

A Model of Psychological Resilience for the Netherlands Armed Forces¹

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ABSTRACT

In the current study, a model of psychological resilience was developed for the Netherlands Armed Forces and a number of important relations were tested using a longitudinal design. The model of resilience was based on a systematic literature review of resilience in high-risk professions and interviews with military domain experts. The model identifies a total of 25 resilience enhancing factors on 5 different levels: the individual, the home front, the team, the leader, and the organization. In addition, the model specifies different outcomes of resilience for different phases in the military deployment cycle (e.g., training, deployment, post deployment). To assess the relative importance of 5 different resources (one for each of the levels) in the different phases, regression analyses were conducted on data collected from three Dutch Task Forces that were part of the NATO mission ISAF in 2009-2010, assessing resources for resilience pre and during deployment, and somatic complaints post deployment. Results of the analyses indicated that the relative importance of the resources differed pre and during deployment. The most important pre deployment resources for post deployment resilience were self-efficacy, social support, leadership, and management of expectations. During deployment group cohesion became the most important resource for post deployment resilience whereas management of expectations did no longer predict post deployment resilience. These analyses illustrate that the relative importance of different resources varies with the phases of deployment. This knowledge can be used to better support service members' resilience by targeting specific resources in different phases of the deployment cycle.

INTRODUCTION

Modern military operations are complex endeavours that require competence in a range of military skills. Members of the armed forces are expected to be able to perform successfully at the high end of the violence spectrum. Yet, in military operations, they are also confronted with a diverse range

¹ This paper is an adapted translation of an article originally published in the Dutch Military Scientific Journal *Militaire Spectator*: Kamphuis, W., Hemert, D.A. van, Wouwe, N. van, Berg, C.E. van den, & Boxmeer, L.E.L.M. van (2012). Een model van mentale veerkracht: Hoe kan Defensie herstel na uitzendingen bevorderen? [A model of psychological resilience: How can Defence advance recovery after deployments?] *Militaire Spectator*, 181, 11, 495.

of tasks that stem from the cooperation between departments of the Ministries of Defence, Foreign Affairs and Development Cooperation. This *comprehensive approach* requires military personnel to be able to switch (rapidly) between military combat tasks and tasks in which the hearts and minds of the local population are the primary factor. This wide diversity of tasks introduces a variety of stressors. The findings of recent studies suggest that, in addition to an excessive workload and the element of threat, the main stressors in modern military operations are isolation, uncertainty, powerlessness and boredom.²

Studies of the impact of deployment on Dutch defence troops indicate that, despite the psychological stress involved, many members of the armed forces report personal growth after deployment. For example, when interrogated on the effects of deployment six months after their return, among other things, of the military personnel deployed in 2010 who participated in the study, 54% reported that they felt better able to cope with difficulties, 52% reported that they felt their lives had more value and 42% reported that they felt more connected to other people. However, psychological stress can also have adverse psychosocial consequences for military personnel. Some service members experience problems after deployment. The problems most commonly reported by military personnel are: outwardly directed problem behaviour such as aggression (11%), excessive alcohol consumption (11%), fatigue symptoms (10%) and sleep disorders (9%).³

For military personnel to be able to cope with the stress of modern military operations and other aspects of a military career their *psychological resilience* must be optimal. Therefore it is important for military organisations to have an understanding of the factors that contribute to and affect psychological resilience. The organisation can then use this knowledge to monitor the psychological resilience of its military personnel and, where necessary, implement interventions specifically designed to enhance psychological resilience. In this way the organisation can contribute to both effective deployment during operations (*fit for action*) and healthy functioning at and outside of work (*fit for life*). In 2009 the United States Army launched a large-scale Comprehensive Soldier Fitness (CSF) programme to monitor and improve the resilience of its soldiers.^{4,5} Initial evaluations of the programme report positive effects on the self-reported resilience and psychological health of the military personnel who took part in the programme.⁶ In recent years, TNO in the Netherlands has conducted several studies on the resilience of military personnel (these include a study of the development of a resilience training programme⁷, a study of the dropout rate among defence

² Bartone, P. T., 'Resilience under military operational stress: Can leaders influence hardiness?' in: *Military Psychology* 18 (2006) S131.

³ DienstenCentrum Gedragwetenschappen, *Gezondheid na Uitzending. Medische en psychosociale gevolgen 2008-2010* (Report no. GW-11-095) (Directie Personele Diensten; DC Gedragwetenschappen, 2011).

⁴ Casey Jr., G. W., 'Comprehensive Soldier Fitness: A Vision for Psychological Resilience in the U.S. Army' in: *American Psychologist* 66 (2011) 1.

⁵ Cornum, R., Matthews, M. D., & Seligman, M. E. P., 'Comprehensive Soldier Fitness: Building Resilience in a Challenging Institutional Context' in: *American Psychologist* 66 (2011) 4.

⁶ See, for example: Lester, P. B., Harms, P. D., Herian, M. N., Kraiskova, D. V., & Beal, S. J., *The Comprehensive Soldier Fitness Program Evaluation. Report #3: Longitudinal Analysis of the Impact of Master Resilience Training on Self-Reported Resilience and Psychological Health Data* (Department of the Army, 2011).

⁷ Six, C., Delahaij, R., Venrooij, W., 't Hart, M., & Van Emmerik, M. L., *De ontwikkeling en validatie van Weerbaar XL: een weerbaarheidstraining voor het CZSK* (Report no. TNO-DV 2011 A228) (Soesterberg, TNO, 2011).

personnel⁸, and a study of the predictors of the training dropout rate among members of the Royal Netherlands Marine Corps⁹). In 2010 the Dutch Ministry of Defence and TNO signed a research agreement to conduct a research programme designed to increase psychological resilience among military service members. The objectives of this research programme are: to provide insight into the psychosocial determinants of psychological resilience, to develop methods that can be used to measure psychological resilience, and to research and develop interventions designed to increase psychological resilience. This research programme began in 2011 and will be completed in 2014. As a basis for the research programme, TNO developed a Model of Psychological Resilience for the Netherlands Armed Forces in association with DienstenCentrum Gedragwetenschappen (GW) (the Behavioural Sciences Services Centre of the Support Command of the Dutch Ministry of Defence). Within this model psychological resilience is defined as *'the ability to continue to perform optimally during stressful situations, shocking incidents and setbacks, and to make a positive recovery afterwards, both in the short term and in the longer term, while still having the motivation to remain in and achieve the goals of military service'*.¹⁰

In this article we introduce the Model of Psychological Resilience developed for the Netherlands Armed Forces. We then illustrate several important relationships between variables in the model with the aid of a series of analyses performed on a unique data set. The data set contains the data of the Morale and Post-Deployment Questionnaires used by GW, which has been combined for the first time for this study. By combining this data it is possible to identify relationships between factors during pre-deployment and deployment and symptoms experienced after deployment. We conclude with a summary of the implications of the results for the Netherlands Armed Forces.

Model of Psychological Resilience

To provide insight into factors that affect the resilience of military personnel, TNO developed a model in association with GW. The model is based on a systematic review of the literature on resilience in so-called high-risk professions. The knowledge gained from the literature review was supplemented with insights gathered from a series of interviews with Defence experts on psychological resilience (17 interviews in total, with experts from Gedragwetenschappen (GW - Behavioural Sciences), Militaire Geestelijke Gezondheidszorg (MGGZ - Military Mental Health), Psychologisch Advies en Selectie (PAS - Psychological Advice and Selection), Lichamelijke Oefening/Sportorganisatie (LO/Sport - Physical Training and Sports), Kenniscentrum Leidinggeven en Ethiek (KCLE - Centre for the Study of Leadership and Ethics), and Trainingsgeneeskunde Trainingsfysiologie (TGTF - Training Medicine and Training Physiology).

The purpose of the model is to provide insight into the most relevant factors that affect psychological resilience. The model does not purport to be a scientific model that depicts and quantifies every possible relationship. Based on the insight provided by the model, it is possible to

⁸ Six, C., Simons, M., Veldhuis, G. J., & Delahaij, R., *Personeelsuitval Defensie* (Report no. TNO-DV 2009 IN639) (Soesterberg, TNO, 2010).

⁹ Venrooij, W., Delahaij, R., Six, C., & Van Emmerik, M. L., *Predictors van opleidingsuitval bij het Commando Zeestrijdkrachten* (Report no. TNO-DV 2011 A220) (Soesterberg, TNO, 2011).

¹⁰ Kamphuis, W., 't Hart, M.H.E., Boermans, S., Venrooij, W., & Wouwe, N. van., *Psychosociale determinanten van Mentale Veerkracht in de Krijgsmacht* (Report no. TNO 2012 R10246) (Soesterberg, TNO, 2012).

develop an instrument that can be used to monitor psychological resilience and to implement interventions that target the factors in question if resilience is less than optimal.

Furthermore, the model may also lead to a shared understanding of psychological resilience within the Netherlands Armed Forces. It was clear from the interviews that, at the moment, the different departments within the organisation deal with stress and resilience in different ways. There is no overarching framework or common terminology. The model is a first step towards the development of a common language and vision, so the different processes and activities in the area of resilience can be more effectively aligned and coordinated, such that ultimately there is scope for ongoing 'resilience formation' throughout the armed forces.

Five levels of influence on psychological resilience

The basic thinking behind the model is that a person's psychological resilience can be affected by factors at five different levels (see Figure 1). Firstly, individuals have certain character traits and abilities that affect their psychological resilience, such as personality characteristics and skills. Factors that affect individuals' resilience at the second level are related to their home front: such as the support they receive from their family and friends. The work involved in military service can affect an individual's resilience at three levels: the team in which the individual works, the leader, and the organisation as a whole. Leaders play an important role in strengthening the psychological resilience of individual service members both at a team level and at an organisational level. At a team level, leadership is provided by the direct leader, or, in the case of training, the instructor. At an organisational level leadership is provided by the senior management within the defence organisation.

Figure 1. The five levels of influence on psychological resilience



At each of the five levels there are factors that can affect the psychological resilience of the individual. These factors are referred to as 'determinants' and they are often an appropriate starting point when seeking to build psychological resilience. One example of a determinant at the level of the individual is self-efficacy: confidence in one's own ability. Studies show that individuals who gain high scores for confidence in their own ability are more psychologically resilient. An example of a determinant at the level of the home front is social support: service members who feel supported,

understood and accepted by their home front show greater psychological resilience. An example of a team-level determinant is team-efficacy: a team's confidence in its ability to successfully achieve team goals. Examples of leadership determinants can be found both within the organisation and within the team. For example the defence organisation can help to strengthen psychological resilience by managing expectations. In other words, it can establish realistic expectations regarding the nature of the different phases and corresponding requirements of a military career. At a team level, leaders can promote psychological resilience by, for example, inspiring and motivating the members of their team, thereby increasing their confidence in their own ability, which enhances their psychological resilience. An example of an organisational determinant is the availability of supportive resources. These are the resources service members need, or think they need, in order to be able to operate effectively.

There are several determinants of psychological resilience at each level. A report produced by Kamphuis and colleagues (see footnote 10) provides a background to the determinants and detailed descriptions of the determinants at the five different levels. Based on its review of the literature and interviews with Defence experts, TNO incorporated the determinants that are most relevant to the Netherlands Armed Forces at each level of the model (see Figure 2).

Figure 2. Determinants of psychological resilience



The seven phases of a military career

The second main idea behind the model is that military personnel operate in very different circumstances during the different phases of their career. Psychological resilience is important during each phase of a military career. During their training, for example, service members have to be sufficiently resilient to cope with the challenges presented by a lack of sleep or the stress of

exams during the theoretical part of their training. In this case one of the main positive outcomes of resilience is that the training is successfully pursued and completed. During deployment the picture is very different: military personnel have to be able to cope with psychological stress factors such as danger, separation from their home front, and boredom or an excessive workload. During deployment, resilience enables effective performance of one's tasks despite these psychologically challenging circumstances. In other words, the psychological stress factors and desired outcomes vary from one phase of a military career to the next and possibly also during a particular phase. Given that this is the case, our hypothesis is that the relative importance of the determinants of psychological resilience differs from one phase to the next. However, at the moment very little can be found on this in the literature. The interviews with the Defence resilience experts provided several leads, but more research needs to be conducted in this area in order to be able to state with certainty which determinants are most important during each phase.

In the model we indicate that resilience plays a role in each phase of a military career, and that each phase requires specific outcomes. Furthermore, the model also shows that the outcomes of psychological resilience in one phase are related to the outcomes of psychological resilience in subsequent phases. This emphasises the importance of ongoing resilience formation, in which the resilience of individual service members is monitored during the different phases of their career and, where appropriate, is strengthened through interventions specifically designed to enhance the relevant determinants.

The complete model is illustrated in Figure 3. The five levels at which resilience can be affected and the level-specific determinants in each case are surrounded by the seven phases of a military career. This begins with recruitment (top left), followed by training (basic and role-specific training). Individuals who successfully complete their training are assigned to a military unit and embark on the operational phase. If a service member is going to be deployed there will be a phase of active pre-deployment training followed by actual deployment. After deployment there is a period of adaptation and return to the operational phase, possibly combined with training. Service members can of course leave the armed forces at any point. Departure from the armed forces is explicitly included as a phase in the model because the organisation believes that it is important to devote attention to the mental state of military personnel who leave the Ministry of Defence.

A single specific desired outcome is noted in the model for each phase. These outcomes are examples. It is self-evident that several desired outcomes are sought in each phase and that these outcomes can also partly overlap per phase.

Having given a brief description of the Model of Psychological Resilience developed for the Netherlands Armed Forces on the basis of a literature review and interviews, in the following paragraphs we illustrate several important relationships between variables in the model with the aid of analyses performed on data compiled from Morale and Post-Deployment surveys conducted by GW.

Figure 3. Model of Psychological Resilience: Levels, Determinants and Phases



RESEARCH METHODOLOGY

DienstenCentrum Gedragwetenschappen (GW) (the Behavioural Sciences Services Centre of the Support Command of the Dutch Ministry of Defence) asks all military personnel to complete a Morale Questionnaire during pre-deployment training and during deployment.¹¹ Measurement of morale is based on the principle that the preservation of morale makes an important contribution to the psychological component of military capability and is an essential part of a service member's ability to persevere during long-term deployment (Dutch Defence doctrine). In this context morale is regarded as the enthusiasm and perseverance with which the members of a group engage in the tasks assigned to the group. As well as measuring the level of morale, the survey also measures factors that increase morale, such as confidence in one's own ability, group cohesion, faith in weapons and materiel, and leadership. There is a partial correspondence between these factors and the determinants of psychological resilience shown in the model in Figure 3. GW also asks all military personnel who have returned from a period of at least thirty days of deployment to complete a Post-

¹¹ See: Boxmeer, L. E. L. M. van, Verwijs, C., Bruin, R. de, & Duel, J., *Moreel in de Nederlandse krijgsmacht; herijking van moreel (GW-07-013)* (The Hague, CDC/DPD/Dienstencentrum Gedragwetenschappen, 2012).

Deployment Questionnaire. Six months after returning from deployment the service members and their families are sent a questionnaire designed to monitor physical and psychosocial symptoms. The questions cover topics such as overall health, general mental state, integration at home and at work, alcohol consumption, depression and fatigue (a total of 16 factors).

The data compiled by the Morale and Post-Deployment surveys have not previously been combined in analyses. In our study we combine the anonymised data from the surveys conducted by GW among members of the Uruzgan Task Force during the period from 2009 to 2011. By combining the data compiled from the questionnaires, it is possible to perform a more detailed analysis of relationships between variables in the Model of Psychological Resilience, and, in doing so, to gain a clearer insight into the factors that affect the psychological resilience of Dutch military personnel. In a series of analyses we examined which factors at the individual, family, team, leadership, and organisational levels during pre-deployment training and deployment have an effect on fatigue-related symptoms reported by military personnel six months after their return from deployment. The questions about fatigue are based on the Checklist Individual Strength questionnaire¹², the so-called CIS Fatigue Rating Scale, which addresses psychological and physical dimensions of fatigue. The absence of these fatigue-related symptoms can be seen as an indication of psychological resilience. While psychological resilience cannot be reduced to simply the absence of fatigue-related symptoms, there is a relationship between the two: because military personnel who are psychologically resilient are less affected by challenging circumstances and recover more rapidly, fatigue-related symptoms are less prominent and/or disappear more quickly after deployment. In other words, the symptoms measured by the Post-Deployment Questionnaire are primarily related to the 'ability to sustain performance' and the 'ability to recover' elements of the definition of psychological resilience proposed above.

The data collected when measuring morale cannot be traced to specific individuals, but it can be traced to particular units. Hence, rather than being linked at the level of the individual, the data gathered from the Morale and Post-Deployment Questionnaires are linked at the level of the groups that engage in the most collaboration (which range from staff sections to infantry platoons). The data provided by service members that belonged to the same group were averaged for the different questionnaires, and the averages of the questionnaires were related to each other for all of the groups. Since the way in which the data are linked ensures anonymity, there are no ethical objections to the linking of the data. To enable an estimation of individual patterns in psychological resilience, the data were then weighted in such a way that we ended up with a data set consisting of 1576 service members.

We began by performing exploratory correlation analyses on the data set to establish the most significant determinant at each level.¹³ The determinant that most strongly correlated with the

¹² CIS: Vercoulen, J. H. M. M., Alberts, M., & Bleijenberg, G., 'De Checklist Individual Strength' in: *Gedragstherapie* 32 (1999) 131.

¹³ Not all of the relevant factors can be measured with the data obtained from the Morale and Post-Deployment questionnaires. We only had data on some of the determinants included in the model and we also focused on a single outcome measurement of psychological resilience: the presence or absence of fatigue-related symptoms some time after deployment. In association with GW, TNO is now developing a psychological resilience questionnaire, the Military Resilience Monitor (MRM), that will make it possible to also measure the remaining determinants included in the model and to evaluate other outcome measurements. By

absence of fatigue-related symptoms after deployment was identified for each level. We then performed regression analyses with these five determinants to ascertain the extent to which fatigue-related symptoms experienced by military personnel after deployment can be accounted for by the individual determinants and by all of the determinants combined. Two regression analyses were performed: one for the pre-deployment training phase and one for the deployment phase.¹⁴

RESULTS

Correlations

Table 1 shows the correlations, between the most important determinants at each level during the phases of pre-deployment training and actual deployment, and the experience of fatigue-related symptoms after deployment. The Morale Questionnaire does not measure all of the determinants included in the model shown in Figure 3 and the model does not include all of the variables measured by the questionnaire. However, most of the variables that are strongly correlated with fatigue-related symptoms after deployment show a clear correspondence with the determinants identified in the model, the most significant determinants being: self-efficacy at the individual level, social support at the level of the home front, group cohesion at the group level, provision of information about the mission and context at the organisational level (which is closely related to the determinant of expectation management in the model), and lastly, leadership (measured generically in the Morale Questionnaire), which also emerged as an important predictor of the absence of symptoms after deployment. In terms of the relationship between the determinants, the highest correlations were found for the relationship between group cohesion and self-efficacy ($r = .57, p < .001$) during the pre-deployment phase, and between group cohesion and leadership ($r = .66, p < .001$) during the deployment phase.

Table 1.

Correlations between determinants prior to and during deployment, and fatigue-related symptoms after deployment

	Pre-deployment (N = 1433)	Deployment (N = 1407)
Self-efficacy	-.33**	-.29**
Support provided by home front	-.23**	-.20**
Group cohesion	-.37**	-.41**
Provision of information	-.32**	-.23**
Leadership	-.25**	-.28**

** $p < .001$

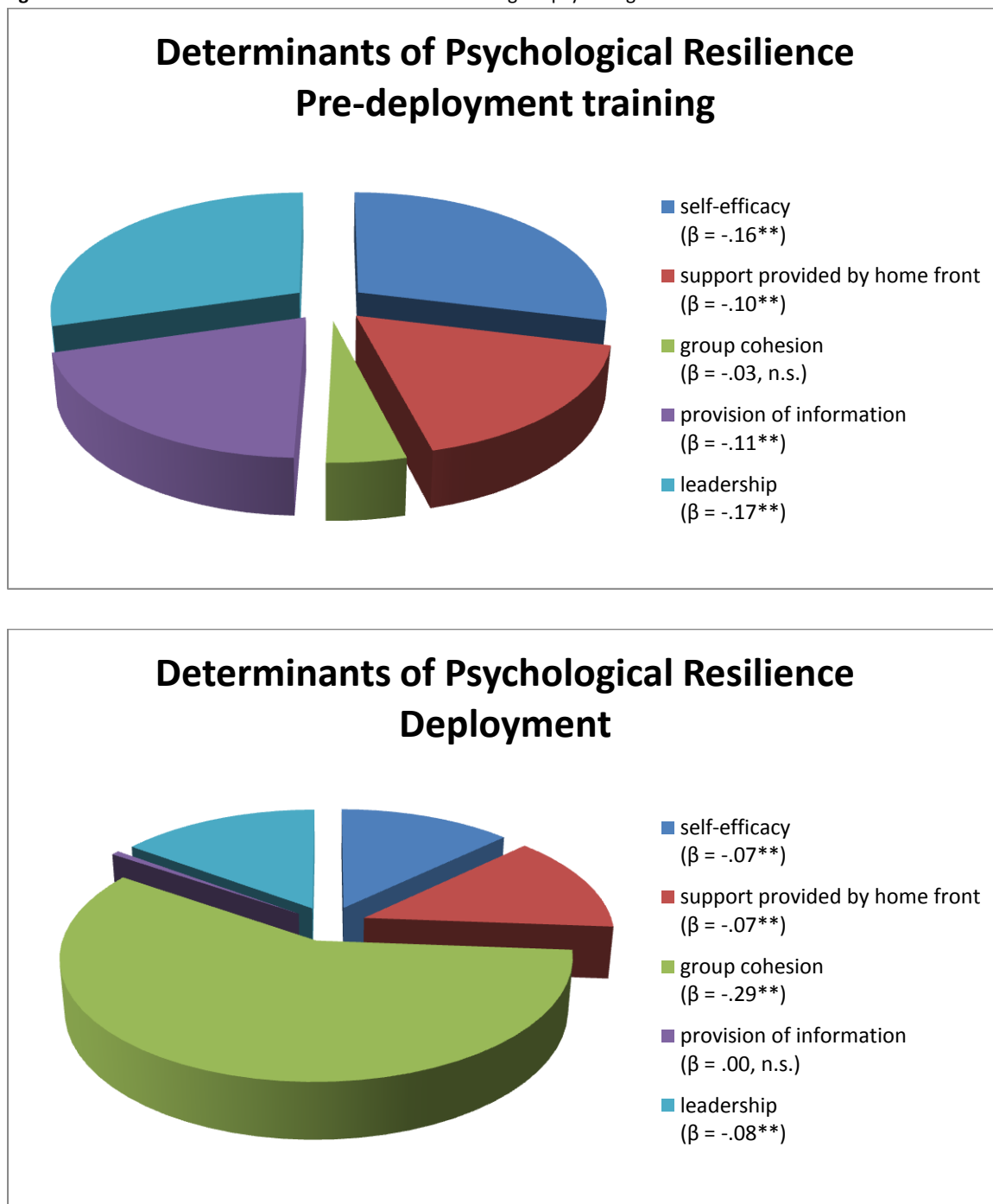
combining the data derived from the MRM with the data derived from the existing GW questionnaires it will be possible to identify and address all of the factors that are relevant to psychological resilience.

¹⁴ The analyses in this article serve to illustrate the Model of Psychological Resilience developed for the Netherlands Armed Forces and have therefore been kept as simple as possible. More rigorous statistical analyses will be needed before policy can be based on these results. For example, possible interactions between the different determinants were not taken into account in the regression analyses.

Regression analyses

Regression analyses were performed to examine the extent to which the occurrence of fatigue-related symptoms after deployment can be predicted on the basis of the determinants measured during the pre-deployment training phase and the deployment phase. The results of these analyses can be seen in Figure 4, which shows the determinants that are most relevant to psychological resilience during the phases of pre-deployment training and deployment respectively. The visualizations are based on the standardised regression coefficients produced by the regression analyses.

Figure 4. Relative contribution of determinants in accounting for psychological resilience



** $p < .001$; n.s. = not significant

The analyses show that during the phase of pre-deployment training the most significant determinants of the presence (or absence) of fatigue-related symptoms are: the support provided by the home front, provision of information about the mission and context, self-efficacy, and leadership. These four determinants all contribute roughly equally to psychological resilience. Together these determinants during the pre-deployment phase account for 14.9% of the variance in fatigue after deployment. In other words, almost 15% of the differences in levels of fatigue experienced by individual service members after deployment can be attributed to these determinants. During the pre-deployment phase, group cohesion is the only determinant that has a marginal effect on the experience of fatigue-related symptoms after deployment. The situation is different during actual deployment: then group cohesion, the support provided by the home front, self-efficacy, and leadership all play an important role. Together these determinants account for 15.6% of the variance in fatigue-related symptoms after deployment. In this instance group cohesion is the most significant determinant. During actual deployment provision of information about the mission and context no longer significantly determines psychological resilience.¹⁵ The findings regarding the specific determinants are described in more detail below.

Individual

Of the relevant determinants at the individual level, *self-efficacy* emerged as the most predictive of fatigue-related symptoms after deployment. The confidence that military personnel have in themselves and their own ability prior to and during deployment has a significant influence on their psychological resilience after deployment. The more military personnel feel they have mastered their assigned tasks and can help their unit complete its assignment, the less likely they are to develop physical and psychological symptoms associated with a lack of psychological resilience.

Home front

Dutch military personnel who feel supported by their home front during preparation for deployment and deployment report fewer physical and psychological symptoms after deployment. In other words, the support service members receive from their families and friends prior to a mission and, to a slightly lesser extent, during deployment, in the form of interest in and appreciation of the work they do, for example, has a positive effect on their psychological resilience.

Team

The most significant determinant of psychological resilience at the team level found in the correlation analyses was a composite variable that measures *group cohesion*. In this study group cohesion consists of identification with the unit (the sense of 'us'), camaraderie, and the morale of the group. Together these aspects measure, in a broad sense, the cohesion of the primary group and the unit immediately above it. In the analyses, these three aspects are combined because they are

¹⁵ These analyses show that the combined effect of the five determinants investigated by the study accounts for a relatively limited variance in psychological resilience in the longer term. This implies that there are other factors that also influence the long-term outcome. Psychological resilience is a complex process that cannot be fully measured by five determinants. In other words, research will need to investigate the relationships between all of the determinants described in the Model of Psychological Resilience in order to validate and optimise the model. Nevertheless, the analyses performed to date give an impression of how the model can help us gain a better understanding of the determinants of psychological resilience.

highly correlated. Compared with the other determinants examined by the study, there appears to be a negligible relationship between greater group cohesion during the pre-deployment phase and fatigue-related symptoms reported after deployment. However, there is a strong correlation between greater group cohesion during deployment and the absence of fatigue-related symptoms after deployment. Given the extent to which team members have to be able to depend on each other during deployment it is hardly surprising that group cohesion plays a more important role during deployment than prior to deployment.

Organisation

At the organisational level the determinant of *provision of information about the mission and context* has the most obvious bearing on physical and psychological symptoms. This determinant means that military personnel have been informed about and are aware of the context they can expect to face. The results indicate that military personnel are likely to be more psychologically resilient if, before being deployed, they are provided with adequate information about the mission, what is expected of them, and the context in which they are required to perform their tasks. Being provided with this information during a mission does not appear to increase psychological resilience.

Leadership

Determinants at the leadership level are measured by considering different aspects of the service members' experience of the leadership provided by the platoon leader (PL), such as their faith in the PL's military expertise, the PL's perceived dedication to the staff under their command and the task being performed, and the extent to which service members feel they are able to get on with the PL. The literature on leadership and the findings of empirical studies indicate that leadership is extremely important in boosting the morale and psychological resilience of military personnel.^{16,17,18,19} We also found that leadership plays an important role in fostering psychological resilience. However, in relation to the other determinants, leadership plays a greater role during the pre-deployment phase than during the deployment phase, when the team appears to play the most important role. In that context, it is important to note that findings of earlier empirical studies indicate that the effect of leadership will also be partly reflected in the determinant of group cohesion (see footnotes 18 and 19).

¹⁶ Manning, F. J., 'Morale, Cohesion, and Esprit de Corps' in: R. Gal & A. D. Mangelsdorff (ed.), *Handbook of Military Psychology* (Chichester, John Wiley & Sons Ltd, 1991) 453.

¹⁷ Britt, T. W., & Dickinson, J. M., 'Morale during Military Operations: A Positive Psychology Approach' in: T. W. Britt, C. A. Castro, & A. B. Adler (ed.), *Military life: The Psychology of Serving in Peace and Combat: Vol. 1. Military Performance* (Westport, CT, Praeger Security International, 2006) 157.

¹⁸ Boxmeer, L. E. L. M. van, Verwijs, C., Bruin, R. de, Duel, J., & Euwema, M. C., *The Netherlands' Armed Forces Morale Survey: Empirical Evidence for the Morale Model's Main Propositions*. Annual International Military Testing Association (IMTA 2008) Congress, Amsterdam, The Netherlands.

¹⁹ Boxmeer, L. E. L. M. van, Verwijs, C., Euwema, M. C., & Dalenberg, S., *Assessing Morale and Psychological Distress of soldiers during modern military operations. Providing military leaders with a tool to help them manage the demands of operational life*. Annual International Military Testing Association (IMTA 2010) Congress, Lucerne, Switzerland.

CONCLUSIONS AND RECOMMENDATIONS FOR PRACTICE

In this article we have presented a newly developed Model of Psychological Resilience for the Netherlands Armed Forces. The model suggests that there are five levels at which psychological resilience can be influenced: the individual, the home front, the team, the organisation, and leadership. The model also includes the different phases of a military career. The analyses discussed in this article show that the level-specific determinants investigated by the study affect psychological resilience to a different extent during the different phases of a military career. Knowledge of these determinants and the role they play is important in enabling Defence to ensure that the psychological resilience of its military personnel is not challenged beyond its limits during particular phases of their career or in certain circumstances.

Recommendations

How can Defence make effective use of the model presented in this article and the illustrative results? Firstly we would recommend that Defence adopt the Model of Psychological Resilience as a starting point with a view to developing a common language and forming a shared understanding of the subject so the different processes and activities in the area of resilience can be more effectively aligned and coordinated, such that ultimately there is scope for ongoing 'resilience formation' throughout the armed forces. The development of a common language will ensure that military personnel are confronted with the same terminology throughout the different phases of their career and that they have a clearer understanding of how the various activities designed to foster resilience are related to each other. Closer alignment and coordination of these activities will also make the individual activities more effective.

Secondly, the model and the determinants identified in the model can also serve as a basis for monitoring the psychological resilience of individual service members. In association with GW and MGGZ, TNO is now developing a questionnaire that can be used to monitor psychological resilience throughout all phases of a military career. It is essential to monitor the psychological resilience of military personnel in order to maintain and enhance their operational effectiveness, ability to persevere, and motivation. Through identifying psychological stress factors and determinants and outcomes of psychological resilience for individual service members at different times, it is possible to monitor the development of the service member's resilience and the factors that need to be addressed in order to make corrective adjustments.

The model and the analyses presented in this article also identify several specific starting points for interventions designed to strengthen psychological resilience. These starting points exist at all five levels at which psychological resilience can be influenced (the individual, the home front, the team, the organisation and leadership).

Determinants at the level of the individual play an important part in sustaining psychological resilience in all phases of a military career. Some of these determinants, such as optimism and emotional stability, are fairly stable within a person and are not easily influenced by education or training. Others are more easily influenced and are therefore more responsive to training. These include determinants, such as self-efficacy, which can be influenced by task-oriented training, and determinants, such as coping flexibility, social skills, and the capacity for self-reflection, which can be

influenced by other forms of training.²⁰ Education and training within the armed forces do not typically focus on these characteristics, but they are characteristics that can be influenced and they are important components of psychological resilience. These determinants at the level of the individual are therefore appropriate starting points for interventions designed to build psychological resilience.

Traditionally, the Armed Forces have always devoted a great deal of attention to the education and training of its military personnel. However the model and the illustrative analyses show that the support provided by the home front also plays a significant role in strengthening the resilience of service members. For example, the analyses indicate that the support provided by the home front during deployment contributes as much to the resilience of military personnel as the determinants of leadership and self-efficacy. Defence currently ensures that service members' families are actively involved in the service members' activities in the deployment zone by, among other things, organising information days for the home front. Given the considerable extent to which this level affects the psychological resilience of deployed service members it would be advisable to investigate whether there might be other ways of ensuring that the home front is even more actively involved in the work done by service members. Defence could also increase the guidance and support services provided for the families of military personnel.²¹

The most important network for military personnel during a period of deployment is the team in which they serve: hence group cohesion during deployment emerged as the main predictor of resilience after deployment. The basis of group cohesion can be established during daily operations: 'work as you fight'. At team level, cohesion can be established through regular training in accordance with the principle 'train as you fight' (Dutch Defence doctrine). Given the importance of the team, it is also advisable to be aware that studies indicate that things such as team spirit, supportive behaviour, mutual trust and the ability to adapt can be expected to decline during deployment and when enduring stress.^{22,23} Systematically monitoring the processes within the team and taking prompt action to resolve identified problems in a constructive way can help to maintain resilience within the team.

The findings of empirical studies of military personnel also indicate that the direct leader has a considerable influence on the mood within the team. The inspiration provided by the leader's competence, their reliability as a source of information, and the care and attention they devote to the members of the team are important aspects that can boost both morale and psychological resilience.^{24,25,26,27} The model we have presented recognises leadership factors at team and

²⁰ See: Van Hemert, D. A., De Koning, L., & Van den Berg, H., *Interpersonal Influence in Cross-Cultural Interactions*. Paper presented at RTO Human Factors and Medicine Panel (HFM) Symposium held in Amsterdam, The Netherlands, 18-20 October 2010.

²¹ See, for example: King's Centre for Military Health Research, *A fifteen year report. What has been achieved by fifteen years of research into the health of the UK Armed Forces?* (London, King's College London, 2010).

²² Duel, J., *Teamwork in action. Military teams preparing for and conducting Peace Support Operations* (The Hague, Koninklijke De Swart, 2010).

²³ Kamphuis, W., Gaillard, A. W. K., & Vogelaar, A. L. W., 'The effects of physical threat on team processes during complex task performance' in: *Small Group Research* 42 (2011) 700.

²⁴ Gelooven, R. van, Tibboel, L. J., Slagmaat, G. P., & Flach, A., *Studie Masterplan KI-2000. Moreel: Vakmanschap – Kameraadschap – Incasseringsvermogen* (The Hague, CDPO/afdeling Gedragwetenschappen, 1997).

organisational levels. Both levels require the provision of so-called transformational leadership. Transformational leaders are able to motivate personnel by altering their attitudes, concepts and values so their performance meets and also often exceeds expectations.²⁸ At team level this requires leaders to communicate their vision, motivate, inspire and support their team members, and actively build team spirit. At an organisational level autonomy, meaningfulness and recognition become more important aspects of leadership. It is therefore essential to devote attention to these aspects of leadership in leadership training programmes.

Lastly, the analyses also showed that expectation management by the organisation is an important determinant during the pre-deployment phase. Military personnel who were provided with detailed information about the mission, tasks, materiel, and the terrain before being deployed, reported fewer fatigue-related symptoms after deployment. Effective expectation management reduces uncertainty and increases self-efficacy. Military personnel need to know the purpose of the assignment and the specific roles of the individual service members and the team. They also need to know that they can embark on the mission with (self-)confidence. The model also reveals other closely related organisational-level determinants that affect the psychological resilience of individual service members: an open corporate culture, reliability of the organisation, the maintenance of a healthy work-life balance, the provision of the right supportive resources, autonomy, recognition and meaningfulness. All of these determinants are appropriate areas for the organisation to focus on when implementing interventions designed to increase the resilience of individual service members. Many of the determinants at this level appear to be more difficult to alter than, for example, the individual characteristics that can be influenced through training. Nevertheless, it is certainly advisable to also address levels that appear to be more difficult to influence when seeking to improve the resilience of military personnel. For the analyses show that determinants at these levels can be as important as determinants at the level of the individual. Furthermore, it is possible that there may currently be more ground to be gained at these levels than at the other levels.

To summarise, we recommend: the development of a common language in the area of psychological resilience within the Netherlands Armed Forces, the monitoring of the psychological resilience of individual service members during their career, so they can be provided with optimal support, and attending to each of the five levels at which psychological resilience can be influenced: the individual, the home front, the team, the organisation, and leadership. The illustrative analyses described in this article indicate that the levels that are more difficult to influence (the home front, the organisation, and certain aspects at a team level) also play an important role in fostering the psychological resilience of military personnel. Given that this is the case, devoting explicit attention to these levels will undoubtedly help to improve the resilience of military personnel.

²⁵ Kloet, I., van der, *A Soldierly Perspective on Trust* (Thesis) (Tilburg, Tilburg University, 2005).

²⁶ Harland, L., Harrison, W., Jones, J. R., & Reiter-Palmon, R., 'Leadership Behaviors and Subordinate Resilience' in: *Journal of Leadership & Organizational Studies* 11 (2005) (2) 2.

²⁷ See, for example: Vliet, A. J. van, Amelsfoort, D. J. C. van, & Bommel, I. E. van, *Inzetbaarheid Personeel* (Wageningen, Ponsen & Looijen, 2004).

²⁸ Rafferty, A. E. and Griffin, M. A., 'Dimensions of Transformational Leadership: Conceptual and Empirical Extensions' in: *Leadership Quarterly* 15 (2004) 329.