard errors in parentheses). Balanced panel. 73 respondents (before and after deployment)

	Model 1 (H1-H4)	Model 2 (H5)	Model 3 (H6)
Gender	-.30* (.12)	-.31* (.12)	-.28* (.12)
Age	-.03*** (.01)	-.03*** (.01)	-.03*** (.01)
Function	-.05 (.06)	-.05 (.06)	-.04 (.06)
Experience	-.04 (.09)	-.04 (.09)	-.04 (.06)
Deployment		.12*** (.03)	.03 (.06)
Combat intensity			.16+ (.01)
Constant	1.82*** (.20)	1.76*** (.20)	1.70*** (.20)
Rho	.51	.60	.60
N	146	146	146

Note: *** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .1$; 5 respondents have been omitted from the data, due to missing responses on at least one of the variables.

Table 5: Random effects panel regression of excitement motivation. Regression coefficients (standard errors in parentheses). Balanced panel. 73 respondents (before and after deployment)

	Model 1 (H1-H4)	Model 2 (H5)	Model 3 (H6)
Gender	-.22** (.08)	-.22** (.08)	-.21** (.08)
Age	-.03*** (.01)	-.03*** (.01)	-.02*** (.01)
Function	-.02 (.04)	-.02 (.04)	-.02 (.04)
Experience	-.02 (.06)	-.02 (.06)	-.02 (.06)
Deployment		.07** (.01)	.03 (.04)
Combat intensity			.05 (.06)
Constant	1.49*** (.12)	1.46*** (.12)	1.44*** (.13)
Rho	.45	.50	.50
N	146	146	146

Note: *** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .1$; 5 respondents have been omitted from the data because of missing responses on at least one of the variables.

Table 6: Fixed effects panel regression of excitement motivation. Regression coefficients (standard errors in parentheses) for soldiers with different levels of combat exposure. Balanced panel.

(B1). Soldiers with a high degree of combat exposure		.09* (.03)
	Constant	.86*** (.02)
	N	78
(B2). Soldiers with a low degree of combat exposure		.05 (.03)
	Constant	.70*** (.02)
	N	70
All soldiers		.07** (.02)
	Constant	.79*** (.01)
	N	148

Graph 1: Excitement motivation. Slopes indicating the observed effect of deployment. Balanced panel. fixed effects coefficients for soldiers with different levels of combat exposure.

Slopes for soldiers with different degrees of combat exposure

T-test for difference of slopes³¹, $t=.67$ $p=.45$

Graph 2a-d: Excitement motivation. Slopes indicating the observed effect of deployment. Balanced panel, fixed effects coefficients for each control category.

(a) Gender

T-test for difference of slopes: $t=-1.18$, $p=.24$

(b) Age

T-test for difference of slopes: $t=-.36$, $p=.72$

(c) Military function

T-test for difference of slopes: $t=-.79$, $p=.43$

(d) Deployment experience

T-test for difference of slopes: $t=.23$, $p=.78$

Notes

¹ Merle Parmak, Marin C. Euwema, and Jacques J. C. Mylle, “Changes in sensation seeking and need for structure before and after a combat deployment,” *Military Psychology* 24, 6 (2012): 551-564.

² This wording is from Samuel A. Stouffer, Arthur Lumsdaine, Marion Lumsdaine, Robin Williams, M. Brewster Smith, Irving Janis, Shirley Star and Leonard Cottrell jr., *The American Soldier, Studies in Social Psychology: Combat and its Aftermath* (Princeton, NJ: Princeton University Press 1949): 109. Other works on recruitment and combat motivation include Edward E. Shils, and Morris Janowitz, “Cohesion and Disintegration in the German Wehrmacht in World War II,” *Public Opinion Quarterly* 12, 2 (1948): 280-315; Roger W. Little, “Buddy Relations and Combat Performance,” in *The New Military: Changing Patterns of Organization*, ed. Morris Janowitz (New York, NY: Russel Sage Foundation, 1964); Charles C. Moskos, “Vietnam: Why Men Fight,” in *The Anti-American Generation*, ed. Edgar Z. Friedenberg (Boston, MA: Transaction Publishers, 1971), 217-237; 195-224. Leonard Wong, Thomas A. Kolditz, Raymond A. Millen, and Terrence M. Potter, *Why They Fight: Combat Motivation in the Iraq War* (Carlisle, PA: US Army War College and Strategic Studies Institute, 2003); John Eighmey, “Why do Youth Enlist? Identification of Underlying Themes,” *Armed Forces and Society* 32, 2 (2006): 307-328.

³ Sigmund Freud, *Beyond the Pleasure Principle* (New York, NY: Norton, 1989). The concept has later been coined ‘thanatos’ to contrast it with ‘eros’, the drive for life. Yet, destructive acts may also be explained by reasons normally attributed to eros. Barbara Ehrenreich, *Blood Rites – origins and history of the passions of war* (London: Virago Press, 1998), 14

⁴ Marvin Zuckerman, Elizabeth A. Kolin, Leah Price, and Ina Zoob, “Development of a Sensation Seeking Scale,” *Journal of Consulting Psychology* 28, 6 (1964): 477-482.

⁵ Margaret Mead, “Warfare is only an Invention – not a biological Necessity,” *Asia* 60 (1940); Konrad Lorenz, *On aggression*. (London: Methuen & Co. Ltd, 1979); Keith F. Otterbein, ”A

History of Research on Warfare in Anthropology,” *American Anthropologist* 101, 4 (1999): 794-805.

⁶ David R. Segal and Jesse J. Harris, “Observations from the Sinai: The boredom factor,” *Armed Forces & Society* 11, 2 (1985): 235-248; Leonard Wong and Stephen Gerras, *CU @ The FOB: How the Forward Operating Base is Changing the Life of Combat Soldiers* (Carlisle, PA: Strategic Studies Institute, 2006); Morten G. Ender, “Boredom: Groundhog Day as a Metaphor for Iraq,” in *The Oxford Handbook of Military Psychology*, eds. Janice H. Laurence and Michael D. Matthews (New York: Oxford University Press, 2012), 311-324; Morten Brænder, *Justifying the Ultimate Sacrifice – Civil and Military Religion in Frontline Blogs* (Aarhus: Politica, 2009), 123-136.

⁷ Zuckerman et al. “Sensation Seeking Scale” (1964): 477.

⁸ The California Psychological Inventory (CPI) and the Minnesota Multiphasic Personality Index (MMPI) also operationalize this phenomenon. Jeffrey Arnett, “Sensation Seeking: A New Conceptualization and a New Scale,” *Personal Individual Differences* 16, 2 (1994): 289-296; Richard J. Viken, Mark P. Kline, and Richard J. Rose, “Development and validation of an MMPI-based Sensation Seeking Scale,” *Personality and Individual Differences* 38 (2005): 619-625.

⁹ Karl E. Weick, “Small Wins – Redefining the Scale of Social Problems,” *American Psychologist* 39, 1 (1984): 41.

¹⁰ Marvin Zuckerman, Sybil Eysenck, and Hans-Jürgen Eysenck, “Sensation Seeking in England and America: Cross-Cultural, Age and Sex Comparisons,” *Journal of Consulting and Clinical Psychology* 46, 1 (1978): 139-149.

¹¹ Michael T. Stephenson, Luis F. Velez, Patricia Chalela, Amelie Ramirez, and Rick H. Hoyle, “The reliability and validity of the Brief Sensation Seeking Scale (BSSS-8) with young adult Latino workers: implications for tobacco and alcohol disparity research,” *Addiction* 102, Issue supplement s2 (2007): 79-91.

¹² Marvin Zuckerman, Richard Tushup, and Steven Finner, "Sexual attitudes and experience: Attitude and personal correlates and changes produced by a course in sexuality," *Journal of Consulting and Clinical Psychology* 44, 1 (1976): 7-19; William F. Straub, "Sensation seeking among high and low-risk male athletes," *Journal of Sport Psychology* 4, 3 (1982): 246-253; David W. Robinson, "Stress seeking: Selected behavioral characteristics of elite rock climbers," *Journal of Sport Psychology* 7, 4 (1985): 400-404; Nessim Hanna and John S. Wagle, "Who is Your Satisfied Costomer?," *Journal of Services Marketing* 6, 1 (1989): 53-61; Andrew Lepp and Heather Gibson "Sensation seeking and tourism: Tourist role, perception of risk and destination choice," *Tourism Management* 29, 4 (2008): 740-750; Lewis Donohew, Richard R. Clayton, William F. Skinner, and Susan Colon, "Peer Networks and Sensation Seeking: Some Implications for primary Socialization Theory," *Substance Use & Misuse* 34, 7 (1999): 1013-1023; Zahava Solomon, Karni Ginzburg, Yuval Neria, and Abraham Ohry, "Coping with war captivity: The role of Sensation Seeking," *European Journal of Personality* 9 (1995): 57-70; Yuval Neria, Zahava Solomon, Karni Ginzburg, and Rachel Dekel, "Sensation seeking, wartime performance, and long-term adjustment among Israeli war veterans," *Anxiety, Stress and Coping* 17, 2 (2004): 141-152; Amanda Kelley, William D.S. Killgore, Jeremy R. Athy, and Michael Dretseh, *Risk Propensity, Risk Perception, and Sensation Seeking in U.S. Army Soldiers: A preliminary Study of a Risk Assessment Task Battery*. (USAARL Report No. 2010-02, 2010); Amanda Kelley, Timothy H. Cho, Brad Erickson, Melody King, and Pedro Cruz, *Risk Perception and Health Risk Behaviors in U.S. Army Soldiers with and without Psychological Disturbances across the Deployment Cycle*. (USAARL Report No. 2012-08, 2012); Robin Hauffa, Elmar Brähler, Karl-Heinz Bieseld, Sefik Tagay, and Marcus Roth, "PTSD and Sensation Seeking. Tendency to Risk Behavior as Protective Risk Factor," (RTO-MP-HFM-205, NATO, 2012).

¹³ Marvin Zuckerman, *Sensation Seeking: Beyond the optimum level of arousal* (Hillsdale, NJ: Lawrence Erlbaum Associates 1979).

¹⁴ Zuckerman et al., “Sensation Seeking in England and America”

¹⁵ Zuckerman, *Sensation Seeking*, 10.

¹⁶ Arnett, “A New Conceptualization,” 289-290.

¹⁷ Malcolm Bowie, *Lacan*. (London: Fontana Press, 1991), 195. According to Lacan, the desire’s intrinsically social nature implies that it is intrinsically insatiable as well. (Bowie *Lacan* 22; Bruce Fink, *The Lacanian Subject – between language and Jouissance* (Princeton, NJ: Princeton University Press, 1995), 61. In that respect, the expectation that a soldier’s desire for excitement is not extinguished by being met – instead it flares – is also in accordance with the hypothesis stated below that the soldiers who have seen most fighting are also those who return wanting more.

¹⁸ A similar point is made in an article by Laura MacPherson, Jessica F. Magidson, Elizabeth K. Reynolds, Christopher W. Kahler, and C. W. Lejuez, “Changes in Sensation Seeking and Risk-Taking Propensity Predict Increases in Alcohol Use Among Early Adolescents,” *Alcoholism: Clinical and Experimental Research* 34, 8 (2010): 1403. Although this longitudinal study indicates that alcohol consumption does not affect SSS scores, the implications that SSS is not as stable as often assumed and that a search for arousal does not necessarily decrease desire, are fairly clear.

¹⁹ For an overview see Shepard Siegel, “Evidence from rats that morphine tolerance is a learned response,” *Journal of Comparative and Physiological Psychology* 89, 5 (1975): 498.

²⁰ Zuckerman et al., “Sensation Seeking Scale;” James P. Byrnes, David C. Miler, and William D. Schafer, “Gender differences in Risk Taking: A Meta-Analysis,” *Psychological Bulletin* 125, 3 (1999): 367-383.

²¹ Although less relevant in this case, Baron and Kenny’s step-wise approach cannot be used in panel studies with many points of data-collection, because of the several ‘paths’ leading from x to y independently of the mediator. Todd D. Little, Kristopher J. Preacher, and Noel A. Card, “New developments in latent variable panel analysis of longitudinal data,” *International Journal of Behavioral Development* 31, 4: 362-363.

²² The lack of a control group means that all soldiers studied in this sample deployment constituted a necessary condition for entering combat. Hence, the correlation between deployment (x) and combat exposure (z), (step 2 in Barron and Kenny's approach) cannot be measured. Likewise a moderation test is difficult to conduct, since the cross product between deployment and combat exposure is perfectly predicted by – and correlates perfectly with – the latter.

²³ Takeshi Amemiya, "Tobit Models: A Survey," *Journal of Econometrics* 24 (1984): 5-8; Matthew McBee, "Modeling Outcomes With Floor or Ceiling Effects: An Introduction to the Tobit Model," *Gifted Child Quarterly* 54, 4 (2010): 314-320.

²⁴ A tobit regression using the unbalanced panel – and hence increasing the number of observations with 50 % – shows a stronger, although still only moderately significant, effect of combat exposure (results not shown). Accordingly, the weak effect shown here may be a product of the small sample.

²⁵ As indicated by table 6, and as shown visually in graph 1, there is a difference between the two slopes, but it is not, as shown by the t-test, statistically significant in this subsample.

²⁶ Leora N. Rosen, Kathryn L. Knudson, and Peggy Fancher, "Cohesion and the Culture of Hypermasculinity in U.S. Army Units," *Armed Forces and Society* 29, 3 (2003): 325-351: 326.

²⁷ Stéphanie Vincent Lyk-Jensen, Julie Heidemann, and Ane Glad, *Soldater – før og efter udsendelse. En analyse af Motivation, Økonomiske forhold og Kriminalitet*. (København: SFI – det nationale forskningscenter for velfærd, 2012).

²⁸ Solomon et al., "Coping"; Neria et al., "Sensation seeking."

²⁹ Donohew et al., "Peer Networks and Sensation Seeking," 1999.

³⁰ Howard S. Becker, *Outsiders – Studies in the Sociology of Deviance*. (New York City, NY: The Free Press, 1973).

³¹ T-tests are estimated using an ordinary least square regression that does not take all information contained in the panel data into consideration.