

## **An Evidence-based Model of Morale: So What for Leaders?**

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### ***ABSTRACT***

*This paper describes our efforts (a) to bring added fidelity to the military morale construct, and (b) to develop and test an evidence-based and theoretically grounded model of morale on behalf of a large branch of the Canadian military. We start with a comprehensive qualitative study of a morale (phase 1) that confirmed that soldiers hold a variety of divergent views on what morale is. Collectively, however, those ideas resulted in a thematic map that highlights the key elements and drivers of soldiers' morale. In phase 2, we leveraged the broader academic literature to develop an evidence-based and a theory grounded conceptual model – the needs, affect, and motivation model of morale (NAM3). In phase 3, we undertook two studies to test the NAM3; this paper focuses on Study 1, which involves latent profile analysis of large-scale survey data. Results support aspects of the NAM3 that pertain to individual morale and confirmed the utility of a bifactor model that includes a Morale G-factor (or M-factor) and its dimensions (types of motivation and job-related affect). Implications for science and leaders are discussed.*

### **1.0 INTRODUCTION**

Morale is a widely used military construct, often cited as the key to victory,<sup>1</sup> but the scientific rigour applied to studying morale does not measure up to the amount of interest in it. This mismatch, characterized largely by inconsistent definition and a lack of theory, has led several researchers to conclude that there is not a clear consensus on what morale is, and what it is not.<sup>1-3</sup> This puts military leaders in a bind. If we cannot agree on what morale is, how can we deliver evidence-based measures, how do we identify key drivers of low or high morale, and how can we assess the effectiveness of leader interventions aimed at improving morale? This paper describes our efforts (a) to bring added fidelity to the military morale construct, and (b) to develop and test an evidence-based and theoretically grounded model of morale on behalf of a large branch of the Canadian Armed Forces (CAF).

#### **1.1 What we know about military morale**

References to morale in military historical records go back hundreds of years, but military morale started appearing in peer reviewed scientific journals in the 1970s with psychologists' attempts to support military leaders by applying scientific methods to the measurement of morale.<sup>4</sup> Since then, numerous studies have been undertaken, predominantly out of the U.S., but with notable contributions from Israel, Canada, and the UK, and to a lesser

extent, The Netherlands and Australia. Military morale researchers have examined morale as an indicator of individual well-being or as a buffer between military stressors and strain,<sup>5-20</sup> as a work group climate factor, based on claims that it is a key ingredient to mission success and effective team functioning,<sup>1,2,21-35</sup> and as a correlate of another focal variable,<sup>36-42</sup> although the barriers between these domains are often porous.

### 1.1.1 Morale and psychological health

Within the body of military research examining morale as a correlate of psychological health, several researchers have operationalized morale as a proxy for mental health. For example, in his study of stress among Turkish Air Force pilots, Cetinguc<sup>11</sup> extrapolated morale from measures of depression and anxiety. Other researchers were interested in studying the effects of military stressors on morale. For example, Bartone et al.<sup>5</sup> identified five dimensions of psychological stress on peacekeeping operations in the Former Republic of Yugoslavia (isolation, ambiguity, boredom, powerlessness, danger/threat) associated with low morale and other mental health outcomes. In a sample of U.S. Army soldiers, McKibben and colleagues<sup>16</sup> examined the relationship between receipt of stress management training and various outcomes of interest to the military, including morale, and found a positive association between the two. Using group randomized trials on U.S. Army troops, Foran et al.<sup>12</sup> found that participants' reports of training effectiveness uniquely predicted enhancements in both personal morale and unit morale. Several studies have looked at morale as either a mediator or moderator of stressors and strain, and with mixed results. In their study that compared the antecedents and outcomes of morale versus depression among U.S. Army soldiers on a peacekeeping mission in Kosovo, Britt and colleagues,<sup>8</sup> for example, found that individual morale mediated the relationship between several indices of engagement in meaningful work, such as task significance and military pride, and postdeployment health outcomes. In a longitudinal study of U.S. soldiers who had deployed to Iraq, Britt et al.<sup>6</sup> found that individual morale buffered the effects of combat exposure on posttraumatic stress disorder (PTSD).

### 1.1.2 Morale and unit/organizational climate

Much of the military research related to unit or organizational climate followed the influential works of Gal and Manning.<sup>24,25,30</sup> Based on an analysis of a pre-war morale survey administered to Israeli combat soldiers, Gal<sup>24</sup> proposed that military "unit" climate is comprised of morale and a number of other highly correlated factors, such as cohesion, confidence in leadership, confidence in one's self and team, and legitimacy of the war. In contrasting data from Israeli and U.S. forces, Gal and Manning<sup>25</sup> suggested unit climate is comprised of four factors, one of which is a combined 'morale and cohesion' factor. In a subsequent review of morale and cohesion for the *Handbook of Military Psychology*, Manning<sup>30</sup> described morale as the enthusiasm and persistence with which soldiers carried out their activities in the unit. Since then, many other military morale researchers from across the globe have examined morale and associated variables, such as leadership, cohesion, and esprit de corps (or pride), in the context of unit climate, or as an ingredient of combat readiness.<sup>23,28,31,34,42</sup> More recently, in sync with the growing popularity of the positive psychology movement, military morale has been operationalized in terms of enthusiasm, energy, zeal, and motivation, and it has been linked to optimism, confidence, and purpose.<sup>2,33,35</sup> As well, some researchers have shifted their focus from unit or organizational climate, to *psychological climate*,<sup>21,27</sup> which places more emphasis on the significance and meaning of work environments, and which includes factors such as challenge, autonomy, role stress, leader support, and work group cooperation.

### 1.1.3 Morale and other variables of interest

This section includes studies that measure morale as a correlate of another variable or factor of interest. Murphy and Sharp<sup>42</sup> studied the impact of pre- and post-enlistment factors on morale in a sample of UK military personnel deployed in Iraq. Under the hypothesis that soldiers in high morale units will be less likely to engage in

counterproductive, self-serving behaviours, Manekin<sup>39</sup> looked at the association between unit morale and opportunistic violence in a sample of Israeli combat soldiers. Noting similarities in the scale content and theoretical foundation of Britt and Dickinson's<sup>2</sup> military morale construct and Schaufeli and colleagues'<sup>43</sup> work engagement construct, Ivey et al.<sup>38</sup> tested the association between the two and their patterns of association with several antecedents and outcomes in a sample of non-deployed Canadian Armed Forces (CAF) members. And as a final example, Gould et al.<sup>37</sup> evaluated the impact of resistance training on mental health outcomes, including morale, among UK Armed Forces personnel undergoing training.

### 1.1.4 Individual vs. group morale

Unlike research within the education and health care domains, which more often conceptualize morale as an individual-level construct,<sup>44-47</sup> about half of the research on morale in the military deals with morale at the group-level (e.g., platoon morale, unit morale). For example, Peterson and colleagues suggested morale is “an indicator of group well-being, just as life satisfaction is an indicator of individual well-being”.<sup>32(p20)</sup> Morale has also been closely linked with group cohesion in the military context. For example, a morale/cohesion dimension has been studied in both the Canadian and U.S. militaries, either based on a factor analysis<sup>23</sup> or for the “sake of brevity”.<sup>15(p199)</sup> Murphy and Sharp<sup>41</sup> used a measure of cohesion as a proxy for morale. More recently, several researchers have investigated morale as an individual-level, affective-motivational phenomenon, similar to work engagement, and characterized by states like energy, enthusiasm, and motivation.<sup>2,7-9,26,34,37,38</sup> Finally, many military researchers did not define or describe morale at all, opting for a more “straightforward”<sup>22(p92)</sup> approach by simply measuring individual or group morale with a single item, such as *Rate your personal morale*,<sup>16</sup> *How is your morale?*,<sup>10</sup> or *How would you rate the overall morale of your present (or most recent) command?*<sup>21</sup>

### 1.1.5 Associations with morale

High group morale has been associated with individual-level variables, including satisfaction with military life,<sup>32</sup> one's sense of pride or esprit-de-corps,<sup>31</sup> and attitudes toward leadership,<sup>25,41</sup> as well as group-level variables, including unit effectiveness,<sup>4</sup> low rates of counterproductive behaviours,<sup>4</sup> and adaptive interpersonal work group relations (i.e., cohesion, trust, belonging).<sup>22,30,41</sup> The results between retention and morale at the group-level are mixed; although Motowidlo and Borman<sup>4</sup> found a positive association, Wright et al.<sup>20</sup> did not. Moreover, researchers have identified that group morale and individual are positively associated within one another.<sup>25</sup>

At the individual-level, low morale has been positively associated with workplace stressors, including work overload<sup>6</sup> and exposure to combat,<sup>6,16</sup> and also with mental health-related outcomes, including depression,<sup>7,8</sup> anxiety,<sup>7,20</sup> somatization,<sup>7</sup> PTSD,<sup>6,14,16,19,20</sup> and psychological distress.<sup>19,26,39</sup> On the other hand, high personal morale has been associated with material variables including satisfaction of basic needs (i.e., food, water, sleep, protection;),<sup>30</sup> and the timing and quality of entertainment to deployed troops.<sup>14</sup> High personal morale has also been associated with individual factors, such as pride in the military or group identification,<sup>8,33</sup> organizational commitment,<sup>21,27,36</sup> retention or stay intentions,<sup>16,21,27,38</sup> and willingness to deploy on operations.<sup>38</sup> Moreover, high individual morale is associated with a number of job-related variables, such as job satisfaction,<sup>7,21,34,40</sup> one's sense of job competence (i.e., self-efficacy, self-confidence),<sup>25,30,38</sup> autonomy,<sup>21</sup> role clarity,<sup>7</sup> job fulfillment or engagement in meaningful work.<sup>8,27,38,40</sup> High individual morale is also associated with a number of group-level factors, such as effective interpersonal work relationships (i.e., cohesion, trust, belonging),<sup>15,19,21,38</sup> leadership,<sup>21</sup> unit support,<sup>6</sup> and collective efficacy (confidence in group members).<sup>2,8</sup> Finally, morale has been positively associated with resilience<sup>9</sup> and resilience training.<sup>10,12</sup>

Although some of the above associations are based on theory and historical anecdotes, the majority are drawn from studies limited by: (a) poor definition—most researchers have borrowed the term morale in the same way

non-researchers use it or they have conflated morale with numerous other well-established constructs, such as job satisfaction and cohesion; (b) little to no underlying theory; and/or (c) an inability to infer causality among associated variables due to an overreliance on cross-sectional survey data and other methodological limitations. With a few exceptions,<sup>6,8,12,38</sup> the rigour applied to studying morale does not measure up to the amount of interest in it. As this review suggests, what we know from the military morale literature, thus far, is that morale is a subjective workplace well-being construct that is associated with a large number of health and job factors. In other words, we do not have the evidence to infer much about morale per se. Clearly, this has impacts on leaders' ability to accurately measure and nurture morale. This lack of certainty in a construct that is imbedded in the doctrine of many militaries<sup>1</sup> was the impetus behind a large phenomenological study of morale in the Canadian military.

## 2.0 CANADIAN MILITARY MORALE STUDY

Given that the *maintenance of morale* is a CAF principle of war,<sup>1</sup> a large branch of the Canadian military was particularly interested in confirming the extent to which soldiers' views of morale differed, and to identify the key factors that support and thwart high morale. This multi-year, mixed methods approach included a qualitative study of soldiers, a comprehensive review of the military and science literatures on morale, theoretical model development, and model testing. In the following section, we summarize the initial work and focus more on model testing and implications.

### 2.1 Phase 1: Qualitative study of Army morale

A social constructionist perspective was applied to construct meaning from soldiers' experiences, and to better understand the processes through which experiences affect morale, as well as the outcomes of low or high morale. An iterative thematic analysis approach was used analogous to Braun and Clarke's<sup>48</sup> method, supplemented with grounded theory techniques where practical and appropriate.

Participants ( $N = 177$ ) varied by rank, role, years of service, and education. The majority were Regular Force Army (98%) males (88%) with at least one operational tour (76%). Data were gathered in 2015 from 22 focus groups and 13 interviews conducted at four bases across Canada and within the branch's headquarters in Ottawa. The same semi-structured protocol was used for both interviews and focus groups. It was designed to capture soldiers' understanding of what morale is, what affects morale, and the outcomes of high or low morale in operational and non-operational contexts.

Prior to each interview and focus group, participants completed a short survey of work history (e.g., number of tours, years of service), and they were asked to write down three words or phrases that come to mind when they see or hear the word "morale". This question was designed to capture individual morale schemas before the potential influence of interview or focus group discussions. A word frequency query of this data using NVivo version 11.4.3 revealed the 50 most frequent words (Figure 1), with the collective top 10 being (in order) *happiness, satisfaction, work, well, job, motivation, cohesion, leadership, esprit-de-corps, and effectiveness*.





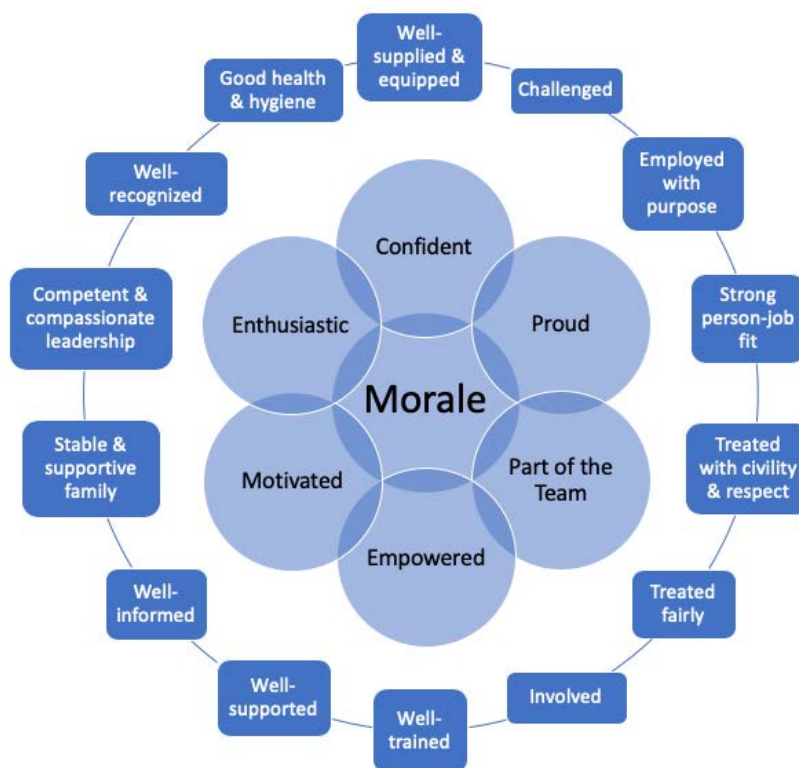


Figure 2: Thematic map of antecedents to soldier morale.

## 2.2 Phase 2: Literature review and theory development<sup>(2)</sup>

Building on phase 1, identification of an appropriate theoretical framework for morale started with a broader review of the scientific literature on morale beyond military contexts. The review revealed a significant body of research in the education<sup>49-51</sup> and health care domains,<sup>52-55</sup> and other industries, including finance, information technology, manufacturing, government, and so on,<sup>56-62</sup> and that it is a global phenomenon in so far as studies of morale have been conducted in countries on almost every continent.<sup>63-70</sup>

The review produced a lengthy list of variables with which morale is associated, but they suffer the same limitations that plague military studies, including poor and inconsistent definition. In fact, in some studies, morale was not measured at all. As examples, Byrd-Blake et al.<sup>49</sup> extrapolated what participants liked or disliked about their work to their morale, and Troutt<sup>47</sup> inferred morale from measures of job satisfaction and other variables. The totality of the literature, however, suggests that morale has an affective component (e.g., satisfaction, pride, enthusiasm) and a motivational component (e.g., motivation, meaning, purpose, persistence), and that it manifests at two levels (individual and group). Accordingly, a subsequent review of theories related to affect and emotion, such as the *circumplex model of affect*,<sup>71,72</sup> *affective events theory*,<sup>73</sup> *broaden-and-build theory*,<sup>74</sup> and *emotional labour*,<sup>75</sup> was undertaken to understand the links to morale. As well, theories related to motivation at work were

<sup>2</sup> This work was conducted within Ivey's PhD dissertation.<sup>101</sup>

considered, including Maslow's famous *hierarchy of needs*,<sup>76</sup> *motivation-hygiene theory*,<sup>77</sup> *existence, relatedness, growth theory*,<sup>78</sup> *job characteristics theory*,<sup>79</sup> and *goal-setting theory*.<sup>80</sup>

Self-determination theory<sup>81-84</sup> is particularly relevant to partially explaining workplace morale, yet it is surprisingly underrepresented in the morale literature. According to self-determination theory, people invest in an activity as a function of both degree (how much?) and reason (why?). It is the variance in people's reasons that contribute to self-determination theory's multidimensional conceptualization of motivation<sup>85-87</sup> and their differential effects. In contrast to *amotivation*, which is the absence of motivation toward an activity, self-determination theory posits two broad categories of motivation: *intrinsic* and *extrinsic* motivation.<sup>82</sup> Intrinsic motivation refers to engaging in an activity for the inherent pleasure one derives from it. Extrinsically motivated individuals receive something external to the activity; the work "serves only as a means to an end".<sup>88(p3)</sup> Intrinsic motivation and the sub-types of extrinsic motivation are further compartmentalized as either controlled or autonomous (self-determined) forms of motivation. Specifically, external regulation and introjected regulation are types of controlled motivation, and identified regulation and intrinsic motivation are autonomous.<sup>86,89</sup> Whereas those whose behaviours are controlled by external pressures can experience negative organizational outcomes, such as burnout<sup>90</sup> and turnover intentions,<sup>88</sup> individuals who act autonomously—on their own volition and in accordance with their values and goals—demonstrate optimal functioning at work, characterized by superior performance, persistence, initiative, creativity, psychological well-being, affective commitment, and/or retention.<sup>91-95</sup>

Autonomous motivation emerges from the satisfaction of three basic psychological needs: *competence* (embrace challenge and experience mastery), *autonomy* (self-organize, self-regulate, and work toward inner coherence), and *relatedness* (seek attachments and experience a sense of security and belonging with others). These essential nutrients to optimal human development and functioning are universal.<sup>96</sup> Research in a variety of settings has demonstrated that needs satisfaction is associated with vitality, positive affect, and affective commitment,<sup>97-100</sup> and needs frustration is related to decreased motivation, burnout, depressive symptoms, and turnover intentions.<sup>81,97,98,100</sup>

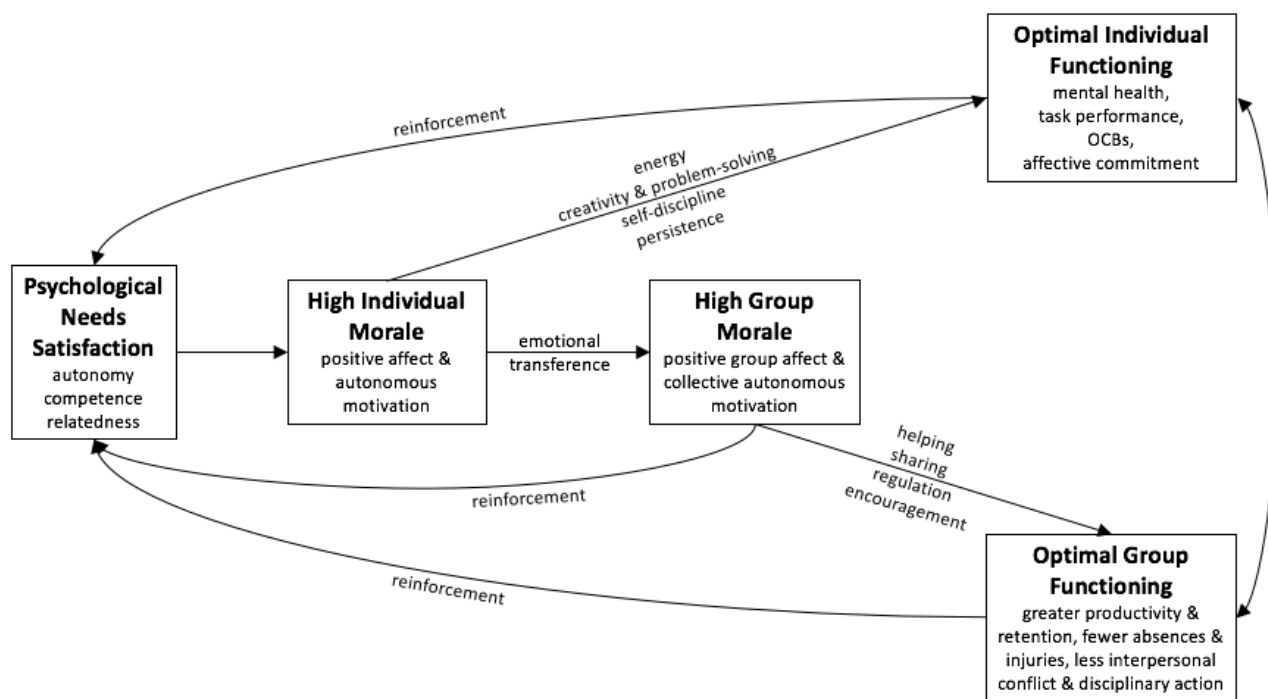
*"Whether this unknown factor X be called soul, spirit, heart, or morale, it refers to the enthusiasm and persistence with which soldiers carry out the prescribed activities of their unit".*<sup>30(p467)</sup> After reflecting on the biological determinants of morale (e.g., food, water, sleep, protection from the elements), Manning argues that *"Other individual needs are psychological, and not so negotiable as the physical. High morale demands a goal, a role, and a reason for self-confidence. The goal does not have to be a grand one—in fact it most often is not—but nothing hurts morale faster than activity the soldier sees as pointless. Likewise, his role does not have to be a key one, but the perception that one's activities have no real value invariably leads to less activity. Closely linked with role and goal is self-confidence, a belief that the goal is attainable and the role is one that can be carried out".*<sup>30(p468)</sup>

Manning<sup>30</sup> continues to describe the critical importance of group cohesion—the relations between soldiers within their primary work group—suggesting it is what encourages selfless behaviour and motivation in a combat setting. Although he did not cite self-determination theory in particular, the excerpts above illustrate the relevance of basic psychological needs satisfaction and autonomous motivation to morale. Ivey<sup>101</sup> cites many examples of the link between self-determination theory and morale. For example, Shamir<sup>102</sup> suggested that morale, operationalized as combat motivation, requires the internalization of values and identification with the collective. Schumm and colleagues<sup>40</sup> found that factors associated with job fulfilment (i.e., challenge, amount of enjoyment from the job, use of skills and training on the job) appeared to have the strongest impact on morale in a military sample. In their positive psychology inspired model of military morale, Britt and Dickinson<sup>2</sup> posited that a sense of confidence, optimism, and purpose inspire individual morale, as reflected by individual work motivation and enthusiasm. Hardy<sup>3</sup> suggested that morale, in part, comprises worker's feelings of being valued, self-worth in relation to the

job, and being supported by others. Ivey, Blanc, and Mantler<sup>38</sup> found that basic psychological needs were related to military morale, which in turn predicted willingness to deploy on operations, well-being, and intentions to stay with the organization. In this NATO series, Blais, Howell, Wang and Comeau describe how, in a representative sample of the Canadian Defence Team, meaningful work and relatedness are key drivers of global well-being, which includes morale.

## 2.2.1 Needs, Affect, and Motivation Model of Morale<sup>(3)</sup>

The central components of the preceding research were captured in a *needs, affect, and motivation model of morale* (NAM3; Figure 3).<sup>101</sup> According to the model, good or high individual morale is a combination of autonomous motivation and positive job affect (e.g., feeling enthusiastic, satisfied), and it is achieved by the satisfaction of the basic psychological needs. While there are aspects of military life that soldiers may find fun and exciting (e.g., parachuting, weapons training), most soldiers do not find pleasure in firing upon other human beings.<sup>103</sup> Most soldiers likely hold an identified regulation type of autonomous motivation—that is, they are serving because of the meaning military service has for them. However, one cannot endure stressful or unpleasant work conditions on an ongoing basis without an eventual negative effect on motivation, performance, and well-being. This might illustrate the important role of *morale boosters* (e.g., welfare services, such hot showers, good food, mail, and entertainment in theatres of operations) as a mechanism to lift spirits. A combination of positive affect and autonomous motivation may help provide the soldier with the physical and emotional energy, clarity of thought, determination, self-discipline, and hardiness for optimal individual functioning.



**Figure 3: Needs, affect, and motivation model of morale (NAM3).**  
**Note: OCBs is organizational citizenship behaviours.**



Through the process of emotional transference,<sup>104-106</sup> the positive affect and job directed energy and enthusiasm that those with high morale exude is passed on to others in the work group verbally and nonverbally, directly and indirectly. When the majority or all group members are autonomously motivated and experiencing positive affect, it can be said that group morale is good or high. Group morale is not cohesion. Rather, a sense of cohesion satisfies the basic psychological need for relatedness which, when accompanied by a sense of purpose, autonomy, and competence, leads to good or high individual morale. Good or high individual morale is transferred between group members to influence group morale. As well, positive group morale supports cooperative and efficient teamwork toward a common goal, and it promotes helping and other prosocial behaviours, the sharing of information and resources, and encouragement and other forms of social support. Individual group members have transitioned from a “me” to “we” mentality, such that they identify with their collective objectives and their workgroup, and threats to either are dealt with; they “police” themselves.

According to the NAM3, the morale process is dynamic and cyclical. Just as optimal individual and group functioning are influenced by the satisfaction of basic psychological needs, the wellness, positive attitudes, and accomplishments associated with optimal functioning reinforce individual needs satisfaction. High performing groups feel confident and proud of their achievements, which can bolster individuals’ sense of competence. Capable, reliable, and low maintenance groups may be empowered with greater freedom, control and responsibility, which can reinforce individuals’ sense of autonomy. Finally, the positive atmosphere, shared identity, and teamwork that is born from high morale and that facilitates the successful achievement of work objectives fortifies bonds and, consequently, their sense of relatedness.

### **2.3 Phase 3 - Model validation**

#### **2.3.1 Latent profile analysis of Canadian military survey data**

The purpose of this study was to test key aspects of the NAM3 pertaining to individual morale. Specifically, we sought to determine if a morale construct comprised of autonomous motivation and positive affect would be associated with the proposed antecedents (psychological needs) and outcomes (psychological distress and organizational citizenship). To do so, we conducted latent profile analysis of data collected in conjunction with a larger DND/CAF survey.<sup>(3)</sup>

##### *2.3.1.1 Method*

###### *2.3.1.1.1 Study design*

A stratified random sample of a large branch of the Canadian military was selected from a sampling frame comprised of 39,109 military and civilian personnel drawn from Canada’s Defence Resource Management Information System. Random samples were drawn from each stratum (i.e., command, occupation) with proportional allocation for component (Regular Force, Primary Reserve, civilian), biological sex, rank group for military personnel, and years of service. The final target population included 13,524 personnel after necessary exclusions, such as undeliverable emails, with an acceptable expected margin of error (< 1%) for branch estimates.

Selected personnel were invited to participate in a Defence Workplace Well-being Survey via email or postcards. The survey was live from May to August 2018. After data cleaning, 3,122 respondents remained, for an overall response rate of approximately 23%. Respondents within each CA sub-organization were post stratified by

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<sup>3</sup> See Suurd Ralph, as well as Blais and Howell, in this NATO series for more information on this survey.

component and rank group for military personnel, and by age group for civilians, and sampling weights were calculated so the sample represents the CA respecting original stratification.

Seventy-six percent of the branch personnel<sup>(4)</sup> completed the DWWS in English (vs. French). Fifty-three percent were members of the Regular Force, 38% were members of the Primary Reserve, and 9% were civilian employees. Thirteen percent were Officers, and 19% of the civilians were managers/supervisors. Eighty percent identified as male, 19% identified as female, and 1% identified as other. Seventy-one percent reported English (vs. French) as their first official language. Fifty-one percent were younger than 35, 41% were between 35 and 54, and 8% were older than 54. In terms of tenure, 47% had been with the DND or CAF for less than 11 years, 31% between 11 and 20 years, and 22% for 20 years or more.

### 2.3.1.1.2 Measures

**Psychological needs.** Autonomy, Competence, and Relatedness were assessed using the Work-related Basic Need Satisfaction Scale (WRBNS).<sup>107</sup> Respondents indicated their level of agreement with six statements related to Autonomy (e.g., *The tasks I have to do at work are in line with what I really want to do*); four statements pertaining to Competence (e.g., *I really master my tasks at my job*) and six statements pertaining to Relatedness (e.g., *At work, I feel part of a group*) on a 5-point scale from 1 = *Totally disagree* to 5 = *Totally agree*. Cronbach's  $\alpha$  were .79, .89, and .88 respectively.

**Job-related affect.** The 20-item Job-related Affective Well-being Scale (JAWS)<sup>108</sup> was used to measure affect at work. On a 5-point scale (from 1 = *Never* to 5 = *Extremely often*), respondents rated how often they experienced a variety of positive (e.g., excited, satisfied) and negative (e.g., angry, bored) emotional states at work in the past 30 days. Cronbach's  $\alpha$  were .93 and .91 for positive and negative affect respectively.

**Work motivation.** Motivation types were assessed with the 19-item Multidimensional Work Motivation Scale (MWMS).<sup>86</sup> Respondents rated items in response to the stem "*Why do you or would you put effort into your current job?*" on a 7-point scale from 1 = *Not at all* to 7 = *completely*. The MWMS was designed to be conceptually distinct from the three basic psychological needs in assessing self-determination theory's six motivation subtypes: amotivation (lack of motivation;  $\alpha = .84$ ), external regulation (engaging in an activity to obtain material or social rewards, avoid punishment;  $\alpha = .66$  for material and  $\alpha = .78$  for social), introjected regulation (individuals feel compelled to engage to preserve a sense of self-worth or to avoid feelings of shame or anxiety;  $\alpha = .67$ ), identified regulation (individuals act on their own volition, because the activity coheres with their goals and values and is viewed as meaningful;  $\alpha = .82$ ), and intrinsic motivation (an individual derives pleasure from the activity;  $\alpha = .91$ ). The identified regulation and intrinsic motivation subtypes are forms of autonomous motivation.

**Convergent validity.** A straightforward, single-item measure of morale (i.e., *How would you rate your individual level of morale?*) was used to assess convergent validity of our global morale construct. Respondents rated their individual morale on a 5-point scale from 1 = *Very low* to 5 = *Very high*.

**Mental health.** The Kessler Psychological Distress Scale (K10)<sup>109</sup> was used to measure levels of unspecified Psychological Distress. The 10-item scale measures symptoms of anxiety and depressive symptoms in the four-week period preceding survey administration (e.g., *Did you feel tired out for no reason?*). Participants rated the extent to which they experienced each symptom on a 5-point scale from 1 = *None of the time* to 5 = *All of the time*. Cronbach's  $\alpha$  was .94.

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<sup>4</sup> We describe these characteristics with weighted percentages.

Organizational citizenship behaviours. Four subscales of the OCB Scale<sup>110</sup> were used to measure this indicator of contextual performance: conscientiousness ( $\alpha = .76$ ), civic virtue ( $\alpha = .83$ ), courtesy ( $\alpha = .86$ ), and altruism ( $\alpha = .89$ ). Participants rated their level of agreement with statements (e.g., “*You are always ready to lend a helping hand to those around you*”) on a 7-point scale from 1 = *Strongly disagree* to 7 = *Strongly agree*.

Weighted descriptive statistics for each of the study variables are displayed in Tables 1a and 1b.

**Table 1a: Study variables: Weighted descriptive statistics.**

Study variable	Unweighted <i>n</i>	Range	<i>M</i>	95% CI		<i>SD</i>
				<i>LL</i>	<i>UL</i>	
<b>Basic Psychological Needs</b>						
1. Autonomy	2,941	1-5	3.01	2.98	3.05	0.74
2. Competence	2,889	1-5	4.03	4.00	4.06	0.67
3. Relatedness	2,939	1-5	3.59	3.54	3.63	0.84
4. Single-item Morale	2,968	1-5	3.42	3.37	3.47	0.98
<b>Affect</b>						
5. Positive Affect	2,851	1-5	2.91	2.86	2.95	0.86
6. Negative Affect	2,890	1-5	2.27	2.23	2.32	0.87
<b>Motivation</b>						
7. Intrinsic Motivation	2,915	1-7	4.31	4.23	4.38	1.57
8. Identified Regulation	2,915	1-7	5.16	5.09	5.23	1.39
9. Introjected Regulation	2,878	1-7	4.41	4.34	4.48	1.32
10. Extrinsic Regulation - Material	2,908	1-7	2.25	2.20	2.31	1.19
11. Extrinsic Regulation - Social	2,921	1-7	3.15	3.07	3.23	1.52
12. Amotivation	2,911	1-7	1.92	1.85	1.98	1.21
13. Psychological Distress	2,987	1-5	1.87	1.83	1.91	0.85
<b>Organizational Citizenship Behaviours</b>						
14. Altruism	2,888	1-7	6.08	6.04	6.13	0.86
15. Civic Virtue	2,882	1-7	5.05	4.99	5.12	1.29
16. Conscientiousness	2,849	1-7	5.71	5.66	5.75	0.94
17. Courtesy	2,884	1-7	6.13	6.09	6.18	0.82

*Note.* *M* = mean; CI = confidence interval; *LL* = lower limit, *UL* = upper limit; *SD* = standard deviation.

**Table 1b: Study variables: Weighted descriptive statistics (cont'd)**

Study variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Basic Psychological Needs																	
1. Autonomy	-																
2. Competence	.27	-															
3. Relatedness	.49	.27	-														
4. Morale	.61	.35	.50	-													
Affect																	
5. Positive Affect	.64	.30	.49	.71	-												
6. Negative Affect	-.64	-.22	-.45	-.64	-.60	-											
Motivation																	
7. Intrinsic Motivation	.56	.30	.42	.63	.70	-.46	-										
8. Identified Regulation	.41	.28	.31	.53	.52	-.35	.65	-									
9. Introjected Regulation	.15	.28	.14	.27	.27	-.11	.36	.57	-								
10. Extrinsic Regulation - Material	-.01	-.08	-.01	-.01	.04	.08	.03	.03	.22	-							
11. Extrinsic Regulation - Social	.02	-.01	.05	.09	.10	.03	.09	.18	.47	.45	-						
12. Amotivation	-.46	-.21	-.27	-.50	-.43	.49	-.45	-.50	-.21	.18	.07	-					
13. Psychological Distress	-.51	-.24	-.44	-.57	-.53	.75	-.36	-.26	-.04	.12	.08	.45	-				
Organizational Citizenship Behaviours																	
14. Altruism	.11	.25	.14	.25	.20	-.10	.24	.36	.19	-.10	< .01	-.20	-.10	-			
15. Civic Virtue	.26	.27	.23	.37	.31	-.21	.36	.39	.23	< .01	.09	-.29	-.20	.41	-		
16. Conscientiousness	.09	.27	.05	.23	.15	-.08	.23	.35	.21	-.05	.08	-.21	-.08	.46	.47	-	
17. Courtesy	.13	.19	.16	.24	.18	-.15	.24	.36	.19	-.10	.03	-.26	-.12	.68	.48	.55	-

*Note.* Correlation coefficients greater than .04 are significant at the .05 level (two-tailed).

### 2.3.1.1.3 Analytical approach

*Dimensionality of Morale.* We examined the conceptual representation of higher-order Morale via confirmatory factor analysis (CFA) and exploratory structural equation modeling (ESEM) with *Mplus* (Version 8)<sup>111</sup> by means of its robust maximum likelihood (MLR) estimator.<sup>(5)</sup> This estimator provides “maximum likelihood parameter estimates with standard errors and a chi-square test statistic (when applicable) that are robust to non-normality and non-independence of observations when used with TYPE=COMPLEX”.<sup>113(p668)</sup> With MLR, the default is to estimate models under missing data theory using all available data.<sup>111</sup> Referred to as, full information maximum likelihood (FIML), this method works with various patterns and rates of missing data<sup>(6)</sup> (e.g., > 50%).<sup>112,113</sup>

We report the Satorra-Bentler scaled chi-square with its degrees of freedom (*df*) and *p* value. However, because this statistic can be overly sensitive to sample size,<sup>114,115</sup> we interpreted the following approximate fit indices, corrected for non-normality and non-independence of observations: (a) the Steiger-Lind root mean square error of approximation (RMSEA)<sup>116</sup> and its 90% confidence interval (CI); and (b) the comparative fit index (CFI).<sup>117</sup> Values close to .06 and .95, respectively, suggest excellent data-model fit, and values close to .08 and .90, respectively, indicate acceptable fit.<sup>118</sup>

As per Morin and colleagues’<sup>119-121</sup> approach to the investigation of *construct-relevant psychometric multidimensionality*, we first compared the results from the CFA and ESEM on the dimensions of morale (affect and motivation). We selected this approach because the dimensions represent *conceptually-related* constructs. We then contrasted the retained CFA or ESEM solution with its matching bifactor model to evaluate the presence of construct-relevant psychometric multidimensionality due to the assessment of a *hierarchically-superior* construct (a.k.a. G-factor) – in this case, morale (referred to henceforth as M-factor).

We conducted the LPAs on the factor scores.<sup>122,123</sup> Following Howard and colleagues,<sup>124</sup> we examined one to eight profiles. In all LPAs, we freely estimated the means and variances of the factor scores.<sup>125</sup> We used 10,000 random sets of start values and 1,000 iterations for each random start, and we retained the 500 best solutions for final stage optimization.<sup>126</sup> All models converged on replicated solutions.

*Morale Profiles.* To guide our selection of the optimal number of profiles, we considered the following indices, which are particularly helpful in choosing the model that best recovers the sample’s true parameters<sup>(7),126</sup> the Bayesian Information Criterion (BIC)<sup>127</sup> and the Sample-Adjusted BIC (SABIC),<sup>128</sup> where lower values signify better fit.<sup>129</sup> As sample sizes become larger, however, these indices may point to an ever-increasing number of profiles.<sup>130</sup> We depict, in an elbow plot,<sup>125,131</sup> the decreasing values of the BIC and SABIC as the number of profiles increases. The point at which the slopes flatten suggests the optimal number of profiles.<sup>125</sup> For descriptive purposes, we also report the entropy, which ranges between 0 and 1 and provides a summary of the classification accuracy, where higher values indicate greater accuracy.

*Predictors, Correlate, and Outcomes.* Because the set of predictors and the set of outcomes each represents conceptually-related constructs, we explored both the CFA and ESEM representations of these data. Following Gillet et al.<sup>132</sup> and Morin et al.<sup>119</sup>, and using the factor scores from the retained factor solutions, we tested the associations between the Morale profiles and predictors, the correlate, and outcomes using methods appropriate to their status. To explore the relationships between the predictors and the odds of membership into the various

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<sup>5</sup> We relied on *Mplus* and its MLR estimator for all subsequent analyses as well.

<sup>6</sup> In the current study, listwise deletion would have resulted in  $n = 2,426$  or approximately 81% of the initial sample.

<sup>7</sup> The bootstrap likelihood ratio test,<sup>131</sup> equally effective, is not available with TYPE=COMPLEX in *Mplus* (Version 8).<sup>111</sup>



profiles, we conducted a multinomial logistic regression. We contrasted levels of individual morale using the *Mplus* AUXILIARY (e) function, and we compared outcomes levels via the *Mplus* AUXILIARY (BCH) approach for continuous outcomes.<sup>133</sup>

### 2.3.1.2 Preliminary Results

#### 2.3.1.2.1 Conceptual representation of the M-factor

The ESEM showed an excellent data-model fit ( $\chi^2[457] = 1,826.50, p < .001$ , RMSEA [90% CI] = .032 [.030, .033], CFI = .95; vs.  $\chi^2[674] = 5,311.69, p < .001$ , RMSEA [90% CI] = .048 [.047, .050], CFI = .85 for the CFA model), generally well-defined factors with standardized factor loadings greater than .50 ( $|\lambda| = .24-.93$ ), and small-to-moderate cross-loadings ( $|\lambda| < .01-.52$ ).<sup>(8),123</sup> The ESEM also resulted in a clearer differentiation between the factors ( $|r| = .01-.61$ ) relative to the CFA model,  $|r| = .02-.90$ . Compared to the ESEM, the subsequent bifactor ESEM showed a slightly improved fit to the data,  $\chi^2(426) = 1,553.77, p < .001$ , RMSEA [90% CI] = .030 [.028, .032], CFI = .96.

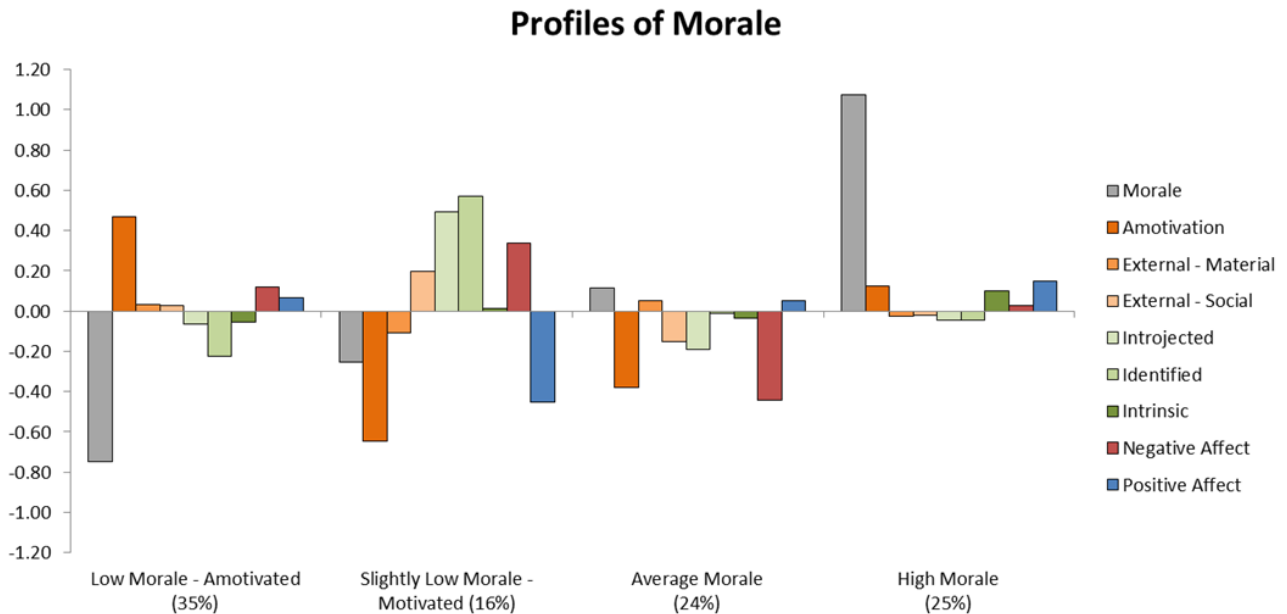
The M-factor supported the notion of a continuum structure of motivation underlying morale,  $|\lambda| = .05-.84$ . More specifically, the standardized factor loadings on the M-factor were negative for the items associated with Amotivation, small or negative for the items related to External Regulation, small-to-moderate for the items associated with Introjected Regulation, and moderate-to-large and positive for the items pertaining to Autonomous Motivation. Furthermore, the Negative Affect items had moderate and negative loadings on the M-factor, whereas the Positive Affect items showed moderate-to-large positive loadings. Overall, the specific factors retained a meaningful level of specificity ( $|\lambda| = .10-.84$ ), especially the External Regulation (Social), Amotivation, and Negative Affect factors. Lastly, the superiority of the bifactor ESEM is also apparent from the slightly reduced cross-loadings ( $|\lambda| < .01-.43$ ) relative to the ESEM.<sup>121</sup> Together, these results support the NAM3's notion of a higher order morale construct that is comprised primarily of autonomous motivation and positive affect.

#### 2.3.1.2.2 Morale profiles

When conducting LPA on a higher order construct, such as the morale M-factor studied herein, Morin et al.<sup>134</sup> suggest incorporating this construct as an additional profile dimension in the LPA. After controlling for the general tendency shared across all dimensions, unique variance remains at the dimension level that allows for the identification of patterns across dimensions. Not incorporating the G-factor makes identification of well-differentiated profiles significantly more challenging.<sup>134</sup> Therefore, we included the M-factor with the specific motivation and affect dimensions in our LPA and, in so doing, identified a four-profile solution. Goodness-of-fit indices from all LPAs are listed in Table 2, and the factor score means and variances in Table 3.

As illustrated in Figure 4, four morale profiles emerged: The *Low Morale - Amotivated* profile (1) represents 35% of the sample and can be described as having low levels of autonomous motivation, high Amotivation, low Positive Affect, and moderate Negative Affect. Even after accounting for this group's M-factor, a substantial

<sup>8</sup> The complete set of results is available upon request from the first author.



**Figure 4: Morale profiles.**  
**Note: Morale is the M-factor (global morale).**

degree of Amotivation remains. The *Slightly Low Morale - Motivated* profile (2) includes 16% of the sample. Like the first profile, this group has lower levels of autonomous motivation and Positive Affect. However, after the M-factor is accounted for, substantially low levels of Amotivation and high levels of External Regulation (Material) and Identified Regulation remain, along with higher levels of negative affect and lower positive affect. Altogether, this profile appears to be highly motivated to do their work, but they are not deriving pleasure or satisfaction from it; on the contrary, they appear to be experiencing negative emotional states from it. The *Average Morale* profile (3) consists of 24% of the sample and reflects a group with good levels of autonomous motivation and Positive Affect, and low Negative Affect. Once the M-factor has been accounted for, low levels of Amotivation and Negative Affect remain, reinforcing the notion that these individuals are indeed motivated and functioning well at work. Finally, the *High Morale* profile (25%) is characterized by peak levels of autonomous motivation and positive job-related affect, and low negative affect, all captured within the M-factor. This group is doing work that they find pleasurable, but also very meaningful, and they are enthusiastic, inspired, and excited by their work.

**Table 2: Results from the latent profile solutions.**

	Profile 1 Low Morale - Amotivated (35%)	Profile 2 Slightly Low Morale - Motivated (16%)	Profile 3 Average Morale (24%)	Profile 4 High Morale (25%)
<b>Within-profile means</b>				
Morale (M-factor)	-0.75 [-0.89, -0.61]	-0.25 [-0.48, -0.02]	0.12 [-0.07, 0.30]	1.08 [0.87, 1.29]
Intrinsic Motivation	-0.06 [-0.16, 0.05]	0.01 [-0.20, 0.23]	-0.03 [-0.14, 0.07]	0.10 [0.02, 0.18]
Identified Regulation	-0.23 [-0.36, -0.09]	0.57 [0.28, 0.86]	-0.01 [-0.15, 0.13]	-0.04 [-0.13, 0.04]
Introjected Regulation	-0.07 [-0.17, 0.04]	0.50 [0.02, 0.97]	-0.19 [-0.36, -0.02]	-0.05 [-0.15, 0.06]
Extrinsic Regulation - Material	0.03 [-0.07, 0.14]	-0.11 [-0.27, 0.05]	0.05 [-0.04, 0.14]	-0.03 [-0.11, 0.06]
Extrinsic Regulation - Social	0.03 [-0.06, 0.12]	0.20 [-0.10, 0.50]	-0.15 [-0.29, -0.02]	-0.02 [-0.14, 0.09]
Amotivation	0.47 [0.29, 0.64]	-0.65 [-0.78, -0.51]	-0.38 [-0.53, -0.23]	0.12 [0.07, 0.18]
Negative Affect	0.12 [< -0.01, 0.25]	0.34 [-0.08, 0.76]	-0.44 [-0.67, -0.22]	0.03 [-0.06, 0.12]
Positive Affect	0.06 [-0.03, 0.16]	-0.45 [-0.78, -0.12]	0.05 [-0.43, 0.53]	0.15 [0.03, 0.27]
<b>Within-profile variances</b>				
Morale (M-factor)	0.84 [0.68, 1.00]	0.41 [0.30, 0.52]	0.18 [0.12, 0.24]	0.22 [0.12, 0.31]
Intrinsic Motivation	0.80 [0.65, 0.96]	1.15 [0.82, 1.48]	0.38 [0.23, 0.52]	0.33 [0.23, 0.43]
Identified Regulation	0.88 [0.55, 1.20]	0.75 [0.23, 1.28]	0.38 [0.26, 0.50]	0.32 [0.25, 0.39]
Introjected Regulation	0.71 [0.61, 0.80]	0.67 [0.32, 1.03]	0.49 [0.40, 0.59]	0.72 [0.64, 0.81]
Extrinsic Regulation - Material	0.81 [0.67, 0.96]	0.83 [0.58, 1.08]	0.30 [0.22, 0.37]	0.38 [0.28, 0.50]
Extrinsic Regulation - Social	0.68 [0.58, 0.78]	1.25 [1.01, 1.48]	0.66 [0.52, 0.79]	0.96 [0.83, 1.09]
Amotivation	1.45 [1.18, 1.73]	0.14 [0.09, 0.19]	0.11 [0.05, 0.18]	0.10 [0.07, 0.13]
Negative Affect	1.23 [1.04, 1.42]	1.46 [1.15, 1.77]	0.37 [0.24, 0.50]	0.26 [0.20, 0.33]
Positive Affect	0.79 [0.66, 0.92]	1.33 [0.98, 1.68]	0.55 [-0.36, 1.46]	0.64 [0.42, 0.85]

**Table 3: Profile-Specific Factor Scores [and 95% Confidence Intervals] on the Morale Facets.**

Profile	LL	#fp	CF	BIC	SABIC	Entropy
1	-33,894.05	18	2.54	67931.89	67874.70	1.00
2	-32,818.61	37	2.23	65932.76	65815.20	.64
3	-32,469.72	56	2.54	65386.75	65208.82	.66
4	-32,221.51	75	2.67	65042.11	64803.81	.68
5	-32,041.31	94	2.61	64833.47	64534.80	.72
6	-31,887.36	113	2.53	64677.35	64318.31	.69
7	-31,738.74	132	2.61	64531.87	64112.46	.71
8	-31,597.75	151	2.52	64401.67	63921.89	.73

*Note.* LL = loglikelihood; #fp = number of free parameters; CF = correction factor; BIC = bayesian information criterion; SABIC = sample-size adjusted BIC.

2.3.1.2.3 Predictors, Correlate, and Outcomes

An excellent data-model fit ( $\chi^2[75] = 342.10, p < .001, RMSEA [90\% CI] = .035 [.031, .038], CFI = .97$ ), slightly reduced factor correlations ( $|r| = .29-.55$  vs.  $|r| = .30-.64$ ), small-to-moderate cross-loadings ( $|\lambda| < .01-.35$ ), and well-defined factors ( $|\lambda| = .43-.89$ ) supported the ESEM representation of the predictors relative to the CFA model,  $\chi^2(101) = 595.24, p < .001, RMSEA (90\% CI) = .040 (.037, .044), CFI = .94$ . A slightly elevated data-model fit ( $\chi^2[269] = 1,563.48, p < .001, RMSEA [90\% CI] = .040 [.038, .042], CFI = .93$ ), slightly reduced factor correlations ( $|r| = .08-.71$  vs.  $|r| = .07-.77$ ), small-to-moderate cross-loadings ( $|\lambda| < .01-.41$ ), and well-defined factors ( $|\lambda| = .40-.91$ ) supported the ESEM representation of the outcomes relative to the CFA model,  $\chi^2(365) = 2,140.39, p < .001, RMSEA (90\% CI) = .040 (.039, .042), CFI = .91$ .

The results from the multinomial logistic regression showed that higher perceived levels of Autonomy, Competence, and Relatedness were all associated with greater odds of membership in the *High Morale* profile (the benchmark) relative to the *Low Morale – Amotivated* profile (14.67, 1.53, and 2.66 respectively; Figure 5). Higher Autonomy and Relatedness were both associated with greater odds of membership in the *High Morale* profile relative to the *Slightly Low Morale - Motivated* profile (6.12 and 3.37 respectively); Competence was not a significant distinguisher in this case. Lastly, higher perceived levels of Autonomy, Competence, and Relatedness were all associated with greater odds of membership in the *High Morale* profile compared to the *Average Morale* profile (1.70, 1.59, and 2.53 respectively). That *Low Morale, Slight Low Morale, and Average Morale* membership (versus membership in the *High Morale* profile) was predicted by psychological needs satisfaction supports the NAM3.

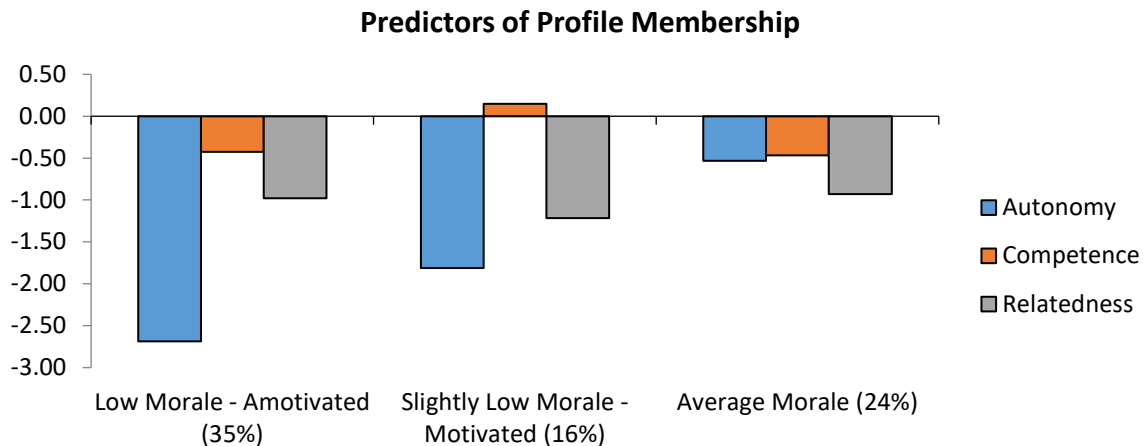
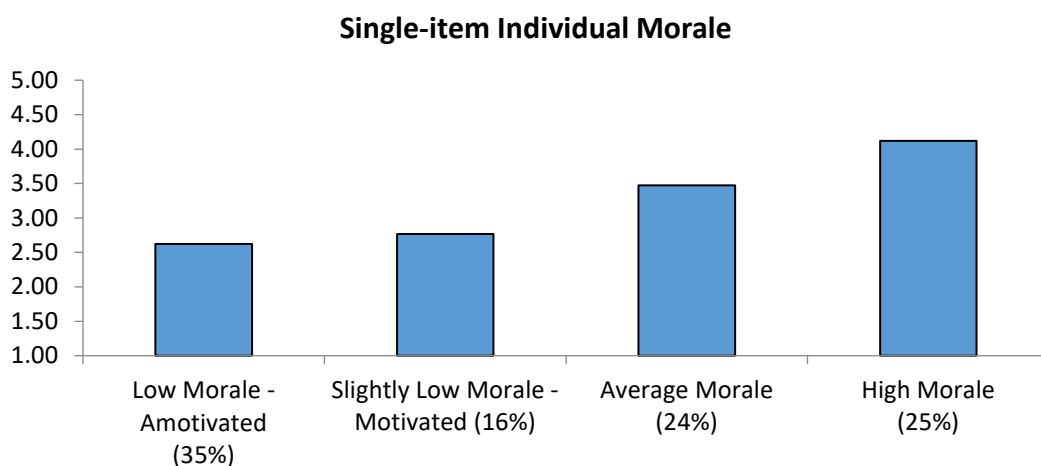


Figure 5: Distribution of single item morale scores across global morale profiles.

Paralleling levels of global morale (M-factor), levels of individual morale (our single convergent validity item) were the highest in the *High Morale* profile ( $M = 4.12, SE = 0.04$ ), followed by the *Average Morale* profile ( $M = 3.48, SE = 0.04$ ), and then by the *Slightly Low Morale - Motivated* ( $M = 2.77, SE = 0.07$ ) and *Low Morale - Amotivated* ( $M = 2.62, SE = 0.04$ ) profiles, which were not distinguishable from one another (Figure 6). Psychological Distress was lowest in the *High Morale* ( $M = -0.57, SE = 0.03$ ) and *Average Morale* ( $M = -0.52, SE = 0.05$ ) profiles, but indistinguishable from one another, followed by the *Slightly Low Morale - Motivated* ( $M = 0.43, SE = 0.09$ ) and *Low Morale - Amotivated* ( $M = 0.58, SE = 0.06$ ) profiles, which were also indistinguishable from one another (Figure 7). Interestingly, the OCBs followed a slightly different pattern. As expected, higher

levels of OCBs were associated with the *High Morale* profile. However, the two low morale profiles yielded different results; although OCB levels were low in the *Low Morale – Amotivated* profile (as expected), OCB levels were high in the *Slightly Low Morale - Motivated* profile. Levels of OCBs were average in the *Average Morale* profile. That the *Low Morale* and *High Morale* profile membership predicted psychological distress and OCBs supports the NAM3. Interestingly, while *Average Morale* predicted average levels of OCBs, this group was not different than the *High Morale* group on Psychological Distress. Surprisingly, the other low morale profile, *Slightly Low Morale – Motivated*, were performing OCBs at a higher level than the *Average Morale* group, though their Psychological Distress levels were also higher.



**Figure 6: Distribution of single-item morale scores across global morale profiles.**



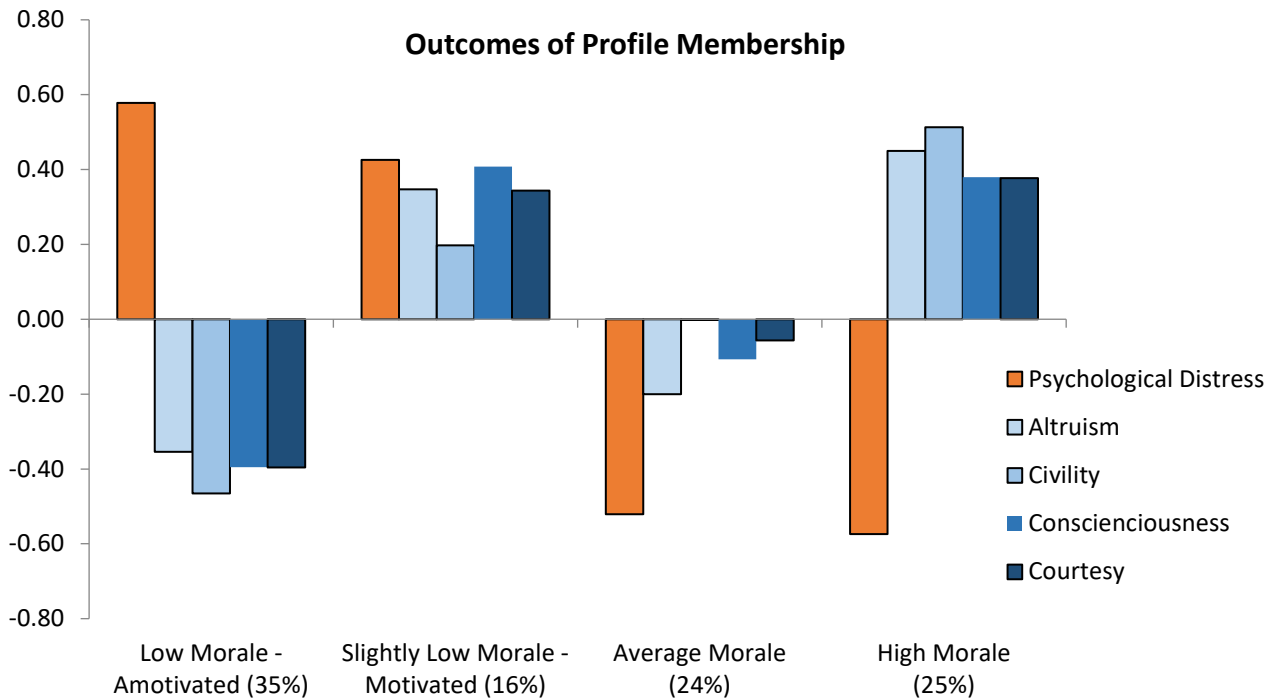


Figure 7: Distribution of outcomes across global morale profiles.

From the final retained bifactor ESEM solution, we conducted additional analyses to evaluate the criterion validity of the various morale indicators. More specifically, we used multiple regression analyses to assess the added value of the M-factor, as well as that of the specific M-factor facets, over and above the individual morale item in terms of percentage of explained variance in the outcomes. As the sole predictor, the individual morale item explained 32% of the variance in Psychological Distress. Adding the M-factor explained an additional 2% of the variance in Psychological Distress, and including the specific factors contributed an additional 33% to its explained variance. Turning to the OCBs, the results were very consistent across dimensions. More precisely, when considered as the sole predictor of the OCBs, the individual morale item explained between 3% and 10% of their variance. The M-factor contributed between 4% and 7% over and above the single item, and the specific factors explained between 3% and 8% of the variance in the OCBs above and beyond the M-factor. In other words, the M-factor and its specific factors explained twice as much of the variance in Psychological Distress (67%) and almost three times as much variance in OCBs (10-25%) compared to a single item of individual morale.

### 3.0 DISCUSSION

#### 3.1 Summary

Given the divergent application of the term morale in the military and academic literatures, we undertook a comprehensive scientific examination of morale on behalf of the Canadian military. This paper focused on two key components of this effort: development and validation of an evidence-based model of morale. Specifically, we introduced the NAM3, which draws from motivation, affect, and emotional transference theories to describe

the key components of individual morale and the processes through which morale has its effect on individual functioning, and on group morale and group functioning.

We applied a state-of-the-art integrated variable- and person-centred framework for the investigation of the underlying dimensionality of morale. In accordance with Morin and colleagues' findings,<sup>134,135</sup> variable-centered approaches (i.e., CFA, ESEM, and bifactor ESEM) revealed the presence of two distinct sources of construct-relevant psychometric multidimensionality underlying the indicators of a hierarchically superior construct; in our case, morale. Specifically, our results pointed to six motivation sub-types and positive and negative affect as conceptually related constructs subsumed under a global morale factor (or M-factor). This representation of morale makes it possible to explicitly represent the global morale construct while taking into account the information associated with the specific morale dimensions. Moreover, in support of the NAM3, the M-factor was largely influenced by the autonomous motivation subtypes (intrinsic motivation and identified regulation) and positive affect (high arousal emotions in particular, such as feeling enthusiastic, energetic, and inspired).

Preliminary results of a series of LPAs revealed four distinct morale profiles. As well, meaningful specificity remained in the morale dimensions after accounting for the M-factor. In addition to each morale profile being distinct in their level of global morale, they each revealed unique patterns of results on the specific morale dimensions which allowed for greater interpretation of each factor. Consequently, relying solely on the M-factor score to describe personnel would result in a loss of information. For example, two of the four profiles indicate lower than average morale, but the two groups (*Low Morale – Amotivated* and *Slightly Low Morale – Motivated*) vary distinctly on their motivation; one group is unmotivated and the other is very motivated, albeit extrinsically (vs. intrinsically) motivated. The slightly low morale stems from the lack of satisfaction derived from their work. Note, the individual morale item could not discriminate between these two low morale groups, nor could it provide insight into the quantity and quality of motivation and job-related affect that distinguish these two low morale groups.

Higher levels of perceived Autonomy, Competence, and Relatedness distinguished the *High Morale* profile from both the *Low Morale – Amotivated* and *Average Morale* profiles. Autonomy and Relatedness, but not Competence, distinguished the *High Morale* profile from the *Slightly Low Morale – Motivated* profile. As per the NAM3, basic psychological needs satisfaction supports positive morale (average and high morale), but insufficient levels of Autonomy, Competence, and Relatedness (or needs frustration) can negatively impact morale. Note, Autonomy emerged as a particularly salient distinguishing predictor.

As per the NAM3, *High Morale* was associated with lower Psychological Distress and more OCBs, which reflect the extent to which people go above and beyond in their work or to help others. *Average Morale* had similarly low Psychological Distress, but their OCBs were average. The two low morale profiles revealed some interesting findings. As expected, they had similarly higher levels of Psychological Distress, but they had different OCB patterns; the *Low Morale – Amotivated* group was low on OCBs and the *Slightly Low Morale – Motivated* group was high on OCBs. In fact, the latter group was higher on OCBs than the *Average Morale* group. Perhaps this group is burned out as a consequence of going above and beyond. Or, perhaps this group is going above and beyond to compensate for deficiencies in psychological needs satisfaction or in response to their extrinsic work motivation (e.g., to avoid punishment, to please others, or to feel a sense of self-worth).

Together, these results provide preliminary support for the NAM3, including the representation of individual morale and its association with theory informed predictors and outcomes. It also demonstrated convergent validity with a straightforward single-item measure of individual morale in that single item morale scores followed the M-factor profiles, from low to high morale. So, what is the added value of the M-factor? As stated previously, the M-factor provides much greater insight into the complex nature of morale. Not only could the single-item not

discriminate between the two forms of low global morale, but it is unable to explain the low morale. The NAM3 provides a theoretical roadmap to morale, and the profiles show the signs. Moreover, the M-factor and the specific dimensions accounted for doubling the variance in Psychological Distress, and tripling the variance in OCBs, above and beyond the single-item measure of morale.

### 3.2 Limitations

Like all qualitative research, regardless of how rigorous the studies are, generalizability is limited to the sample. Therefore, we caution readers in applying our thematic map of Army morale to other populations without careful consideration of context. Nonetheless, readers can be reassured in the extent to which the map's core features (i.e., motivation, empowerment, confidence, belonging, pride) cohere with previous morale studies and well validated theories, such as self-determination theory. With respect to the NAM3 validation (Study 1), the findings are based on self-report data (associated with social desirability and common method biases), and on a cross-sectional design, which limits claims to causality. However, we drew on theory to situate variables as predictors and outcomes. Also, to mitigate survey fatigue, we left out important individual difference variables (e.g., emotional stability, trait negative affect) that likely also predict morale profile membership. With the exception of the MWMS and K10, the scales used herein have not undergone language invariance testing. Consequently, the English and French versions may not be equivalent, which limits the extent to which you can pool data. This may not be a major issue as less than one quarter completed the survey in French. Still, we ran the English only data and the same four profiles emerged. To be sure, future research should control for potential language effects. The strong correlation between negative affect and psychological distress ( $r = .75$ ) raises concern about discriminant validity. Although conceptually distinct, common method bias may have made it more difficult for respondents to distinguish the two. This might account for the substantial amount of incremental variance accounted for by the M-factor and its specific dimensions (which includes negative affect). Future research should mitigate common method bias and consider other mental health scales, and other outcomes theoretically linked to morale per the NAM3 (e.g., organizational commitment, task performance). Finally, the extent to which similar global morale profiles emerge in other services and militaries is not known. Although the NAM3 is grounded in international science and well-validated theories, whether or not the dimensionality of morale, the profiles, and the relationships between the profiles and their predictors and outcomes hold in other settings and cultures is yet to be determined.

### 3.3 The Way Ahead

Recognizing the need to supplement this study with a longitudinal design, and to test the group-level aspects of the NAM3, we undertook a group randomized controlled trial in a field setting. We set out to determine if leadership training<sup>9</sup> designed to increase leaders' psychological needs supportive leadership behaviours enhanced small Army team functioning through its impact on individual morale. Unfortunately, participant attrition limited statistical analysis. However, preliminary results trended according to NAM3 expectations.<sup>136</sup> Going forward, we will consider new and innovative ways to apply rigorous research methods without being obtrusive to operational tempo or leading to excessive study attrition. We will consider these findings against complementary research using similar methods, such as the work described in Suurd Ralph and by Blais and colleagues reported in this series. For example, do we need a global morale measure and a global well-being measure? How can findings from both works merge to inform military operational readiness and resilience?

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<sup>9</sup> Transformational leadership training delivered by Dr. Kevin Kelloway and Needs Supportive Leadership training delivered by Dr. Jacques Forest. The first author would like to acknowledge and thank both for their significant contributions.

### 3.4 Implications of the Research

#### 3.4.1 Impact on Science

The research presented herein addresses a gap in the morale literature by developing and testing a conceptualization (representation) of morale and an associated model that draws from a comprehensive review of the morale literature, as well as applicable theories and validated studies. In doing so, it adds fidelity to our understanding of individual morale and the processes through which it leads to optimal individual and group functioning.

The research also adds to a growing body of support for the positive psychology paradigm and related theories, including self-determination theory. Specifically, it highlights the importance of autonomous motivation to well-being and performance, and its reliance on psychological needs satisfaction. It also supports the continuum of controlled to autonomous motivation. It builds recent research that has developed motivation profiles<sup>132,137</sup> however, with the addition of the positive and negative dimensions. Not only is this supported by the theory underlying morale, but it added valuable insight to the profiles. For example, profile 2 (*Slightly Low Morale – Motivated*) might otherwise be labelled *Extrinsically Motivated* in the absence of the Positive and Negative Affect dimensions which point to lower workplace well-being. With the addition of job-related affect, we have greater insight into the complex nature of motivation, in addition to morale.

#### 3.4.2 So What for Leaders?

The methods we used to represent morale herein (i.e., latent profile analysis of multiple dimensions) are not accessible to leaders, especially in deployed settings. We used them to test a theoretical model of morale meant to provide greater fidelity to the morale construct and the processes through which it is affected and has its effects. Leaders should attend to the signs of low or high morale that result from this research. To that end, we believe greater discourse is merited in leaders' professional development. Learning and discussions should include relevant theories of affect and motivation, as well theories of emotional transference, so soldiers understand the psychological and social processes that may impact morale, and how low or high morale can impact individual and group functioning.

The NAM3 represents some of the key components of those processes, but it is not exhaustive, nor is it prescriptive at a practical level. However, when considered in combination with the thematic map in Figure 2, greater insights are apparent. The map highlights several factors that can affect autonomous motivation and positive affect. As examples: (a) employing soldiers in jobs that aligns with one's goals, values, and skills [strong person-job fit], and that give them a sense of purpose and achievement; (b) empowering soldiers through challenging experiences [e.g., with greater responsibility, job variety, exciting training], providing them with the right tools and people to do the job [well equipped & supplied], and with sufficient information to understand expectations and act, and to quash fear and ambiguity; (c) treating soldiers with compassion, fairly, and with dignity and respect, and insisting on the same from them, can provide soldiers a sense of relatedness (cohesion, belonging); and (d) building a sense of competence, confidence, and pride through challenging training and tasks, and with timely and appropriate recognition of a job well done. Of course, these examples apply to a diverse sample of members of a specific branch of the Canadian military. Other factors may emerge in other samples and in other contexts through leader discussions or formal research methods.

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