Technical Report 1416

Identifying Leader Behaviors Important for Unit Resilience

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for the Behavioral and Social Sciences**

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14. ABSTRACT
The U.S. Army Research Institute (ARI) sought to identify a set of leader behaviors Soldiers perceived as important for resilience at the squad-level to support the Army's commitment of improving the resilience of Soldiers. Army active duty enlisted personnel (n = 367) used a 5-point Likert scale (1=Not at all important to 5=Extremely important) to rate the importance of 74 leader behaviors to unit resilience of their squad. Soldiers indicated that all behaviors were at least moderately (means of 3.2 to 4.4) important to unit resilience. Exploratory factor analysis identified the following three factors: 1) Leaders foster a positive environment (Cronbach's α = 0.98; 30.2% variance explained), 2) Leaders promote Army performance standards (Cronbach's α = 0.93; 19.6% variance explained), and 3) Leaders support culture sensitivity (Cronbach's α was not calculated because only one item loaded on this factor; 6.9% variance explained). This effort highlighted the important role of leader behaviors for unit resilience in the Army. Additional validation research of these foundational findings can help inform and recommend Army policy (e.g., the assignment of Soldiers for leadership positions, and the design of leader development training) to improve the health, readiness, and resilience of Army units.

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EXECUTIVE SUMMARY

Research Requirement:

For over two decades, Soldiers in the Army have been engaged in irregular warfare in complex environments characterized by uncertain circumstances and extraordinary stressors. The increase of these operational demands has highlighted the essential role of leadership for resilience. Several lines of research have indicated that leaders have the power and capability to shape resilience at a collective level, be it in a unit, organization, or system. Leaders also demonstrate the ability to develop or engage in processes that enhance or foster collective resilience (Ancelovici, 2013; Dickens, 2015; Edson, 2012; Gilmour & Retford, 2014; Harland et al., 2005; see also Meredith et al., 2011). Therefore, a better understanding of how leadership influences resilience within collectives is necessary for Army units. The current investigation sought to identify a set of leader behaviors Soldiers perceived as important for resilience of Army units.

Procedure:

A total of 367 active duty Army enlisted personnel rated the importance of leader behaviors for their squad's resilience (on a 5-point Likert scale) using a 74-item survey. The survey was created with items derived from interviews with Army leaders and subject matter experts, and the scientific literature on resilience and transformational leadership. We conducted descriptive analyses to identify outliers and potentially extraneous variables, item analysis to identify any anomalies or patterns in the data, exploratory factor analyses to reduce the item list and identify factors, and reliability analyses of the factors derived from the factor analysis. To account for the influence of missing data, we also conducted multiple imputation with chained equations (MICE) using the predictive mean matching (PMM) model.

Findings:

Our research effort documented 74 leader behaviors that Soldiers perceived as important in influencing squad resilience. Through an exploratory factor analysis we further confirmed the importance of 47 leader behaviors that loaded highly onto three latent factors (fostering a positive environment, promoting Army performance standards, and supporting cultural sensitivity). These results highlight the importance of many leader behaviors on unit resilience and offer a suggestion of a more parsimonious set of leader behaviors that influence unit resilience.

Utilization and Dissemination of Findings:

Quantifying the importance of leader behaviors to unit resilience provides a foundation for future research. Specifically, the identified behaviors from this research could help inform the creation of assessment tools, trainings, and interventions to improve unit resilience. Continued research endeavors in this field can help inform and recommend Army policy, the recruitment of

Soldiers for leadership positions, and the design of leader development training, for the purpose of improving the health, readiness, and resilience of the Army.

IDENTIFYING LEADER BEHAVIORS IMPORTANT FOR UNIT RESILIENCE

CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

Identifying Leader Behaviors Important for Unit Resilience

Introduction

For over two decades, Soldiers in the Army have been engaged in irregular warfare in complex environments characterized by uncertain circumstances and extraordinary stressors. The Army's operational context is an exceptionally difficult one, in part because of the challenges it presents for both individual and unit functioning. As such, this context within which Army units and Soldiers must operate has warranted an increased focus on the phenomenon of resilience, defined as the ability to endure and recover from challenges (Alliger et al., 2015). Accordingly, "improving the resilience of leaders and Soldiers – the Army's most valuable capability – requires training, educating, equipping, and supporting them…" (U.S. Department of the Army, 2018, p. x). Recent Army programs, such as the Ready and Resilient (R2) Campaign, have focused on strengthening Soldiers by providing guidance for leaders to build and sustain resilience in their units (Reivich et al., 2011; U.S. Department of the Army, 2019). It is important for the Army to continue to investigate how leaders influence resilience in units in order to inform future policies and practices.

A considerable body of literature has focused on investigating resilience at the individual level, and on identifying influencers of resilience, ranging from internal psychological facets described as hardiness (Dolan & Adler, 2006; Bartone, 1999; Kelly et al., 2014), to external influencers like leadership and social support (Bartone, 2006; Bartone, Barry, & Armstrong, 2009; Fletcher & Sarkar, 2013; Meredith et al., 2011). At the individual level, resilience has been associated with better performance and promotional outcomes for individual Soldiers, and lower levels of resilience has been associated with negative outcomes (e.g., suicide, high rates of drug use, and violent crime; Lester et al., 2011).

Although individual level research is abundant, there has been relatively little research on the resilience of collectives (interdependent and goal-directed combination of individuals, groups, departments, organizations, or institutions; Morgeson & Hofmann, 1999, p. 260; Zemba, 2019). The use of the individual level resilience literature has limitations when examining the Army context because the vast majority of Soldier activities – from training to deployment – occur at the collective level, where Soldiers perform their duties in conjunction with other Soldiers within Army units. Army units are independent multi-team systems, of which the smallest unit is commonly considered a *squad* or *section* (U.S. Department of the Army, 2012b). Although units are composed of individual Soldiers, new processes and phenomena emerge at the collective level as Soldiers perform both routine, day-to-day activities, and novel or infrequent activities. The importance and ubiquity of the collective level to the Army cannot be understated.

In recent years the Army has increasingly recognized the importance of collective level resilience and identifies both individual and unit level resilience as critical areas of research. Cato and colleagues define unit resilience as:

> A multi-phasic process in which members of the unit deliberately and collectively apply skills, abilities, and resources to **prepare** the unit for adversity by planning and anticipating adverse events, successfully **respond** to challenging events by withstanding

1

or adapting to stressors, and **recover** after challenging events, which involves the unit returning to homeostasis (e.g., bouncing back) or an improved state through post-event learning and growth (Cato et al., 2018, p.1).

During the three proposed phases (prepare, respond, and recover) of unit resilience, both internal collective-level enablers (e.g., team cohesion) and external influencers (e.g., organizational support or leadership) can impact the collective thoughts, feelings, and behaviors of a unit to adverse events. One particularly important area of research to consider is the role of leaders in developing, supporting, maintaining, and enhancing unit-level resilience.

In describing the foundational principles of leadership, the Army defines leadership as "the process of influencing people by providing purpose, direction, and motivation to accomplish the mission and improve the organization" (U.S. Department of the Army, 2012a, p.1-1), and stresses that leader actions are the primary means of influence. Army leaders are responsible for establishing cohesion, creating a shared understanding, and providing clear intent (U.S. Department of the Army, 2015). Leader actions/inactions and behaviors may directly or indirectly influence the physical and psychological state of the unit and can impact the unit's overall level of resilience.

Leaders serve to promote the effectiveness, readiness, and resilience of their Soldiers and units. For example, leaders might prepare their units prior to the occurrence of a particularly novel and disruptive event in order to minimize disruptions to the unit (Morgeson, 2005). Alternatively, leaders could seek additional resources during performance episodes (i.e., deployment or training scenarios) to help the unit accomplish its goals and resist decrements to its performance. Finally, after a challenging event, leaders might engage in sense-making activities in order to reframe the experience to help the unit cope with potentially negative implications of the event.

Some attention has also been applied in organizational research to small-group or team leadership (Wageman, 2001; Kozlowski & Ilgen, 2006; Zaccaro et al., 2001; Morgeson et al., 2010). Leading a small group or team requires focusing on the goals of the group as well as how those goals fit into the larger organizational mission (Morgeson et al., 2010). Leaders at the small-group level within organizations are generally responsible for executing strategies and driving performance rather than developing large-scale strategies and assessing big-picture outcomes (Mumford et al., 2007). According to functional leadership theory, a leader's role within a small group or team is to "do, or get done, whatever is not being adequately handled for group needs" (McGrath, 1962, p. 5). In other words, the role of the leader in a small group is to ensure the needs of the group are being met for optimal effectiveness, thus facilitating the group's ability to accomplish tasks and reach goals (Hackman & Walton, 1986).

Leadership and Collective Resilience

Of most interest to the current effort are investigations of leadership and resilience in small groups or teams within the context of a larger organization, such as the Army. For example, Key-Roberts (2018) reported categories of leader behaviors that Army officers thought were important for resilience, such as providing support, teaching, and creating a climate for recovery. In addition, Estrada and Severt (2017) identified factors necessary for measuring

collective-level resilience in the Army, including aspects of leader support and leader empowerment.

Several lines of research have supported the essential role of leadership for resilience at the collective level (Ancelovici, 2013; Dickens, 2015; Edson, 2012; Gilmour & Retford, 2014; Harland et al., 2005, see also Meredith et al., 2011). This research has identified key characteristics of leaders who hope to foster collective resilience, such as autonomy, engagement, development, and collaboration within the organization (Ancelovici, 2013; Dickens, 2015; Gilmour & Retford, 2014). Harland et al. (2005) also found that leaders who exhibited confidence and transmitted a sense of higher purpose, who were able to problem solve, develop subordinates, and were clear with their expectations and desired outcomes, had the most impact on the resilience of their subordinates. Lastly, Meredith et al. (2011) suggested that military leaders who could create a positive climate, making it possible for Soldiers to address psychological concerns, were better able to foster resilience within their unit.

Additionally, leadership styles, largely described as groups of characteristic behaviors exhibited by leaders (Kaiser & DeVries, 2000), might be important for resilience of groups (Edson, 2012; Lopes, 2010; Morgan et al., 2015; Van der Beek & Shraagen, 2015). A few studies focused on the relevance of transformational leadership in situations requiring resilience (Burns, 1978; Bass, 1985; Bass, 1996). Transformational leadership is characterized by an emphasis on developing and motivating followers. Morgan et al. (2015) found that transformational leadership style was one of the key factors in a top-performing rugby team's ability to recover after losses. Moreover, Van der Beek and Schraagen (2015) found initial evidence for the relationship between transformational leadership and perceived team resilience.

Beyond transformational leadership, research has identified how other leadership styles and their associated behaviors influence unit cohesion and resilience. Lopes (2010) recognized concerted leadership, a style that involves placing an emphasis on group unity and coordination, as influencing resilient group behavior. Through guidance, motivation, and resource distribution, concerted leaders develop relationships with subordinates to strengthen unit cohesion and build trust. Additionally, Edson (2012) emphasized the importance of adaptive leadership, characterized by a leader's ability to recognize the need to adapt strategies or adjust group norms in response to differing situations. Edson demonstrated the effectiveness of adaptive leadership style for enhancing team resilience, specifically through the behaviors of carefully communicating information regarding the point of adversity, emphasizing urgency, and managing mass panic.

Finally, several authors have explored the roles of leaders in situations requiring team resilience. Alliger et al. (2015) proposed that leaders can impact resilience in their team by minimizing the effect of foreseeable threats, managing the effects of disruptive events, and mending the effects of such events within the team (i.e., 3M Theory). Accordingly, specific leader behaviors include conducting dedicated team resilience training, walk-throughs of alternate courses of action in response to events, and performing and encouraging behaviors in the team that contribute to an overall culture that supports resilience. Alliger suggested that supporting team resilience involves: a) encouraging team members to communicate openly; b) maintaining composure during emergencies; c) deferring to the expertise of team members regardless of rank or seniority; d) vocalizing the need to switch to and from normal and

emergency modes; and e) showing gratefulness for member contributions during and after challenges. Similarly, Zaccaro et al. (2011) claimed that leaders can influence team resilience by building team trust, cohesion, and collective efficacy, as well as by supporting team behaviors that positively impact the cognitive, social, and emotional dimensions of team resilience. Finally, Southwick et al. (2017) emphasized the importance of encouraging cognitive flexibility in times of stress or extreme change, leveraging individual strengths, and building a zone of psychological safety where team members can share their insights and criticisms.

The Current Research

Squads are key for higher-level Army functioning as they are the smallest independent units within the Army. The influence that leaders exert on resilience at the squad level is a central factor for the Army to consider. Presently, there is a dearth of research specifically focused on squad-level functioning in the Army in relation to how leaders influence unit resilience (Cato et al., 2018). Through the two major objectives below, we identified leader behaviors important for unit resilience at the squad level and start to address this Army need.

For the first major objective we aimed to develop a set of leader behaviors that Soldiers perceive as being important for unit resilience at the squad level. To accomplish this, we identified an exhaustive list of leader behaviors drawing from the scientific literature on resilience and transformational leadership, and semi-structured interviews with Army leaders and subject matter experts (SMEs). We then created and administered a survey to active duty Army enlisted Soldiers who rated each leader behavior on its importance to squad level resilience.

Our second major objective was to explore the possibility of underlying latent constructs, or groupings, of the previously identified behaviors. To accomplish this, we performed an exploratory factor analysis on the collected data. This analysis is a data driven approach that allows the data to guide our understanding of the relationships between the behaviors, or factors. It is important to recall that this analysis is exploratory, it is neither designed to test hypotheses, nor is the final product one of inferential statistics. Rather, this exploration offers us possible underlying variables. Through this exploratory process we identified three possible latent variables from 47 of the leader behaviors previously identified. This analysis offers a simpler data driven view of the richer set of behaviors offered above.

Method

Survey Participants

To obtain perceptions of behaviors specific to squad-level leadership and resilience, we surveyed participants of various ranks and leadership positions (e.g., squad or team leader). Three hundred and sixty-seven active-duty enlisted Soldiers with the following ranks were asked to participate in this effort: Private (PV1 and PV2), Private First Class (PFC), Corporal/Specialist (CPL/SPC), Sergeant (SGT), and Staff Sergeant (SSG). Soldiers at these ranks were expected and were most likely to receive and provide leadership at the squad level. Females represented 1.8% of survey respondents ($n = 6$) and males represented the other 98.2% ($n = 346$). Survey respondents, by rank, included: Privates (PV1-PFC, 3.4%, 13.4%, 16.2%, respectively), 33%; Specialists/Corporals, 36%; Sergeants, 23%; and Staff Sergeants, 7.7%. Participants were recruited using research support requests for participation during Army-designated research periods. All participant recruitment and data collection processes followed the Institutional

Review Board (IRB) guidelines and received IRB approval. A full description of our sample by rank and sex is provided in Table 1.

Table 1

Number of Survey Participants by Rank and Sex

	Participant Rank							
Participant Sex	No reply	Private 1	Private 2	Private First Class	Specialist/ Corporal	Sergeant	Staff Sergeant	Total
Male	1	12	47	57	123	79	27	346
Female	1	0	0	0	3	2	0	6
Total	2	12	47	57	126	81	27	352

Survey Development

In order to accomplish the first objective of this research effort (i.e., integrate different sources of research to obtain a list of leader behaviors important for unit resilience), we sought to identify an exhaustive list of leader behaviors important for unit resilience. To do this, we conducted a content analysis of interview data and reviewed the relevant scientific literature.

Content Analysis Using Qualitative Interview Data

We conducted a content analysis of interview data from a 2015 ARI research effort (for more detail see, Jiménez et al., 2015), which assessed the influence of leaders on unit resilience during three data collections. We analyzed text segments from a total of 15 interviews of non-commissioned officers, SSG ($n = 7$), Sergeant First Class (SFC, $n = 4$), First Sergeant (1SG, $n = 3$), and Master Sergeant (MSG, $n = 1$). During the interviews, Soldiers were asked about the role leaders play in unit resilience, the characteristics of resilient units during times of stress, and unit resilience across Army contexts (i.e., in garrison or during deployment). Jiménez and colleagues (2015) transcribed and organized the interview data in Microsoft Excel.

One researcher from the current effort conducted a search of the Excel spreadsheet for text segments containing the stem "lead" in an attempt to capture any discussion of leaders, leadership, and behaviors associated with leading. The researcher then reviewed and retained only those comments that referenced specific leader behaviors thought to be related to unit resilience. A second researcher reviewed the behaviors. The two researchers retained 130 leader behaviors associated with unit resilience after determining them to be unique and concise.

Content Analysis of Scientific Literature

A systematic literature review was conducted by Cato et al. (2020) to investigate the concept of unit resilience. From this review, we identified 16 research articles that discussed the association between leaders/leadership and collective-level resilience. Of the 16 articles

reviewed, two journal articles were retained for analyses as they identified and outlined specific leader behaviors associated with resilience in small groups.

To fill the potential time gap from the Cato at al., (2018) literature search to the start of this effort, we conducted a literature search in EBSCOhost and GoogleScholar using the string: "team* resilien*" OR "unit* resilien*" OR "squad* resilien*" OR "group* resilien*" AND "leader* behav*" OR "leader*." Through this we identified an additional two book chapters. Combined with the 2 articles identified previously this resulted in four sources: Alliger, Cerasoli, Tannenbaum, and Vessey (2015); Lopes (2010); Southwick, Martini, Charney, and Southwick (2017); and Zaccaro, Weis, Hilton, and Jefferies (2011). We identified 97 behaviors when reviewing these sources. Added to the previously identified 130 behaviors from the interview data, this yielded 227 leader behaviors (Figure 1).

Leader Behavior Survey Item Reduction

After identifying 227 leader behaviors, we began a review and reduction process to select a subset of leader behaviors that would serve as the basis for development of survey items (see Figure 1). For the initial reduction, a team of four PhD-level research psychologists with survey design experience and two graduate student researchers met to review, sort, refine, and eliminate redundant behaviors. We combined similar behaviors and further refined them for clarity and language consistency. Throughout this reduction process we used group discussion and majority consensus to reach decisions regarding whether to retain or eliminate behaviors. Majority consensus among researchers was established when at least four of the six researchers agreed on a decision. This process resulted in removing 116 behaviors, leaving a pool of 111 remaining behaviors.

In addition to the 111 behaviors, the researchers added six behaviors to reflect the concept of transformational leadership. These behaviors had been identified as important for leadership within the Army (Bass, 1999; Bass & Avolio, 1993; Bass et al., 2003) but were not identified in the original literature search because no research was found that investigated the relationship between transformational leadership and unit resilience. Lastly, after reviewing the list of 117 behaviors, SMEs (who were leaders in the Army) recommended adding two more behaviors that had not been reflected in the interviews or literature. A total of 119 behaviors remained.

Figure 1

Item Reduction Process
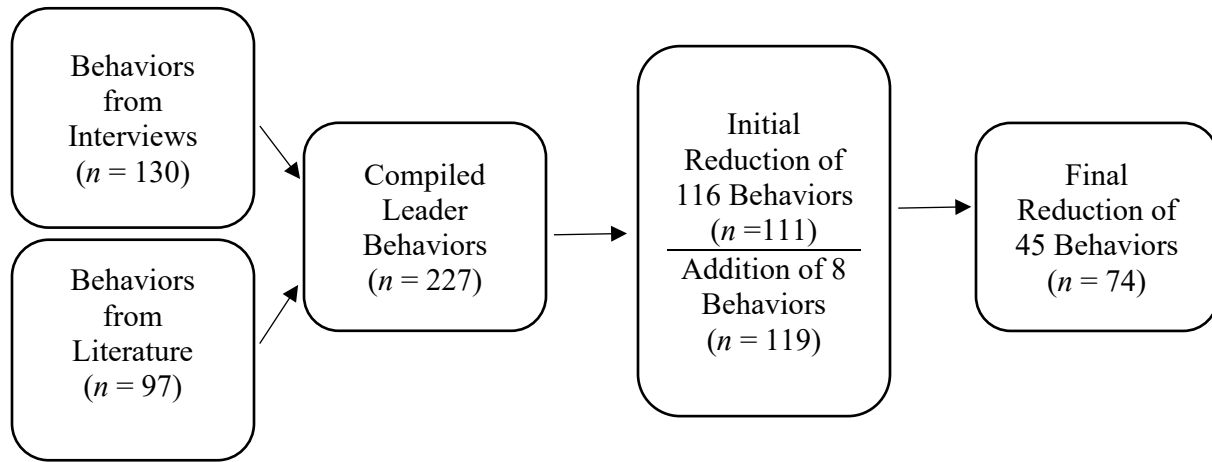
For the final reduction, two researchers, who had not been involved with the initial reduction, analyzed the 119 behaviors to ensure they were concise, comprehensible, and appropriate for the target audience of junior enlisted Soldiers. They suggested revisions and refinements for further reduction of the item list. Two lead researchers on the project reconciled any disagreements and refined and reduced items based on the recommendations. Following the final reduction, all behaviors were limited to a single behavior and constructed in the same tense with clear actions. This process resulted in a final list of 74 leader behaviors to be included as survey items (see Appendix A, Table A1). Table 2 provides the sources of the behaviors through each stage of reduction.

Table 2

Reduction Process of Behaviors from the Sources Used to Develop the Survey

Behavior Source	Number of Behaviors		
	Before Reduction	After Initial Reduction	After Final Reduction
Alliger et al. (2015)	31	19	8
Lopes (2010)	15	10	6
Southwick et al. (2017)	28	18	10
Zaccaro et al. (2011)	23	13	10
ARI Qualitative Interviews	130	51	33
Transformational Leadership Literature	N/A	6	5
Subject Matter Experts	N/A	2	2
Total	227	119	74

Survey Construction and Structure

The Leader Behavior and Unit Resilience Survey included demographic questions, 74 survey items developed from the identified behaviors, and two write-in response questions (see Appendix B). To minimize the impact of respondent fatigue and ordering effect on the quality of data, two versions of the survey were constructed and the items were presented in random order in each form (Form A and Form B). The first page of the survey contained instructions and explanations of key terms needed to aid respondent understanding. After the survey instructions, participants were asked two demographic questions: 1) the length of time they had been a member of their current squad (Soldier tenure, i.e., more than or less than six months); and 2) their current position (Soldier position, e.g., junior enlisted Soldier position, squad leader, team leader, etc.). Following these items, Soldiers were asked, "How important is this leader behavior for unit resilience at the squad level?" During this part of the survey, participants rated the 74 items on a 5-point Likert Scale (1=Not at All Important; 2=Slightly Important; 3=Moderately Important; 4=Very Important; 5=Extremely Important). All survey items were one-sentence statements and no items were reverse-coded.

Participants were asked to include up to three additional leader behaviors they thought were necessary for unit resilience at the squad level, and up to three additional leader behaviors they thought had a negative impact on unit resilience at the squad level. See Appendix B for the full survey.

Data Collection

At each data collection, a team of two ARI researchers administered paper surveys over two days to four groups of junior enlisted Soldiers (PV1-SPC) and two groups of squad and team leaders (CPL-SSG). Researchers began each session by explaining the project to Soldiers and obtaining their informed consent verbally. Soldiers required approximately 30 minutes to complete the survey.

Data Analysis

Due to the exploratory nature of the study, no hypotheses testing was conducted. Rather, the overall purpose of our analyses was to accomplish our second objective, which involved reducing the 74 leader behaviors to create a more manageable list. We used *R* and *R* Studio to analyze the data. We first conducted an outlier analysis to find data points that laid outside the overall response pattern. Further, we conducted descriptive statistics and ANOVAs to identify whether there were extraneous variables that could influence the data collected, including potential differences in Soldier position, survey form, location of data collection, and Soldier's tenure. We conducted a missing data analysis to identify the prevalence of missing data in our sample and to assess any patterns in the missing data distribution. We used a multiple imputation technique in order to avoid the negative impact of incomplete surveys on the accuracy of our analyses. After completing the missing data analyses, we conducted an item analysis along with an exploratory factor analysis (EFA) in order to reduce the number of items from 74 to a more parsimonious set of leader behaviors. We used an EFA (rather than a confirmatory factor analysis; CFA) because we sought to understand the underlying structure of the set of leader behaviors. Because of the limited empirical research on the confluence of leadership behavior

and unit resilience, we did not feel it was appropriate to impose an a priori structure on the data (as one would do with a CFA). In other words, because not enough research has been published to suggest a particular factor structure, there is no compelling existing factor structure to use in a CFA. Finally, EFA is often utilized when the research involves no hypothesis testing regarding the nature of the underlying factor structure of the collected items (Kim & Mueller, 1978).

Following any EFA, a factor rotation is performed (using an oblique or orthogonal rotation) in an attempt to identify the simplest or most interpretable structure (Kieffer, 1998). We chose to utilize an orthogonal rotation (varimax). Orthogonal rotations are best when assuming no correlations exist among the identified factors and it helps to maximize higher factor loadings and minimize lower factor loadings to achieve the simplest structure. Considering the lack of previous research on the impact of leader behaviors on unit resilience within the Army context, we did not feel justified in assuming correlations between the identified factors. Although a limitation of orthogonal rotation strategies often identified is that it may not honor the researcher's view of reality when it comes to the correlations of factors (i.e., the researcher may believe that the factors are correlated), orthogonal solutions are generally more replicable than oblique solutions. With EFAs, the limitations to the orthogonal rotation strategy are seen as an acceptable tradeoff for improved solution replicability (Kieffer, 1998). Once relationships among identified factors are more established, perhaps oblique rotation methods could be employed.

Results

Each survey item focused on a different leader behavior; therefore, behaviors are referred to as items in this section. Data from the 74 survey items were evaluated for outliers and normality. We used boxplots of each item to examine for outliers, however, no outliers were found in the data. Appendix C, Table C1 provides information on the sample size, mean, standard deviation, median, range, skewness, kurtosis, standard error, and response frequencies for each item. Item 4 (*encouraging squad attendance at unit social events*) received the lowest mean importance rating ($M = 3.22$, $SD = 1.31$) and item 53 (*maintaining composure during emergencies*) received the highest mean importance rating ($M = 4.38$, $SD = 0.90$). Standard deviations across items ranged from 0.90 to 1.31.

Initial investigation into the distribution of the data indicated a negative skew, with a majority of items being rated between three and five on the Likert Scale (see Figure 2). Skewness of the means was -1.20 and Kurtosis was 1.42, demonstrating a non-normal distribution of the data. A Shapiro-Wilk test for normality of the data supported the skewness and kurtosis by indicating the data was non-normal ($W = 0.91$, p < 0.01). This non-normal distribution is not surprising, given the considerable effort devoted to identifying important leader behaviors for unit resilience. In other words, items were included because they were thought to hold some relevance for unit resilience, thus making them at least somewhat important for unit resilience (as reflected in the relatively high mean importance ratings). One would expect a normal distribution if a broader set of behaviors were included.

Analyses for Extraneous Effects

A series of between-groups tests were performed to identify any extraneous effects of Soldier position (e.g., Junior enlisted Soldier position or Squad/Section/Team Leader), survey

form, location of data collection, and Soldier's tenure (i.e., whether or not Soldiers had been a member of their squad for at least six months at the time of the survey) on the mean ratings of the items. Due to the non-normality of mean scores across items, a Bartlett's test for homogeneity of variance was conducted to see if a one-way ANOVA was an appropriate test of between-group effects.

Analysis of Soldier position and survey form indicated that homogeneity of variance was not violated, meaning a one-way ANOVA was appropriate. A one-way ANOVA did not indicate a significant effect of Soldier position or survey form on mean ratings. For Soldier Tenure and data collection location, Bartlett's test revealed that homogeneity of variance could not be assumed, K-squared (2) = 13.82, $p < .01$, and K- squared (2) = 7.03, $p = .03$, respectively. Therefore, a one-way ANOVA with Welch's F correction was conducted to examine their effect on participants' mean ratings. For Soldier tenure, no significant effects were found, however, the ANOVA indicated a significant effect of data collection location on participants' mean ratings, $F(2,218.87) = 3.50$, $p = .03$.

This effort involved three separate data collections at two locations. Data collections 1 and 2 were held at the same location, but with different participants. Post hoc analyses using the Games-Howell method indicated that Soldiers at data collection 1 had significantly higher mean scores ($M = 4.10$, $SD = 0.69$) than Soldiers at data collection 3 ($M = 3.85$, $SD = 0.85$), $t(241) = 2.60$, $p = .03$. However, the mean difference in importance ratings between the two data collections was small (0.25), and neither differed significantly from data collection 2 ($M = 3.97$, $SD = 0.69$). No other comparisons between data collections were significant.

Item and Exploratory Factor Analyses

Item Analysis

Item analysis techniques were used to identify items that could potentially be removed. Correlation analyses revealed that one item of the 74 (Item 4: *encouraging squad attendance at unit social events*) was not significantly correlated with any of the other items. This item was also identified as not being extremely important to Soldiers, as 58.2% of them rated the item as three (moderately important) or lower on the importance scale. Therefore, this item was subsequently removed. Additionally, none of the items correlated highly (i.e., $|r| > .80$ or $|r| < -.80$). Item 18 (*identifying warning signs of squad distress*) and item 22 (*helping the squad manage ongoing stress*) had the highest correlation ($|r| = .80$), followed by item 22 and item 26 (*monitoring the needs of the squad*; $|r| = .79$). See Appendix C, Table C2 for item intercorrelations.

Missing Data

Missing data occurred when Soldiers failed to respond to items in the survey. In our sample, 58 surveys had missing data, with a total of 79 missing item responses. The proportion of missing data was less than 1% and no respondent completed less than 80% of the survey. All participant responses were retained. We conducted analyses of the missing items in order to account for the missing data. Little's test was applied to examine whether the data were missing completely at random (MCAR; Little, 1988). The results indicated the distribution of completed

data was significantly different from incomplete data, χ^2 (585) = 689.15, p < .01, thus the possibility of MCAR was ruled out. There are no definitive tests available to differentiate missing at random (MAR) from missing not at random (MNAR; McKnight, 2007); however, there were no discernible systematic patterns within the missing data distribution and the frequency of missing data was low. Hence, the following analyses assumed the data were missing at random.

Multiple Imputation

One approach for conducting statistical analyses of incomplete data is using multiple imputation. The current research utilized the predictive mean matching (PMM) model, which is an imputation model in the MICE (multiple imputation with chained equations) package in *R*, to generate an imputed model in order to minimize the impact of missing data and to obtain more accurate item loadings (Van Buuren & Groothuis-Oudshoorn, 2011). MICE-PMM is a robust method in comparison to the completely parametric linear approach. Using MICE-PMM, missing values are replaced by observed values from a donor pool of k candidate donors based on the distance between expected means from the linear prediction model (Little, 1988). Further, MICE-PMM does not assume data normality, which makes it an appropriate statistical approach for the highly skewed data found in this research (see Results section). In *R*, we created five multiple-imputation datasets using the MICE-PMM model to estimate the missing data points. Although more or less datasets could be used for multiple imputation, five is the default function with the MICE-PMM model in *R* and has been exemplified in other literature (Rubin, 1987; von Hippel, 2018). We conducted exploratory factor analyses on each of the five imputed datasets.

Factor Analyses

Results of Kaiser-Meyer-Olkin test (MSA = 0.98) and Bartlett's test (χ^2 = 23,840.79, $p < .01$) indicated the datasets were suitable for factor analysis; therefore, we conducted parallel analyses and EFAs for each of the imputed datasets.

Parallel Analyses. Parallel analyses were conducted to help estimate the number of factors to extract for the exploratory factor analyses. The eigenvalue table and scree plot (Table 3 & Figure 2) together suggested a possible three-factor solution. Only eigenvalues from the first three factors were larger than one in the observed data compared to the simulated data, suggesting a three-factor model for the factor analyses (Hayton et al., 2004).

Table 3

Eigenvalues from Horn's Parallel Analysis

Factor	Adjusted Eigenvalue	Unadjusted Eigenvalue	Estimated Bias
1	37.551	38.574	1.023
2	1.932	2.873	0.941
3	1.080	1.960	0.880

Note. This table provides eigenvalues for one of the five imputed datasets. The parallel analysis results from other four datasets showed similar Eigenvalues and all suggested a possible three-factor solution.

Figure 2

Parallel Analysis Scree Plot of the Observed and Simulated Data
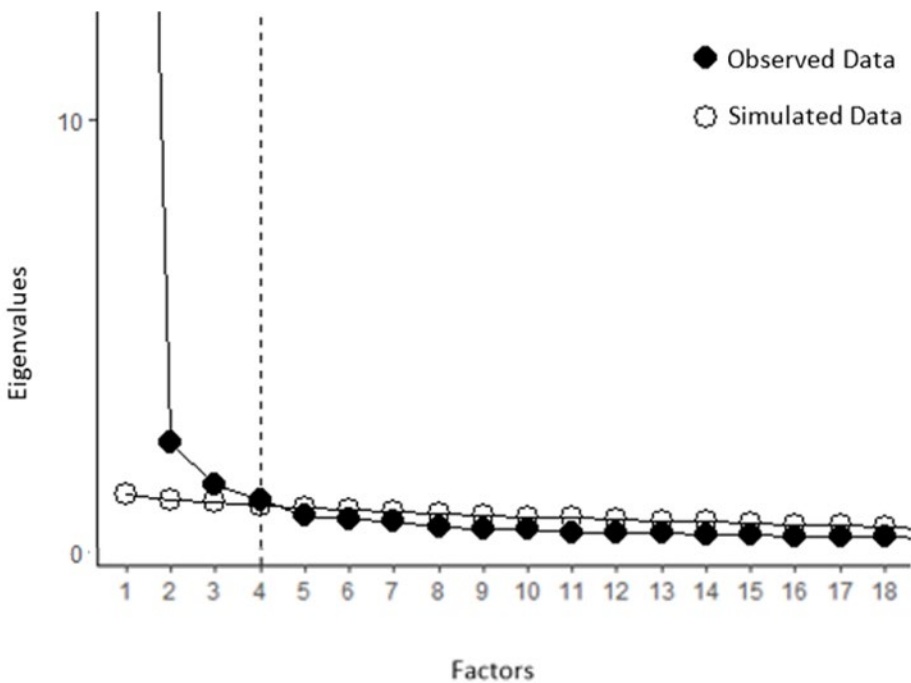
Note. This scree plot compares the eigenvalues of the observed data to the simulated data. The eigenvalue of the first factor is 37.55, which is not captured in the figure above due to the frame limit. The data in this figure are from one of the five imputed datasets; however, all datasets showed this same pattern and suggested a three-factor solution.

Exploratory Factor Analyses. Based on the results from the parallel analyses, a three-factor solution was run. We conducted exploratory principal components factor analyses with orthogonal rotation on the 74 survey items ($n = 367$). Results of the EFAs from each of the

imputed datasets were pooled by averaging the factor loading scores. The pooled results indicated that the first factor accounted for 30.2% variance explained, with the second and third factor accounting for an additional 19.6% and 6.9% variance, respectively (cumulative variance = 56.7%; see Appendix C, Table C3). Reliability analysis indicated a high degree of internal consistency across all 74 items ($\alpha = 0.99$). A high Cronbach's α (alpha) can be indicative of the entire list of items being unidimensional, however having a large number of items can make it difficult to assess unidimensionality (Tavakol & Dennick, 2011).

Throughout the progression of the EFA, items with factors loadings below < 0.50 on all three factors or those that were cross-loaded (i.e., factor loadings on two or more factors > 0.50, with a difference ≤ 0.20 between those loadings) were deleted (Stamper & Masterson, 2002). Factor loadings were rounded to the second decimal place prior to deletion. Based on the criteria above, 27 items were eliminated after four iterations (see Table 4 for list of all eliminated items; refer to Appendix C, Table C4 to C7, for breakdown of all four EFA iterations). None of the items derived from the transformational leadership literature and only one from SME input made it into the final item list.

The EFA resulted in a refined model with three factors containing 47 items ($n = 323$) and explained 57% of cumulative variance. The first factor had 32 items and accounted for 32% variance explained. The second factor had 15 items and accounted for 20% variance explained. Lastly, the third factor of 1 item accounted for 5% variance explained (refer to Table 5 for the final refined model).

Table 4

Items Eliminated During the EFA for Small Factor Loadings (<.50) and Cross-Loading

Item #	Behavior	Loadings Across Three Factors		
		FA1	FA2	FA3
		Items Eliminated Before Iteration 1		
01	Inspiring squad members to believe in their mission	0.43	0.41	0.42
05	Facilitating conversations during post-challenge debriefs	0.42	0.32	0.48
10*	Inspiring squad members to work together towards a shared goal	0.60	0.50	0.16
11*	Creating effective plans	0.54	0.50	0.16
24*	Establishing clear goals for the squad	0.50	0.56	0.18
40*	Assuring squad members that challenges can be overcome	0.50	0.51	0.35
45*	Helping the squad with challenging tasks	0.62	0.56	0.20
46*	Encouraging teamwork during challenges	0.52	0.53	0.25
47*	Supporting squad members in skill development	0.59	0.57	0.20
49	Helping the squad find meaning in the challenges they encounter	0.47	0.45	0.42

| | | Loadings Across Three Factors | | |
Item #	Behavior	FA1	FA2	FA3
57	Emphasizing squad performance over individual performance	0.36	0.36	0.39
69*	Helping the squad adapt to operational changes	0.60	0.55	0.12
70	Assessing the strengths and weaknesses of each squad member	0.48	0.48	0.23
71	Sharing personal stories about challenges they have experienced	0.28	0.15	0.40
72*	Communicating the plan/mission to squad members	0.55	0.59	0.01
	Items Eliminated Before Iteration 2			
03*	Knowing what resources are available to the squad	0.57	0.53	0.05
14*	Providing effective strategies for dealing with challenges	0.60	0.50	0.17
30*	Assigning resources to squad members who need them	0.67	0.51	0.09
51*	Explaining how the squad's mission fits with the overall mission	0.50	0.54	0.12
59*	Enforcing Army Standards	0.01	0.51	0.59
	Items Eliminated Before Iteration 3			
02	Encouraging squad members to come up with creative solutions to problems	0.48	0.43	0.38
07	Giving individual Soldiers constructive feedback on how they can improve performance	0.45	0.45	0.45
15	Backing the squad to chain-of-command	0.47	0.38	0.41
16	Anticipating challenges the squad might face	0.45	0.42	0.39
	Items Eliminated Before Iteration 4			
06	Checking in with squad members	0.47	0.42	0.36
67*	Requesting additional resources when the squad needs them	0.60	0.50	0.15

Note. Items were deleted if they were cross-loaded, or if they did not have high loadings on any factors (i.e., factor loading < 0.50). Item 4 was deleted prior to the EFA because it was not significantly correlated with any of the other items and it was not rated highly for importance to unit resilience by Soldiers.

* Cross-loaded items. Items were considered cross-loaded if they loaded on more than 1 factor > 0.50 and if the difference between the factor loadings was ≤ 0.20.

Table 5

Results of the EFA and Reliability Analysis

Item #	Behavior	Positive Environment (α = 0.98)	Army Performance Standards (α = 0.93)	Cultural Sensitivity
39	Being understanding when squad members experience personal challenges	**0.77**	0.32	0.14
36	Helping squad members to balance work obligations with personal/family obligations	**0.77**	0.23	0.14
38	Respecting squad members' time	**0.76**	0.17	0.05
22	Helping the squad manage ongoing stress	**0.74**	0.38	0.24
58	Providing Soldiers with enough time to adjust to changing plans	**0.71**	0.24	0.05
18	Identifying warning signs of squad distress	**0.71**	0.38	0.26
26	Monitoring the needs of the squad	**0.69**	0.41	0.21
65	Allowing Soldiers to make independent decisions, when appropriate	**0.69**	0.34	-0.02
41	Providing help to squad members when they experience personal challenges	**0.68**	0.38	0.09
44	Making changes in response to Soldier feedback, when appropriate	**0.68**	0.40	0.12
27	Allowing Soldiers to change course if standard operating procedures (SOPs) are not working	**0.68**	0.25	-0.01
09	Providing access to resources for squad members' well-being	**0.66**	0.41	0.23
23	Encouraging respect for squad members' personal boundaries/privacy	**0.65**	0.29	0.31
54	Encouraging open and honest communication in the squad	**0.65**	0.42	0.12
32	Being honest about the limits of his/her knowledge	**0.65**	0.39	0.18
28	Taking the time to fully understand the situation before reacting	**0.65**	0.42	0.22

Item #	Behavior	Positive Environment ($\alpha = 0.98$)	Army Performance Standards ($\alpha = 0.93$)	Cultural Sensitivity
		Factors and Loadings		
17	Being willing to perform the same tasks they ask their Soldiers to do	**0.65**	0.41	0.12
29	Creating backup plans for when things do not go as expected	**0.63**	0.49	0.10
25	Explaining to Soldiers why they are told to do certain things	**0.63**	0.13	0.20
12	Listening to negative feedback from squad members	**0.62**	0.27	0.19
19	Being fair when giving feedback to individual Soldiers	**0.61**	0.37	0.31
42	Being honest with Soldiers when reviewing a challenging event	**0.60**	0.48	0.08
37	Displaying appropriate teamwork behaviors	**0.60**	0.49	0.20
31	Adjusting leadership style to suit the needs of individual squad members	**0.60**	0.17	0.26
73	Acknowledging the impact of deployment on squad members' lives	**0.58**	0.37	0.20
56	Being tolerant towards individual differences in the squad	**0.58**	0.30	0.36
35	Mentoring squad members	**0.57**	0.47	0.17
21	Offering praise to the squad following good performance	**0.57**	0.24	0.34
62	Assigning work according to the strengths of each member of the squad	**0.56**	0.32	0.12
34	Getting all squad members' input about what happened after a challenging event	**0.56**	0.44	0.28
43	Making sure new Soldiers are integrated into the squad	**0.56**	0.44	0.18
63	Showing trust towards other leaders	**0.54**	0.48	0.18
55	Keeping the squad focused on mission priorities	0.23	**0.74**	0.11
53	Maintaining composure during emergencies	0.39	**0.67**	0.03

		Factors and Loadings		
Item #	Behavior	Positive Environment ($\alpha = 0.98$)	Army Performance Standards ($\alpha = 0.93$)	Cultural Sensitivity
64	Providing feedback to the squad on how they can improve performance	0.45	**0.65**	0.19
61	Enforcing performance standards during training	0.03	**0.65**	0.25
48	Responding to challenges quickly and accurately	0.39	**0.64**	0.05
33	Helping the squad refocus on the mission after a disruption	0.46	**0.63**	0.15
68	Establishing clear expectations for the squad	0.37	**0.62**	0.04
60	Promoting team-building during training	0.40	**0.59**	0.11
13	Performing tasks effectively	0.49	**0.58**	0.19
66	Insisting that squad members do what they say they are going to do	0.11	**0.58**	0.17
20	Challenging the squad with difficult training	0.35	**0.58**	0.01
52	Encouraging squad members to take on leadership roles	0.41	**0.54**	0.19
50	Encouraging friendly competition within the squad	0.24	**0.54**	0.10
74	Promoting the values of the Army	0.23	**0.51**	0.42
08	Being sensitive to cultural differences in the squad	0.29	0.22	**0.67**

Note. The refined model lists items in descending order based on their factor loadings under each factor. The bold indicates the factor each individual item loaded highest onto. No Cronbach's α (alpha) was calculated for Cultural Sensitivity because only one item loaded onto that factor.

Reliability Analysis

Reliability analysis was conducted on the refined 47-item, three-factor model to assess how strongly the items were associated with one another. Cronbach's α for the refined three-factor model was 0.98, and deemed acceptable, because it exceeded Nunnally's reliability criterion of 0.70 (Hair et al., 2010; Nunnally, 1978). Cronbach's α value was 0.98 for factor 1 and 0.93 for factor 2. Cronbach's α was not estimated for factor 3 as it consisted of one item (see Table 5).

Discussion

Leaders play a crucial role in the resilience of their units – defined as the capability to effectively plan for, respond to, and recover from adverse events (Cato et. al., 2018). Given the influence of leadership on unit resilience (e.g., Estrada & Severt, 2017; Key-Roberts, 2018), it is imperative we identify those leader behaviors that Soldiers perceive as important for a squad's resilience. This will help advance our understanding of the impact leaders have on unit resilience at all levels of operation in the Army. The current research effort was the first phase of this ongoing investigation into the ways leader behaviors influence unit resilience.

We accomplished the two research objectives that were sought out at the beginning of the present effort. The first objective (develop a set of leader behaviors that Soldiers perceive as being important for unit resilience at the squad level) was accomplished through the analysis of interviews with Army leaders and SMEs and a review of the scientific literature. Our analysis resulted in a list of 74 leader behaviors. We accomplished the second objective (explore the possibility of underlying latent constructs, or groupings, of the previously identified behaviors) by creating, administering, and analyzing a survey of identified behaviors based on Soldiers importance ratings for each behavior. Through item and exploratory factor analyses, we were able to reduce the list of 74 leader behaviors by 27. Our research effort also revealed three latent factors of leader behaviors related to resilience discussed below in turn: (a) leaders foster a positive environment, (b) leaders promote Army performance standards, and (c) leaders support cultural sensitivity.

It is interesting to consider the origin of the included behaviors. A comparison of the final 47 leader behaviors to the original 74 leader behaviors revealed that none of the behaviors identified from the transformational leadership literature were included. The five items derived from the transformation leadership literature were items 1, 2, 10, 40, and 49 (see survey item list in Appendix A). Although the findings might suggest that Army leadership depends less on transformational leadership style than on other types of leader behaviors, a more likely explanation might be that many of the behaviors derived from the transformational leadership literature were already captured in or were similar to the retained leader behaviors. For instance, item 40 (*assuring squad members that challenges can be overcome*) could have been captured in item 41 (*providing help to squad members when they experience personal challenges*). In fact, items 40 and 41 were significantly related (with a correlation of .60), which has been described as a strong effect (Cohen, 1988). We could also see parallels between item 2 (*encouraging squad members to come up with creative solutions to problems*) and item 27 (*allowing Soldiers to change course if standard operating procedures [SOPs] are not working*) which were significantly related (with a correlation ≥ .50), indicating a relatively strong effect (Cohen,

1988). These correlation patterns were consistent, with all transformational leadership behaviors significantly related to the leader behaviors on the final list, with correlations ranging between .52 and .67 (all item correlations can be found in Appendix C, Table C2).

Of the two items that were derived from SME input, only one made the final list. Item 23 (*encouraging respect for squad members' personal boundaries/privacy*) was retained in the final list, whereas item 15 (*backing the squad to chain-of-command*) was eliminated. Item 15 was the only leader behavior that specifically involved defending the squad to higher level leadership. Similar to the transformational leadership behaviors, this could be indicative that standing up for the squad to other leaders is not an important behavior of leaders for squad-level resilience. Alternatively, this behavior could have been captured in similar items in the refined model. For example, item 15 was significantly related with 32 of the 47 items from the final list, with correlations ranging between .50 and .66 (see Appendix C, Table C2).

Three Factor Model

The three-factor solution was arrived at through use of the parallel analyses and supported by the theoretical reasoning below. The solution consisted of different dimensions of behaviors that potentially facilitate squad-level resilience in the Army. Specifically, these behaviors promote the creation of a positive environment, the enforcement and maintenance of Army performance standards, and the value of respecting cultural differences within the squad. We will focus the following discussion on exploring the three distinct categories of leader behaviors we identified.

Leaders Foster a Positive Environment

Thirty-two behaviors loaded on the first factor. Of these behaviors, 22 were originally recommended through interviews with Army leaders, nine were derived from the scientific literature (four from Alliger et al., 2015; three from Southwick et al., 2017; one from Zacarro et al., 2011; and one from Lopes, 2010), and one recommended by SMEs. These behaviors were primarily concerned with the establishment of interpersonal relationships between a leader and her/his subordinates and the promotion of personal well-being within the group. Some of these behaviors included: (a) *being understanding when squad members experience personal challenges,* (b) *respecting squad members' time,* (c) *helping the squad manage ongoing stress,* (d) *providing access to resources for squad members' well-being,* and (e) *identifying warning signs of squad distress.*

Based on the behaviors that loaded onto this first factor, we identified the factor as a leader's ability to foster a positive environment. The U.S. Department of the Army (2012a) has described creating a positive environment as an essential form of indirect leadership utilized by organizational leaders who hope to develop their units for future challenges. According to Army doctrine, leaders create a positive environment for their subordinates by encouraging honest communication, fostering trust in their ability to lead, and promoting an ethical climate (U.S. Department of the Army, 2012a). The benefits of developing this environment include enhanced performance, creativity, and cohesion within the organization, as well as increased motivation to learn.

At least 13 of the 32 leader behaviors that loaded on the first factor would help facilitate a positive environment by having leaders: a) consider the needs of individual Soldiers; b) recognize the psychological health and emotional support needed for their squad; c) maintain a balance between work and family life; and d) encourage communication within the squad. Climate is a vital part of a positive environment, which is reflected in the atmosphere or feel of a unit and indicated by the predominant spirit or mood (Bullis & Reed, 2003). Researchers have investigated positive climate as an intrinsic factor promoting resilience and suggested that a unit's climate is highly influenced by the quality of the leader (Meredith et al., 2011). In fact, leaders who established a positive climate within their units promoted psychological well-being, and empowered and supported their subordinates (Meredith et al., 2011).

Many of the behaviors that loaded on factor one are also related to the expression of empathy. The U.S. Department of the Army (2012a) discussed how empathy was one of four core elements of a leader's character. A leader displays empathy when they genuinely relate to their subordinate's circumstances, motives and feelings, and attempts to gain an overall deeper understand of the individual. The Army also emphasized the importance of leaders promoting healthy Army families through empathy by maintaining closer relationships between these families and the Army. Several of these empathetic behaviors were captured in the first factor; such as *acknowledging the impact of deployment on squad members' lives*, and *helping squad members to balance work obligations with personal/family obligations*. The ability to empathize with their subordinates enables Army leaders to better interact with others and provide support and resources that help to maintain good morale and mission effectiveness (U.S. Department of the Army, 2012a).

The empathetic behaviors that promote Soldier well-being and develop interpersonal relationships contribute to creating a positive environment within a unit by encouraging Soldier communication, exemplifying a willingness to address psychological concerns, and creating trust amongst the group (Bullis & Reed, 2003; Meredith et al., 2011). Surveys to assess climate have been created and utilized in the past to assess satisfaction with leaders and leader behavior (Bullis & Reed, 2003). Alternatively, Lopes (2010) suggested that surveys on climates can be utilized as an Army tool for assessing collective resilience. In all, this research suggests leader behaviors known for fostering a positive environment and climate, including considering the needs of the Soldiers and displaying empathy, are important for unit resilience.

Leaders Promote Army Performance Standards

Fourteen behaviors loaded highly on the second factor. Four of the behaviors were from Army leader interviews and ten were from the scientific literature (three from Alliger et al., 2015; six from Zaccaro et al., 2011; and one from Lopes, 2010). These leader behaviors were more relevant to exemplifying and maintaining Army performance standards, including: (a) *keeping the squad focused on mission priorities*, (b) *challenging the squad with difficult training*, (c) *providing feedback to the squad on how they can improve performance*, (d) *enforcing performance standards during training*, and (e) *promoting the values of the Army.*

Army performance standards are formal, detailed instructions for success within the Army that are describable, measurable, and achievable (U.S. Department of the Army, 2012a). The U.S. Department of the Army (2012a) determined that direct leaders are responsible for

setting expectations for performance, including monitoring and coordinating team efforts, and providing clear mission purpose. Effective leaders explain these standards to their units and empower Soldiers to enforce them. Army doctrine also acknowledged that leaders can instill resilience in their subordinates through tough and realistic training (U.S. Department of the Army, 2012a). By providing quality training, leaders encourage the development of their squad both physically and mentally and prepare them to take on any challenges they may face in the future.

All the leader behaviors that loaded on the second factor involve the promotion of Army performance standards. This includes such things as communicating what standards are and how to meet them, challenging the squad with difficult training and competition, and ensuring understanding of the overall mission. In their review, Meredith et al. (2011) discussed ways in which military leadership fostered resilience within their units through training and upholding standards. For instance, they found leaders who trained based on the mission, capabilities, and culture of their units tended to give clear guidance, provide feedback, and understand the team capabilities and limitations. Therefore, the findings of the current research align with the idea that promoting Army performance standards plays a vital role in unit resilience.

Leaders Support Cultural Sensitivity

The third factor contains a single item: *being sensitive to cultural differences in the squad*. This behavior originated from interviews with Army leaders. Previous Army leader literature has acknowledged a need for leaders to be respectful, and part of that respect involves being sensitive to different cultures (U.S. Department of the Army, 2012a). According to Army doctrine, good leaders should attempt to learn about different cultures and be sensitive to other cultures in order to best mentor, coach, and counsel members of their unit.

Of all the behaviors in the survey, it is the only behavior that is directly related to culture sensitivity or bias. On its face, this factor seems related to the first and could be part of a positive environment including treating everyone with respect, regardless of their gender, race, religious beliefs, creed, etc. Although it may be related to a positive environment, the fact that this behavior loaded onto a third factor may be indicative that cultural sensitivity plays a unique role in unit resilience, separately from other behaviors that foster a positive environment.

There are two possible interpretations of this factor: (a) it is an anomaly that will not be replicated in future research or (b) it reflects a meaningful domain of interest that was not well-covered in the survey itself (i.e., only a single item). We favor the second interpretation for three reasons. First, this factor could be representing a unique domain of interest to the Army that the other 73 questions did not fully capture. For example, it is possible that the literature review and SMEs missed a relevant and timely domain of interest. Second, we recognize the inherent importance being sensitive to cultural differences in the squad. As awareness of diversity in the Army increases, leadership attention to this issue becomes a critical priority. Third, this factor was statistically meaningful and captured unique variance beyond the other factors. At a minimum, future research is needed to determine whether there might be additional leader

behaviors that can influence a squad's resilience, particularly if they reflect biases or sensitivities towards cultural differences within the unit.

Implications

The findings of this research effort set the groundwork from which future studies can build. The 47 leader behaviors identified in this effort are the first to be empirically supported by both the scientific literature and Army Soldiers for their importance for unit resilience at the squad level. Identifying and supporting the importance of these leader behaviors and the three factors is necessary if we hope to inform future Army policies and practices at all levels of operation. If future research is able to support the behaviors and factors identified in this study, the Army will know what leader behaviors are most essential for fostering the resilience of units. This information can be used in numerous ways.

First, this research can be used to inform leader recruitment and selection. For example, the Army could begin to identify Soldiers not currently in leadership roles who already perform these important behaviors as a requirement for recruitment to leadership positions. Second, this research could inform leadership training initiatives. Because these behaviors have been identified as being important for squad resilience, leadership training programs could be adjusted to incorporate material about the behaviors and how to perform the behaviors within their squads. This could be accomplished with a mix of classroom and role-playing exercises in which leaders learn about the behaviors and then practice the behaviors with their peers. If Army leaders are trained in how to conduct these specific behaviors effectively, resilience across units should improve.

Third, this research could be used to further develop different kinds of performance assessments. For example, the leader behaviors necessary to foster unit resilience could form the foundation for future development of a variety of cognitive and non-cognitive assessment tools. One particularly important assessment tool that could be developed is a behaviorally anchored rating scale (BARS). BARS usually represent major performance dimensions of a job or positions (i.e., fostering resilience as a leader in an organization). BARS typically include a list of behaviors that are deemed critical for success within the position, with individuals being evaluated in terms of their effectiveness in the performance of the key behaviors (Debnath et al., 2015). The Army could use a BARS to assess whether or not leaders are conducting all of the identified behaviors important for fostering resilience within their units. These tools could eventually be tested for use in other organizations outside of the Army. Although the current research yielded a list of leader behaviors worthy of further investigation, some key limitations should be noted to better frame what can and cannot be implied from our results.

Limitations

The first limitation worth noting is relevant to the field of resilience as a whole rather than this research effort specifically. Unfortunately, no valid and reliable measure of collective or unit resilience for use within the Army was available at the time this study was conducted. Without such a tool, the empirical relationship between the collected leader behaviors and unit resilience could not be determined. However, given the exploratory nature of our research, the existence of a measure of unit resilience was not necessary. Fortunately, future research can rely

on such a measure as ARI has sense developed a measure of unit level resilience (Tannenbaum et. al., 2022).

A second limitation worth noting is the lack of representation among female Soldiers in our sample. Of the 352 Soldiers to complete the demographic survey, only 1.8% were female. The Army has historically been a predominantly male force with females only making up 14.3% of the active-duty enlisted personnel (Office of the Under Secretary of Defense for Personnel and Readiness, 2018). The lack of female representation in our sample could further be attributed to the specific military occupational specialties (MOSs) that were available to participate in the data collections. Some MOSs, like infantry, have less female Soldiers than others. This limitation is of note because the inequality among females compared to males in our sample could lead to speculation about whether our results are truly representative of female Soldiers' perceptions of leader behaviors important for unit resilience.

Moving forward, the goal of future studies should be to address these limitations by formally testing the relationship between the identified leader behaviors and demonstrated unit resilience. We can further refine the behaviors rated in the survey, validate their importance with corroborating qualitative data, and compare the behaviors to other measures of resilience that already exist in the field. Importantly, we can also examine if and how these behaviors may change across Army contexts and missions, and across the phases of resilience.

Future Directions

Four areas of future research appear promising. First, units are resilient (or not) in relation to a specific event that requires a resilient response. As such, the research literature has identified at least three phases of resilience organized around the event itself: (1) *Preparing* for the event; (2) *Responding* to the event while it is occurring; and (3*) Recovering* from the event (see Cato, et al., 2018; 2020; Alliger et al., 2015, for representative resilience models). The preparing, responding, and recovering phases are distinct and likely call for unique leadership responses. Future research should explore what leader behaviors are important at each phase of the resilience process. It is likely that the function and form of leader behaviors will vary at each phase of the process. Exploring the relevant leadership behaviors at each of the three phases might also involve identifying more specific leadership behaviors tied to a given phase or identifying leadership behaviors that might hinder resilience (in addition to the behaviors that can promote resilience). Identifying the relationship of specific leader behaviors with these phases would further our understanding of the influence of leadership on unit resilience and provide a nuanced view of the resilience process.

Second, as just noted, unit resilience occurs in the context of some event. As such, future research should seek to better understand the specific events that impact resilience. This would include understanding the specific events themselves, the essential features of the events, and the contextual factors that surround the events. Oc (2018) emphasized the central role context plays in leadership and provided evidence that supports the effects various contextual factors have on leadership. Oc's article can help inform which contextual factors may be worth exploring for their effects on leadership and collective resilience. This understanding will provide insight into how leaders can better anticipate and respond to events and ultimately have implications for the development and deployment of different leadership behaviors.

Third, whereas the current research provides some support for the leader behaviors collected at the squad level, these may differ in importance, or be irrelevant at different levels of leadership in the Army, or in larger Army units. Given the hierarchical structure of the Army, the leader behaviors necessary to impact resilience in one type of Army unit (i.e., the squad) may not be as effective for a unit of larger size (i.e., the platoon or company as a whole). Further, the behaviors of leaders at several different levels of leadership (i.e., the company or platoon) may have differing effects on squad resilience. For example, certain leader behaviors are likely to be more influential on squad resilience when exhibited by squad leaders compared to company commanders, and vice versa. Identifying which behaviors are more likely to occur at each level of leadership, as well as the strength of their impact, would further inform our understanding of the influence of leadership on unit resilience. This is where input from leaders operating at different levels within the Army is important. A logical next step in this research is to analyze qualitative data by leaders who operate at different levels (i.e., officers and non-commissioned officers who operate above the squad level). Assessing interview and focus group data of these leaders might be essential in establishing which leader behaviors are consistent across levels and which ones might be relevant for specific levels.

Fourth, future research should employ less exploratory and more hypothesis driven statistical methodology. Specifically, confirmatory factor analyses (CFA) could prove useful in the categorization and construct validity of the proposed factors. The EFA employed here was a necessary first exploratory step, but researchers building from this work should look to hypothesizing and testing proposed factor structures.

Conclusion

The current research provides the initial foundation for a larger effort aimed at investigating the impact of leadership on unit resilience in the Army. Building on these findings, future research should examine leadership across various Army contexts, including different situations requiring a unit to be resilient and across all levels of operation. In addition, future investigations should focus on the development of assessment tools and interventions which would improve unit resilience in the Army. The results of the present research and subsequent research could inform the development of a behaviorally anchored rating scale as a tool to assess leaders. Continued research endeavors in this field can help inform and recommend Army policy, the recruitment of Soldiers for leadership positions, and the design of leader development training, for the purpose of improving the health, readiness, and resilience of the Army.

References

Alliger, G. M., Cerasoli, C. P., Tannenbaum, S. I., & Vessey, W. B. (2015). Team resilience: How teams flourish under pressure. *Organizational Dynamics*, *44*(3), 176-184. http://dx.doi.org/10.1016/j.orgdyn.2015.05.003

Ancelovici, M. (2013). The origins and dynamics of organizational resilience: A comparative study of two French labor organizations. In P. A. Hall & M. Lamont (Eds.), *Social resilience in the neoliberal era* (pp. 346-375). Cambridge University Press.

Bartone, P. T. (1999). Hardiness protects against war-related stress in Army Reserve forces. *Consulting Psychology Journal: Practice and Research*, *51*(2), 72-82. https://doi.org/10.1037/1061-4087.51.2.72

Bartone, P. T. (2006). Resilience under military operational stress: Can leaders influence hardiness? *Military Psychology, 18*(Suppl), S131-S148. https://doi.org/10.1207/s15327876mp1803s_10

Bartone, P. T., Barry, C .L., & Armstrong, R. E. (2009*).* To build resilience: Leader influence on mental hardiness. *Defense Horizons*, *69*, 1-8. https://www.files.ethz.ch/isn/135062/DH69.pdf

Bass, B. M. (1985). *Leadership and performance beyond expectation*. The Free Press.

Bass, B. M. (1996). *A new paradigm of leadership: An inquiry into transformational leadership.* US Army Research Institute for the Behavioral and Social Sciences. (DTIC No. ADA306579) https://apps.dtic.mil/dtic/tr/fulltext/u2/a306579.pdf

Bass, B. M. (1999). Two decades of research and development in transformational leadership. *European Journal of Work and Organizational Psychology*, *8*(1), 9-32. https://doi.org/10.1080/135943299398410

Bass, B. M., & Avolio B. J. (1993). Transformational leadership and organizational culture. *Public Administration Quarterly*, *17*(1), 112-121. https://doi.org/10.1080/01900699408524907

Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology, 88*(2), 207-218. https://doi.org/10.1037/0021-9010.88.2.207

Bullis, C., & Reed, G. (2003). *Assessing leaders to establish and maintain positive command climate* (A report to the Secretary of the Army). (February 2003) U.S. Army War College.

Burns, J. M. (1978). *Leadership*. Harper & Row.

Cato C. R., Blue, S. N., & Boyle, B. (2018). Conceptualizing risk and unit resilience in a military context. In B. D. Trump, N. V. Florin, & I. Linkov (Eds.), *IRGC resource guide on resilience (vol. 2): Domains of resilience for complex interconnected systems* (pp. 1-7). EPFL International Risk Governance Center.

Cato, C., Blue, S., & Boyle, B. (2020). *Systematic literature review: Defining and conceptualizing unit resilience* [In preparation]. United States Army Research Institute for the Behavioral and Social Sciences.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd Edition). Routledge.

Debnath, S. C., Lee, B., & Tandon, S. (2015). Fifty years and going strong: What makes behaviorally anchored rating scales so perennial as an appraisal method? *International Journal of Business and Social Sciences*, *6*(2), 16-25.

Dickens, P. M. (2015). Strategic OD and complexity: Facilitating emergent change. *OD Practitioner*, *47*(3), 38-43. http://www.irisgroup.ca/usercontent/articles/ODP-Dickens.pdf

Dolan, C. A., & Adler, A. B. (2006). Military hardiness as a buffer of psychological health on return from deployment. *Military Medicine*, *171*(2), 93-98. https://doi.org/10.7205/MILMED.171.2.93

Edson, M. C. (2012). A complex adaptive systems view of resilience in a project team. *Systems Research and Behavioral Science*, *29*(5), 499-516. https://doi.org/10.1002/sres.2153

Estrada, A. X., & Severt, J. B. (2017, August). *Impact of leadership and unit factors on unit resilience* [Paper presentation]. 125th Annual American Psychological Association Convention, Washington, DC, United States.

Gilmour, D., & Retford, R. (2014). Leading through turbulence: Discovering the company's heartbeat and developing organisational resilience. *International Journal of Appreciative Inquiry 16*(1), 29-32. https://doi.org/10.12781/978-1-907549-18-2-5

Fletcher, D., & Sarkar, M. (2013). Psychological resilience: A review and critique of definitions, concepts, and theory. *European Psychologist*, *18*(1), 12-23. https://doi.org/10.1027/1016-9040/a000124

Hackman, J. R., & Walton, R. E. (1986). Leading groups in organizations. In P. S. Goodman & Associates (Eds.), *Designing effective work groups* (pp. 72-119). Jossey-Bass.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed., pp. 125-875). Pearson Prentice Hall.

Harland, L., Harrison, W., Jones, J. R., & Reiter-Palmon, R. (2005). Leadership behaviors and subordinate resilience. *Journal of Leadership & Organizational Studies*, *11*(2), 2–14. https://digitalcommons.unomaha.edu/psychfacpub/62

Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods, 7*(2), 191-205. https://doi.org/10.1177/1094428104263675

Jiménez, M., Newman, J., Gallus, J., Darrow, J., & Hoffman, R. (2015). [Unpublished raw data on leaders' influence on unit durability within the Army]. United States Army Research Institute for the Behavioral and Social Sciences.

Kaiser, R. B., & DeVries, D. L. (2000). Leadership styles. In W.E. Craighead and C.B. Nemeroff (Eds.), *The corsini encyclopedia of psychology and behavioral science* (3rd ed.) Wiley & Sons.

Kelly, D. R., Matthews, M. D., & Bartone, P. T. (2014). Grit and hardiness as predictors of performance among West Point cadets. *Military Psychology*, *26*(4), 327-342. https://doi.org/10.1037/mil0000050

Key-Roberts, M. (2018). [Unpublished raw data on leader behaviors identified to be related to resilience] United States Army Research Institute for the Behavioral and Social Sciences.

Kieffer, K. M. (1998, November 4-6). *Orthogonal versus oblique factor rotation: A review of the literature regarding the pros and cons* [Paper presentation]. Mid-South Educational Research Association 27th Annual Meeting, New Orleans, LA, United States. https://files.eric.ed.gov/fulltext/ED427031.pdf

Kim, J. O., & Mueller, C. W. (1978). *Factor analysis: Statistical methods and practical issues*. Sage.

Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, *7*(3), 77-124. https://doi.org/10.1111/j.1529-1006.2006.00030.x

Lester, P., Harms, P., Bulling, D., Herian, M., Spain, S., & Beal, S. (2011). *Evaluation of relationships between reported resilience and soldier outcomes. Report No. 2: Positive performance outcomes in officers (Promotions, Selections, & Professions)*. (DTIC No. ADA542229). U.S. Department of the Army, Comprehensive Soldier Fitness. https://apps.dtic.mil/dtic/tr/fulltext/u2/a542229.pdf

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*(404), 1198-1202. https://www.jstor.org/stable/2290157

Lopes, J. F. (2010). Theoretical dimensions of small unit resilience (MBA Professional Report). *Naval Postgraduate School*. (DTIC No. ADA536495). https://apps.dtic.mil/dtic/tr/fulltext/u2/a536495.pdf

McGrath, J. E. (1962). *Leadership behavior: Some requirements for leadership training*. U.S. Civil Service Commission, Office of Career Development.

McKnight, P. E. (2007). *Missing data: A gentle introduction.* Guilford Press.

Meredith, L. S., Sherbourne, C. D., Gaillot, S., Hansell, L., Ritschard, H. V., Parker, A. M., & Wrenn, G. (2011). *Promoting psychological resilience in the U.S. military*. RAND Corporation.

Morgan, P. B. C., Fletcher, D., & Sarkar, M. (2015). Understanding team resilience in the world's best athletes: A case study of a rugby union World Cup winning team. *Psychology of Sport and Exercise*, *16*(Part 1), 91-1. https://doi.org/10.1016/j.psychsport.2014.08.007

Morgeson, F. P. (2005). The external leadership of self-managing teams: Intervening in the context of novel and disruptive events. *Journal of Applied Psychology, 90*(3)*,* 497-508. https://doi.org/10.1037/0021-9010.90.3.497

Morgeson, F. P., DeRue, D. S., & Karam, E. P. (2010). Leadership in teams: A functional approach to understanding leadership structures and processes. *Journal of Management*, *36*, 5-39. https://doi.org/10.1177/0149206309347376

Morgeson, F. P., & Hofmann, D. A. (1999). The structure and function of collective constructs: Implications for multilevel research and theory development. *Academy of Management Review*, *24*(2), 249-265. https://doi.org/10.2307/259081

Mumford, T. V., Campion, M. A., & Morgeson, F. P. (2007). The leadership skills strataplex: Leadership skill requirements across organizational levels. *The Leadership Quarterly*, *18*(2), 154-166. https://doi.org/10.1016/j.leaqua.2007.01.005

Nunnally, J.C. (1978). *Psychometric theory*. McGraw-Hill.

Oc, B. (2018). Contextual leadership: A systematic review of how contextual factors shape leadership and its outcomes. *The Leadership Quarterly*, *29*(1), 218-235. https://doi.org/10.1016/j.leaqu.2017.12.004

Reivich, K. J., Seligman, M. E. P., & McBride, S. (2011). Master resilience training in the US Army. *American Psychologist*, *66*(1), 25-34. https://doi.org/10.1037/a0021897

Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys.* Wiley & Sons..

Southwick F. S., Martini B. L., Charney, D. S., & Southwick S. M. (2017). Leadership and resilience. In J. Marques, & S. Dhiman (Eds.), *Leadership today* (pp. 315-333). Springer International Publishing. https://doi.org/10.1007/978-3-319-31036-7_18

Stamper, C., & Masterson, S. S. (2002). Insider or outsider? How employee perceptions of insider status affect their work behavior. *Journal of Organizational Behavior, 23*(8), 875-894.

Tannenbaum, S. D., Mathieu, J. E., Levy, J., Watson, D., Maynard, T., Beard, R., Salas, E., Boyle, B. E., Cato, C. R., Berry, C. A., & Blue, S. N. (2022). The Development and Validation of an Army

Team Resilience Measure, Military Psychology. Advanced online publication. https://doi.org/10.1080/08995605.2022.2065154 (DTIC No. AD1168806).

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, *2*, 53-55. https://doi.org/19.5116/ijme.4dfb.8dfd

U.S. Department of Defense. (2018). *Population representation in the military services: Fiscal year 2017 summary report.* Office of the Under Secretary of Defense for Personnel and Readiness. https://www.cna.org/pop-rep/2017/summary/summary.pdf

U.S. Department of the Army. (2012a). *Army leadership* (ADRP 6-22). Author. http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/adp6_22.pdf

U.S. Department of the Army. (2012b). *Organization of the United States Army (Army 101): An overview of Army structure and capabilities*. Author.

U.S. Department of the Army. (2015). *Leader development* (Field Manual 6-22). Author. http://www.milsci.ucsb.edu/sites/secure.lsit.ucsb.edu.mili.d7/files/sitefiles/fm6_22.pdf

U.S. Department of the Army. (2018). *The U.S. Army in multi-domain operations 2028* (TRADOC Pamphlet 525-3-1). Training and Doctrine Command. https://adminpubs.tradoc.army.mil/pamphlets/TP525-3-1.pdf

U.S. Department of the Army. (2019). *Army SHARP, ready & resilient (SR2) directorate*. Comprehensive Soldier Fitness. http://readyandresilient.army.mil/resources.html

Van der Beek, D., & Schraagen, J. M. (2015). ADAPTER: Analysis and developing adaptability and performance in teams to enhance resilience. *Reliability Engineering and System Safety*, *141*, 33-44. https://doi.org/10.1016/j.ress.2015.03.019

Van Buuren, S., & Groothuis-Oudshoorn, K. (2011). MICE: Multivariate imputation by chained equations in R. *Journal of Statistical Software*, *45*(3), 1-67. https://doi.org/10.18637/jss.v045.i03

Von Hippel, P. T. (2018). How many imputations do you need? A two-stage calculation using a quadratic rule. *Sociological Methods and Research*, *49*(3), Issue 3, 699-718. https://doi.org/10.1177/0049124117747303

Wageman, R. (2001). How leaders foster self-managing team effectiveness: Design choices versus hands-on coaching. *Organization Science*, *12*(5), 559-577. https://doi.org/10.1287/orsc.12.5.559.10097

Zaccaro, S. J., Rittman, A. L., & Marks, M. A. (2001). Team leadership. *Leadership Quarterly*, *12*(4), 451-483. https://doi.org/10.1016/S1048-9843(01)00093-5

Zaccaro, S. J., Weis, E. J., Hilton, R. M., & Jefferies, J. (2011). Building resilient teams. In P. Sweeny, M. D. Matthews, & P. B. Lester (Eds.), *Leadership in dangerous situations: A*

handbook for first responders and armed forces (pp. 182-201). Naval Institute Press. http://ebookcentral.proquest.com/lib/gmu/detail.action?docID=782070

Zemba, V., Wells, E. M., Wood, M. D., Trump, B. D., Boyle, B., Blue, S., Cato, C., & Linkov, I. (2019). Defining, measuring, and enhancing resilience for small groups. *Safety Science*, 120, 603-616. https://doi.org/10.1016/j.ssci.2019.07.042

APPENDIX A
ITEM LIST WITH SAMPLE SIZE, MEANS, AND STANDARD DEVIATIONS

Table A1

Full list of leader behaviors and associated means and standard deviations

Item #	Behavior	*n*	*M*	*SD*
1	Inspiring squad members to believe in their mission	367	3.90	1.09
2	Encouraging squad members to come up with creative solutions to problems	365	4.03	1.04
3	Knowing what resources are available to the squad	364	4.15	0.98
4	Encouraging squad attendance at unit social events	364	3.22	1.31
5	Facilitating conversations during post-challenge debriefs	361	3.58	1.10
6	Checking in with squad members	367	4.10	1.02
7	Giving individual Soldiers constructive feedback on how they can improve performance	365	4.15	0.99
8	Being sensitive to cultural differences in the squad	365	3.59	1.23
9	Providing access to resources for squad members' well-being	364	4.06	1.05
10	Inspiring squad members to work together towards a shared goal	364	4.18	0.96
11	Creating effective plans	367	4.18	0.97
12	Listening to negative feedback from squad members	363	3.71	1.24
13	Performing tasks effectively	366	4.27	0.92
14	Providing effective strategies for dealing with challenges	366	4.05	0.99
15	Backing the squad to chain-of-command	362	4.01	1.15
16	Anticipating challenges the squad might face	365	3.91	0.97
17	Being willing to perform the same tasks they ask their Soldiers to do	366	4.23	1.15
18	Identifying warning signs of squad distress	364	4.04	1.11
19	Being fair when giving feedback to individual Soldiers	367	3.94	1.12
20	Challenging the squad with difficult training	364	4.01	0.98
21	Offering praise to the squad following good performance	367	3.79	1.19
22	Helping the squad manage ongoing stress	365	3.92	1.14
23	Encouraging respect for squad members' personal boundaries/privacy	366	3.90	1.19
24	Establishing clear goals for the squad	366	4.17	0.96
25	Explaining to Soldiers why they are told to do certain things	364	3.60	1.28
26	Monitoring the needs of the squad	363	3.89	1.06
27	Allowing Soldiers to change course if standard operating procedures (SOPs) are not working	365	3.76	1.20
28	Taking the time to fully understand the situation before reacting	367	4.03	1.11
29	Creating backup plans for when things do not go as expected	365	4.11	1.01
30	Assigning resources to squad members who need them	366	4.02	1.03
31	Adjusting leadership style to suit the needs of individual squad members	364	3.45	1.28

Item #	Behavior	n	M	SD
32	Being honest about the limits of his/her knowledge	365	3.96	1.13
33	Helping the squad refocus on the mission after a disruption	365	4.05	0.95
34	Getting all squad members' input about what happened after a challenging event	364	3.84	1.11
35	Mentoring squad members	363	4.16	1.05
36	Helping squad members to balance work obligations with personal/family obligations	362	3.99	1.16
37	Displaying appropriate teamwork behaviors	364	4.06	0.97
38	Respecting squad members' time	366	3.73	1.27
39	Being understanding when squad members experience personal challenges	367	3.97	1.11
40	Assuring squad members that challenges can be overcome	366	4.04	1.02
41	Providing help to squad members when they experience personal challenges	367	4.11	1.10
42	Being honest with Soldiers when reviewing a challenging event	367	4.14	0.97
43	Making sure new Soldiers are integrated into the squad	362	4.11	1.05
44	Making changes in response to Soldier feedback, when appropriate	363	3.82	1.11
45	Helping the squad with challenging tasks	363	4.09	1.03
46	Encouraging teamwork during challenges	366	4.13	0.94
47	Supporting squad members in skill development	365	4.10	0.99
48	Responding to challenges quickly and accurately	366	4.20	0.90
49	Helping the squad find meaning in the challenges they encounter	366	3.69	1.12
50	Encouraging friendly competition within the squad	367	3.93	1.05
51	Explaining how the squad's mission fits with the overall mission	366	4.04	1.06
52	Encouraging squad members to take on leadership roles	366	4.03	1.00
53	Maintaining composure during emergencies	366	4.38	0.90
54	Encouraging open and honest communication in the squad	366	4.19	1.04
55	Keeping the squad focused on mission priorities	366	4.23	0.87
56	Being tolerant towards individual differences in the squad	365	3.67	1.12
57	Emphasizing squad performance over individual performance	365	3.78	1.12
58	Providing Soldiers with enough time to adjust to changing plans	367	3.58	1.20
59	Enforcing Army standards	366	4.03	1.10
60	Promoting team-building during training	366	4.11	1.02
61	Enforcing performance standards during training	364	4.10	0.92
62	Assigning work according to the strengths of each member of the squad	366	3.76	1.15
63	Showing trust towards other leaders	367	4.11	1.03

Item #	Behavior	n	M	SD
64	Providing feedback to the squad on how they can improve performance	366	4.18	0.96
65	Allowing Soldiers to make independent decisions, when appropriate	365	3.95	1.09
66	Insisting that squad members do what they say they are going to do	364	4.18	0.90
67	Requesting additional resources when the squad needs them	366	4.02	1.05
68	Establishing clear expectations for the squad	366	4.35	0.90
69	Helping the squad adapt to operational changes	367	4.09	0.99
70	Assessing the strengths and weaknesses of each squad member	367	4.1	1.01
71	Sharing personal stories about challenges they have experienced	366	3.53	1.20
72	Communicating the plan/mission to squad members	366	4.29	0.94
73	Acknowledging the impact of deployment on squad members' lives	367	4.08	1.08
74	Promoting the values of the Army	367	3.87	1.12

APPENDIX B
SURVEY INSTRUMENT

BACKGROUND INFORMATION SHEET
This information will be kept separate from your survey data.

Demographics. The purpose of the following questions are to obtain general information about the participants in this research study. Answers will not be traced back to individual participants. Please do not provide your name or any identifying information. All of your responses will remain confidential.

Instructions: Please answer each question below. Clearly mark ONE response in the circles provided, unless otherwise specified.

1. What is your rank?

Officers		Enlisted	
O 2LT	O WO1	O PV1	O SGT
O 1LT	O CW2	O PV2	O SSG
O CPT	O CW3	O PFC	O SFC
O MAJ	O CW4	O SPC/CPL	O MSG/1SG
O LTC	O CW5		O SGM/CSM
O COL+			

2. Are you male or female?

O Male
O Female

LEADER BEHAVIOR AND UNIT RESILIENCE SURVEY

INSTRUCTIONS

This survey contains three parts. The first part asks about the importance of specific leader behaviors for unit resilience at the squad level. The second part asks about leader behaviors you think are missing from the first part. The third part contains basic demographic questions (e.g., gender and rank). Please DO NOT identify anyone or yourself by name in any of your responses. Definitions of important terms are provided below.

DEFINITIONS

➢ **Unit Resilience**. Unit resilience refers to the capability of an entire group of Soldiers to prepare for, respond to, and recover from disruptive and adverse challenges. We believe this is a process that requires utilizing the collective skills, abilities, and resources of the unit to plan for anticipated problems, respond to unexpected challenges, and recover from disruptive events. For the current survey, we will be focusing on unit resilience at the squad level, meaning the resilience of the squad as a whole.

➢ **Leader behaviors**. Leader behaviors may be performed directly by squad leaders or by leaders several levels above the squad level. We are interested in any behaviors that may influence the resilience of a squad, and that behavior does not have to come specifically from squad leadership.

➢ **Importance**. Each leader behavior should be rated using a 5-point importance scale: not at all important, slightly important, moderately important, very important, and extremely important. Your importance rating indicates how important you think each leader behavior is for unit resilience at the squad level. For example, if you select "slightly important" for a leader behavior, you are indicating that you believe the leader behavior is slightly important to influencing resilience at the squad level.

If you have any questions about these definitions or the instructions in general, please ask one of the survey administrators.

1. Have you been a member of your current squad for AT LEAST 6 months? Mark one answer.	**2. What is your current unit position?**
O Yes O No, please specify: _____	O Junior enlisted Soldier position O Squad/Section/Team Leader O Platoon Sergeant O First Sergeant O Command/Battery/Detachment Commander O Other warrant officer position O Other company grade officer position O Battalion Commander O Other field grade officer position

LEADER BEHAVIOR AND UNIT RESILIENCE SURVEY

Instructions: Please provide your ratings of the leader behaviors listed below. Clearly mark your response in the circles provided.

		How important is this leader behavior for unit resilience at the squad level?				
		Not at All Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)
1.	Inspiring squad members to believe in their mission	①	②	③	④	⑤
2.	Encouraging squad members to come up with creative solutions to problems	①	②	③	④	⑤
3.	Knowing what resources are available to the squad	①	②	③	④	⑤
4.	Encouraging squad attendance at unit social events	①	②	③	④	⑤
5.	Facilitating conversations during post-challenge debriefs	①	②	③	④	⑤
6.	Checking in with squad members	①	②	③	④	⑤
7.	Giving individual Soldiers constructive feedback on how they can improve performance	①	②	③	④	⑤
8.	Being sensitive to cultural differences in the squad	①	②	③	④	⑤
9.	Providing access to resources for squad members' well-being	①	②	③	④	⑤
10.	Inspiring squad members to work together towards a shared goal	①	②	③	④	⑤
11.	Creating effective plans	①	②	③	④	⑤
12.	Listening to negative feedback from squad members	①	②	③	④	⑤
13.	Performing tasks effectively	①	②	③	④	⑤
14.	Providing effective strategies for dealing with challenges	①	②	③	④	⑤
15.	Backing the squad to chain-of-command	①	②	③	④	⑤

LEADER BEHAVIOR AND UNIT RESILIENCE SURVEY

Instructions: Please provide your ratings of the leader behaviors listed below. Clearly mark your response in the circles provided.

		How important is this leader behavior for unit resilience at the squad level?				
		Not at All Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)
16.	Anticipating challenges the squad might face	①	②	③	④	⑤
17.	Being willing to perform the same tasks they ask their Soldiers to do	①	②	③	④	⑤
18.	Identifying warning signs of squad distress	①	②	③	④	⑤
19.	Being fair when giving feedback to individual Soldiers	①	②	③	④	⑤
20.	Challenging the squad with difficult training	①	②	③	④	⑤
21.	Offering praise to the squad following good performance	①	②	③	④	⑤
22.	Helping the squad manage ongoing stress	①	②	③	④	⑤
23.	Encouraging respect for squad members' personal boundaries/privacy	①	②	③	④	⑤
24.	Establishing clear goals for the squad	①	②	③	④	⑤
25.	Explaining to Soldiers why they are told to do certain things	①	②	③	④	⑤
26.	Monitoring the needs of the squad	①	②	③	④	⑤
27.	Allowing Soldiers to change course if standard operating procedures (SOPs) are not working	①	②	③	④	⑤
28.	Taking the time to fully understand the situation before reacting	①	②	③	④	⑤
29.	Creating backup plans for when things do not go as expected	①	②	③	④	⑤
30.	Assigning resources to squad members who need them	①	②	③	④	⑤

LEADER BEHAVIOR AND UNIT RESILIENCE SURVEY

Instructions: Please provide your ratings of the leader behaviors listed below. Clearly mark your response in the circles provided.

		How important is this leader behavior for unit resilience at the squad level?				
		Not at All Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)
31.	Adjusting leadership style to suit the needs of individual squad members	①	②	③	④	⑤
32.	Being honest about the limits of his/her knowledge	①	②	③	④	⑤
33.	Helping the squad refocus on the mission after a disruption	①	②	③	④	⑤
34.	Getting all squad members' input about what happened after a challenging event	①	②	③	④	⑤
35.	Mentoring squad members	①	②	③	④	⑤
36.	Helping squad members to balance work obligations with personal/family obligations	①	②	③	④	⑤
37.	Displaying appropriate teamwork behaviors	①	②	③	④	⑤
38.	Respecting squad members' time	①	②	③	④	⑤
39.	Being understanding when squad members experience personal challenges	①	②	③	④	⑤
40.	Assuring squad members that challenges can be overcome	①	②	③	④	⑤
41.	Providing help to squad members when they experience personal challenges	①	②	③	④	⑤
42.	Being honest with Soldiers when reviewing a challenging	①	②	③	④	⑤
43.	Making sure new Soldiers are integrated into the squad	①	②	③	④	⑤
44.	Making changes in response to Soldier feedback, when appropriate	①	②	③	④	⑤
45.	Helping the squad with challenging tasks	①	②	③	④	⑤

LEADER BEHAVIOR AND UNIT RESILIENCE SURVEY

Instructions: Please provide your ratings of the leader behaviors listed below. Clearly mark your response in the circles provided.

		How important is this leader behavior for unit resilience at the squad level?				
		Not at All Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)
46.	Encouraging teamwork during challenges	①	②	③	④	⑤
47.	Supporting squad members in skill development	①	②	③	④	⑤
48.	Responding to challenges quickly and accurately	①	②	③	④	⑤
49.	Helping the squad find meaning in the challenges they	①	②	③	④	⑤
50.	Encouraging friendly competition within the squad	①	②	③	④	⑤
51.	Explaining how the squad's mission fits with the overall mission	①	②	③	④	⑤
52.	Encouraging squad members to take on leadership roles	①	②	③	④	⑤
53.	Maintaining composure during emergencies	①	②	③	④	⑤
54.	Encouraging open and honest communication in the squad	①	②	③	④	⑤
55.	Keeping the squad focused on mission priorities	①	②	③	④	⑤
56.	Being tolerant towards individual differences in the squad	①	②	③	④	⑤
57.	Emphasizing squad performance over individual performance	①	②	③	④	⑤
58.	Providing Soldiers with enough time to adjust to changing	①	②	③	④	⑤
59.	Enforcing Army standards	①	②	③	④	⑤
60.	Promoting team-building during training	①	②	③	④	⑤

LEADER BEHAVIOR AND UNIT RESILIENCE SURVEY

Instructions: Please provide your ratings of the leader behaviors listed below. Clearly mark your response in the circles provided.

		How important is this leader behavior for unit resilience at the squad level?				
		Not at All Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)
61.	Enforcing performance standards during training	①	②	③	④	⑤
62.	Assigning work according to the strengths of each member of the squad	①	②	③	④	⑤
63.	Showing trust towards other leaders	①	②	③	④	⑤
64.	Providing feedback to the squad on how they can improve performance	①	②	③	④	⑤
65.	Allowing Soldiers to make independent decisions, when appropriate	①	②	③	④	⑤
66.	Insisting that squad members do what they say they are going to do	①	②	③	④	⑤
67.	Requesting additional resources when the squad needs them	①	②	③	④	⑤
68.	Establishing clear expectations for the squad	①	②	③	④	⑤
69.	Helping the squad adapt to operational changes	①	②	③	④	⑤
70.	Assessing the strengths and weaknesses of each squad member	①	②	③	④	⑤
71.	Sharing personal stories about challenges they have experienced	①	②	③	④	⑤
72.	Communicating the plan/mission to squad members	①	②	③	④	⑤
73.	Acknowledging the impact of deployment on squad members' lives	①	②	③	④	⑤
74.	Promoting the values of the Army	①	②	③	④	⑤

LEADER BEHAVIOR AND UNIT RESILIENCE SURVEY

Instructions: Please write-in responses to the questions below. Your responses will help us identify leader behaviors we may have missed. <u>Do not identify yourself or anyone else by name in these responses</u>.

1. What other leader behaviors do you think are necessary for unit resilience at the squad level? (Please provide up to three.)

a)

b)

c)

2. Name up to three leader behaviors that have a negative impact on unit resilience at the squad level.

b)

c)

d)

APPENDIX C
RESULTS TABLES

APPENDIX C LIST OF TABLES

Page

Table C1

Leadership and Unit Resilience Survey Item Descriptive Statistics and Response Frequencies

			Descriptive Statistics						Response Frequencies (*n*)				
								Not at All Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)
Item #	*n*	*M*	*SD*	*Mdn*	*Range*	*Skew*	*Kurtosis*	*SE*					
1	367	3.90	1.09	4.00	4.00	-0.90	0.15	0.06	14	30	62	133	128
2	365	4.03	1.04	4.00	4.00	-0.95	0.27	0.05	9	25	62	120	149
3	364	4.15	0.98	4.00	4.00	-1.35	1.76	0.05	12	12	43	139	158
4	364	3.22	1.31	3.00	4.00	-0.18	-1.02	0.07	49	55	108	72	80
5	361	3.58	1.10	4.00	4.00	-0.45	-0.47	0.06	16	41	104	116	84
6	367	4.10	1.02	4.00	4.00	-1.08	0.59	0.05	9	21	57	116	164
7	365	4.15	0.99	4.00	4.00	-1.27	1.35	0.05	10	16	45	131	163
8	365	3.59	1.23	4.00	4.00	-0.54	-0.67	0.06	28	41	90	99	107
9	364	4.06	1.05	4.00	4.00	-1.16	0.89	0.06	14	17	55	125	153
10	364	4.18	0.96	4.00	4.00	-1.18	1.10	0.05	8	12	57	115	172
11	367	4.18	0.97	4.00	4.00	-1.12	0.72	0.05	6	18	55	113	175
12	363	3.71	1.24	4.00	4.00	-0.76	-0.37	0.06	30	31	72	112	118
13	366	4.27	0.92	4.00	4.00	-1.44	2.08	0.05	8	11	39	126	182
14	366	4.05	0.99	4.00	4.00	-1.09	1.01	0.05	11	14	61	141	139
15	362	4.01	1.15	4.00	4.00	-1.07	0.35	0.06	19	21	60	100	162
16	365	3.91	0.97	4.00	4.00	-0.81	0.42	0.05	9	19	78	148	111
17	366	4.23	1.15	5.00	4.00	-1.51	1.36	0.06	20	18	34	81	213
18	364	4.04	1.11	4.00	4.00	-1.15	0.70	0.06	18	17	57	113	159
19	367	3.94	1.12	4.00	4.00	-0.93	0.08	0.06	15	30	61	117	144
20	364	4.01	0.98	4.00	4.00	-0.94	0.54	0.05	8	21	62	143	130
21	367	3.79	1.19	4.00	4.00	-0.75	-0.32	0.06	22	32	78	105	130
22	365	3.92	1.14	4.00	4.00	-0.99	0.22	0.06	19	26	59	121	140
23	366	3.90	1.19	4.00	4.00	-0.96	0.04	0.06	23	26	62	110	145
24	366	4.17	0.96	4.00	4.00	-1.11	0.73	0.05	5	21	48	125	167

		Descriptive Statistics							Response Frequencies (*n*)				
Item #	*n*	*M*	*SD*	*Mdn*	*Range*	*Skew*	*Kurtosis*	*SE*	Not at All Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)
25	364	3.60	1.28	4.00	4.00	-0.57	-0.74	0.07	32	42	80	95	115
26	363	3.89	1.06	4.00	4.00	-0.85	0.21	0.06	14	21	79	125	124
27	365	3.76	1.20	4.00	4.00	-0.76	-0.29	0.06	25	30	77	110	123
28	367	4.03	1.11	4.00	4.00	-1.10	0.49	0.06	16	24	53	114	160
29	365	4.11	1.01	4.00	4.00	-1.18	0.95	0.05	10	21	46	130	158
30	366	4.02	1.03	4.00	4.00	-1.07	0.70	0.05	12	22	54	138	140
31	364	3.45	1.28	4.00	4.00	-0.43	-0.84	0.07	38	43	96	90	97
32	365	3.96	1.13	4.00	4.00	-1.09	0.50	0.06	20	22	53	126	144
33	365	4.05	0.95	4.00	4.00	-0.90	0.47	0.05	6	17	67	138	137
34	364	3.84	1.11	4.00	4.00	-0.79	-0.12	0.06	15	33	70	124	122
35	363	4.16	1.05	5.00	4.00	-1.23	0.85	0.06	11	20	50	100	182
36	362	3.99	1.16	4.00	4.00	-1.08	0.34	0.06	20	23	55	108	156
37	364	4.06	0.97	4.00	4.00	-1.08	0.93	0.05	9	18	54	144	139
38	366	3.73	1.27	4.00	4.00	-0.69	-0.60	0.07	29	35	79	84	139
39	367	3.97	1.11	4.00	4.00	-1.01	0.35	0.06	17	22	64	117	147
40	366	4.04	1.02	4.00	4.00	-1.00	0.53	0.05	10	20	63	126	147
41	367	4.11	1.10	4.00	4.00	-1.25	0.89	0.06	17	17	52	105	176
42	367	4.14	0.97	4.00	4.00	-1.21	1.20	0.05	9	16	49	132	161
43	362	4.11	1.05	4.00	4.00	-1.14	0.74	0.06	12	17	59	106	168
44	363	3.82	1.11	4.00	4.00	-0.78	-0.02	0.06	17	26	81	122	117
45	363	4.09	1.03	4.00	4.00	-1.22	1.09	0.05	13	17	49	129	155
46	366	4.13	0.94	4.00	4.00	-1.13	1.13	0.05	7	16	50	144	149
47	365	4.10	0.99	4.00	4.00	-1.23	1.33	0.05	12	14	50	140	149
48	366	4.20	0.90	4.00	4.00	-1.18	1.23	0.05	5	15	45	138	163
49	366	3.69	1.12	4.00	4.00	-0.63	-0.27	0.06	19	32	93	120	102
50	367	3.93	1.05	4.00	4.00	-0.90	0.35	0.05	13	21	73	132	128

	Descriptive Statistics								Response Frequencies (*n*)				
Item #	*n*	*M*	*SD*	*Mdn*	*Range*	*Skew*	*Kurtosis*	*SE*	Not at All Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)
51	366	4.04	1.06	4.00	4.00	-1.01	0.24	0.06	9	33	47	123	154
52	366	4.03	1.00	4.00	4.00	-1.09	0.98	0.05	12	14	62	140	138
53	366	4.38	0.90	5.00	4.00	-1.59	2.32	0.05	6	10	39	94	217
54	366	4.19	1.04	5.00	4.00	-1.33	1.19	0.05	12	17	47	102	188
55	366	4.23	0.87	4.00	4.00	-1.07	0.90	0.05	3	12	50	133	168
56	365	3.67	1.12	4.00	4.00	-0.71	-0.03	0.06	24	22	98	127	94
57	365	3.78	1.12	4.00	4.00	-0.70	-0.26	0.06	16	33	82	117	117
58	367	3.58	1.20	4.00	4.00	-0.51	-0.62	0.06	25	43	93	107	99
59	366	4.03	1.10	4.00	4.00	-1.05	0.41	0.06	15	21	63	107	160
60	366	4.11	1.02	4.00	4.00	-1.17	0.92	0.05	11	18	53	123	161
61	364	4.10	0.92	4.00	4.00	-1.05	1.04	0.05	7	13	58	145	141
62	366	3.76	1.15	4.00	4.00	-0.85	0.07	0.06	25	22	79	131	109
63	367	4.11	1.03	4.00	4.00	-1.16	0.92	0.05	12	15	59	117	164
64	366	4.18	0.96	4.00	4.00	-1.22	1.22	0.05	8	14	51	123	170
65	365	3.95	1.09	4.00	4.00	-1.07	0.65	0.06	19	16	64	130	136
66	364	4.18	0.90	4.00	4.00	-1.07	0.95	0.05	5	11	57	130	161
67	366	4.02	1.05	4.00	4.00	-1.05	0.62	0.05	13	19	62	125	147
68	366	4.35	0.90	5.00	4.00	-1.52	2.20	0.05	6	10	39	106	205
69	367	4.09	0.99	4.00	4.00	-1.09	0.84	0.05	9	18	56	132	152
70	367	4.10	1.01	4.00	4.00	-1.18	1.07	0.05	12	15	55	128	157
71	366	3.53	1.20	4.00	4.00	-0.42	-0.77	0.06	23	54	90	105	94
72	366	4.29	0.94	5.00	4.00	-1.32	1.36	0.05	6	12	50	100	198
73	367	4.08	1.08	4.00	4.00	-1.16	0.74	0.06	15	18	57	109	168
74	367	3.87	1.12	4.00	4.00	-0.88	0.04	0.06	17	30	65	125	130

Table C2

Item Correlation Table

Item #	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	-													
2	.66	-												
3	.57	.61	-											
4	.30	.25	.20	-										
5	.57	.59	.55	.40	-									
6	.56	.61	.59	.32	.53	-								
7	.64	.62	.62	.23	.58	.64	-							
8	.46	.40	.38	.29	.46	.43	.41	-						
9	.59	.64	.62	.22	.61	.62	.71	.49	-					
10	.63	.64	.65	.22	.57	.61	.67	.39	.71	-				
11	.52	.61	.70	.15	.52	.54	.60	.40	.63	.68	-			
12	.47	.55	.55	.22	.51	.55	.56	.35	.55	.57	.54	-		
13	.55	.56	.59	.16	.45	.50	.58	.31	.58	.67	.63	.43	-	
14	.61	.66	.69	.18	.58	.55	.65	.46	.71	.71	.70	.57	.70	-
15	.62	.59	.57	.11	.52	.52	.59	.40	.61	.60	.56	.56	.50	.61
16	.52	.59	.62	.17	.5	.55	.55	.41	.58	.63	.55	.50	.55	.59
17	.56	.61	.65	.09	.45	.52	.57	.37	.65	.65	.62	.56	.54	.65
18	.60	.64	.64	.18	.56	.62	.66	.45	.74	.68	.62	.6	.58	.67
19	.55	.58	.57	.22	.55	.54	.55	.48	.63	.67	.55	.57	.52	.66
20	.40	.44	.41	.35	.40	.48	.41	.24	.34	.40	.37	.28	.44	.34
21	.51	.49	.50	.27	.52	.51	.51	.49	.52	.49	.47	.49	.38	.52
22	.54	.65	.64	.26	.59	.65	.62	.48	.71	.71	.61	.66	.56	.67
23	.50	.57	.55	.24	.54	.52	.55	.53	.66	.61	.55	.57	.46	.64
24	.55	.53	.60	.20	.51	.56	.65	.41	.63	.66	.66	.48	.58	.65
25	.46	.45	.49	.23	.43	.50	.47	.34	.49	.53	.43	.53	.39	.54
26	.55	.63	.60	.21	.57	.64	.64	.46	.66	.71	.57	.58	.55	.67
27	.41	.53	.48	.11	.36	.46	.48	.27	.53	.54	.48	.52	.44	.52

Item #	1	2	3	4	5	6	7	8	9	10	11	12	13	14
28	.54	.62	.66	.20	.55	.55	.61	.45	.66	.73	.67	.59	.55	.69
29	.54	.57	.64	.11	.50	.55	.62	.39	.65	.70	.59	.51	.61	.69
30	.60	.65	.66	.2	.52	.65	.67	.40	.73	.69	.60	.54	.58	.70
31	.40	.46	.44	.22	.41	.46	.48	.36	.53	.49	.41	.51	.35	.44
32	.52	.61	.62	.15	.52	.54	.60	.41	.61	.64	.58	.60	.51	.58
33	.60	.60	.64	.21	.58	.57	.57	.38	.60	.67	.59	.52	.58	.64
34	.64	.62	.59	.32	.62	.58	.64	.50	.67	.61	.52	.54	.50	.63
35	.58	.58	.61	.16	.52	.60	.66	.37	.60	.63	.56	.51	.53	.61
36	.50	.51	.51	.19	.44	.52	.53	.41	.62	.65	.49	.56	.49	.62
37	.59	.65	.66	.25	.51	.57	.59	.43	.59	.67	.58	.58	.58	.63
38	.47	.50	.45	.10	.37	.39	.43	.32	.54	.52	.48	.50	.41	.55
39	.57	.58	.57	.17	.50	.56	.61	.43	.67	.61	.56	.58	.52	.61
40	.58	.57	.58	.29	.51	.60	.61	.51	.62	.64	.61	.48	.56	.63
41	.51	.57	.52	.20	.44	.55	.57	.37	.62	.59	.45	.50	.49	.58
42	.53	.60	.56	.10	.47	.53	.62	.38	.61	.63	.57	.53	.52	.57
43	.52	.57	.54	.21	.46	.56	.56	.43	.60	.59	.57	.55	.51	.58
44	.57	.63	.63	.19	.55	.58	.60	.37	.62	.61	.58	.61	.49	.66
45	.62	.63	.63	.20	.55	.65	.66	.38	.65	.73	.62	.56	.62	.70
46	.59	.60	.54	.22	.48	.54	.59	.41	.61	.65	.60	.50	.57	.60
47	.63	.61	.63	.19	.49	.59	.65	.41	.69	.69	.58	.56	.58	.62
48	.56	.58	.60	.11	.43	.54	.56	.36	.59	.59	.60	.45	.65	.66
49	.63	.58	.54	.33	.58	.56	.55	.42	.60	.58	.50	.47	.46	.57
50	.38	.40	.44	.24	.42	.45	.40	.23	.44	.44	.48	.37	.40	.40
51	.58	.55	.55	.23	.50	.52	.54	.31	.57	.57	.52	.47	.52	.57
52	.47	.55	.48	.24	.44	.54	.52	.37	.56	.54	.49	.43	.50	.59
53	.52	.57	.61	.13	.45	.46	.49	.32	.56	.61	.59	.41	.54	.59
54	.53	.60	.59	.16	.53	.53	.56	.39	.60	.64	.56	.54	.54	.62
55	.48	.49	.54	.25	.43	.48	.44	.34	.49	.56	.53	.34	.61	.57

Item #	1	2	3	4	5	6	7	8	9	10	11	12	13	14
56	.46	.49	.50	.22	.51	.50	.48	.55	.52	.49	.46	.54	.40	.55
57	.44	.41	.48	.36	.43	.42	.43	.33	.44	.47	.45	.43	.40	.48
58	.42	.51	.52	.12	.41	.46	.47	.34	.56	.52	.51	.50	.44	.55
59	.41	.34	.30	.26	.30	.39	.36	.41	.37	.39	.31	.25	.43	.39
60	.56	.62	.61	.20	.54	.51	.57	.39	.59	.61	.61	.55	.54	.64
61	.37	.35	.42	.32	.40	.36	.38	.32	.31	.40	.38	.32	.49	.40
62	.45	.47	.46	.11	.42	.41	.47	.35	.48	.49	.41	.43	.36	.51
63	.50	.58	.53	.20	.45	.53	.54	.43	.57	.60	.56	.51	.49	.55
64	.56	.57	.54	.25	.47	.62	.67	.41	.59	.66	.55	.54	.56	.60
65	.43	.52	.53	.08	.37	.45	.54	.28	.59	.58	.52	.49	.49	.57
66	.53	.45	.47	.15	.42	.49	.49	.30	.51	.52	.47	.37	.50	.51
67	.56	.58	.60	.15	.51	.54	.59	.36	.63	.69	.59	.56	.52	.65
68	.46	.49	.54	.15	.42	.45	.47	.30	.50	.54	.56	.47	.55	.49
69	.53	.61	.58	.13	.50	.59	.52	.38	.58	.65	.58	.55	.56	.65
70	.45	.49	.53	.18	.46	.45	.52	.44	.51	.55	.55	.50	.51	.54
71	.34	.38	.27	.32	.39	.34	.33	.30	.33	.28	.27	.31	.23	.33
72	.53	.55	.60	.05	.48	.51	.56	.30	.59	.65	.64	.43	.60	.66
73	.48	.56	.49	.15	.40	.53	.51	.39	.60	.54	.56	.49	.45	.56
74	.56	.51	.43	.31	.45	.46	.48	.52	.48	.52	.46	.35	.54	.51

Note. This correlation table includes correlations between items 1-74 and items 1-14.

Item #	15	16	17	18	19	20	21	22	23	24	25	26	27	28
15	-													
16	.53	-												
17	.70	.58	-											
18	.64	.61	.67	-										
19	.60	.55	.65	.67	-									
20	.30	.49	.33	.36	.32	-								

Item #	15	16	17	18	19	20	21	22	23	24	25	26	27	28
21	.49	.48	.47	.61	.56	.29	-							
22	.62	.62	.68	.80	.68	.39	.64	-						
23	.56	.53	.62	.66	.62	.27	.53	.72	-					
24	.55	.55	.57	.58	.54	.41	.40	.62	.62	-				
25	.48	.44	.53	.53	.55	.19	.51	.55	.55	.46	-			
26	.59	.63	.63	.71	.68	.42	.57	.79	.64	.63	.54	-		
27	.48	.56	.55	.57	.49	.28	.40	.61	.50	.46	.51	.60	-	
28	.62	.59	.73	.69	.68	.33	.50	.71	.64	.63	.53	.71	.55	-
29	.55	.66	.62	.70	.63	.40	.49	.69	.57	.61	.49	.68	.57	.69
30	.63	.67	.66	.70	.63	.42	.51	.72	.64	.75	.57	.71	.60	.65
31	.44	.47	.49	.53	.54	.29	.46	.62	.55	.42	.50	.55	.54	.52
32	.59	.55	.75	.64	.64	.34	.49	.67	.61	.58	.52	.62	.57	.75
33	.53	.59	.58	.62	.59	.49	.50	.66	.52	.59	.43	.62	.50	.63
34	.50	.54	.54	.64	.60	.42	.54	.66	.59	.62	.50	.60	.45	.63
35	.60	.53	.61	.68	.59	.43	.55	.65	.54	.61	.50	.64	.47	.61
36	.53	.49	.60	.68	.60	.17	.56	.76	.67	.54	.53	.71	.60	.63
37	.54	.62	.64	.66	.60	.39	.57	.69	.58	.54	.50	.65	.59	.69
38	.46	.47	.55	.60	.56	.14	.49	.60	.61	.44	.50	.57	.57	.55
39	.54	.57	.60	.73	.60	.27	.61	.71	.68	.55	.57	.65	.56	.63
40	.51	.51	.52	.58	.58	.37	.50	.66	.57	.62	.47	.62	.46	.62
41	.53	.53	.62	.66	.54	.31	.52	.66	.59	.53	.50	.66	.52	.59
42	.56	.57	.60	.61	.54	.33	.50	.65	.56	.57	.47	.65	.51	.61
43	.54	.53	.55	.62	.54	.36	.50	.65	.51	.53	.47	.57	.50	.56
44	.63	.58	.65	.66	.64	.36	.55	.72	.61	.56	.57	.67	.56	.70
45	.66	.62	.69	.69	.65	.40	.54	.71	.65	.65	.55	.70	.56	.69
46	.55	.54	.57	.63	.60	.39	.53	.67	.56	.57	.43	.61	.53	.60
47	.59	.61	.63	.66	.59	.42	.48	.66	.59	.64	.47	.62	.57	.62
48	.52	.52	.54	.54	.48	.41	.41	.58	.50	.53	.34	.56	.50	.53
49	.51	.54	.53	.56	.55	.41	.50	.63	.58	.60	.53	.57	.43	.56
50	.37	.38	.37	.34	.36	.43	.32	.43	.35	.50	.28	.41	.32	.41

Item #	15	16	17	18	19	20	21	22	23	24	25	26	27	28
51	.53	.48	.56	.61	.50	.39	.46	.63	.49	.59	.47	.56	.45	.58
52	.51	.38	.49	.53	.52	.33	.43	.55	.51	.56	.44	.53	.36	.53
53	.50	.49	.59	.55	.53	.42	.39	.56	.46	.56	.34	.52	.43	.59
54	.55	.50	.59	.63	.58	.29	.54	.68	.61	.56	.50	.65	.47	.66
55	.43	.50	.46	.49	.48	.48	.36	.51	.45	.58	.31	.52	.34	.48
56	.50	.49	.48	.57	.56	.25	.53	.59	.59	.46	.46	.56	.48	.55
57	.39	.40	.42	.51	.43	.35	.47	.53	.45	.42	.42	.47	.36	.46
58	.42	.46	.54	.59	.52	.19	.49	.65	.59	.45	.50	.58	.54	.57
59	.39	.37	.30	.35	.40	.38	.29	.35	.36	.42	.21	.36	.18	.37
60	.57	.52	.63	.65	.59	.40	.48	.65	.61	.59	.46	.59	.49	.64
61	.36	.40	.38	.32	.38	.51	.33	.34	.32	.44	.20	.38	.20	.39
62	.46	.44	.49	.51	.49	.31	.47	.51	.44	.39	.42	.49	.45	.51
63	.51	.51	.54	.60	.55	.30	.45	.61	.58	.58	.44	.60	.50	.61
64	.53	.52	.51	.58	.54	.45	.48	.59	.53	.62	.40	.62	.48	.59
65	.50	.50	.59	.57	.49	.25	.46	.57	.56	.52	.46	.57	.63	.55
66	.48	.44	.50	.46	.48	.44	.35	.51	.45	.52	.36	.49	.36	.44
67	.63	.60	.61	.66	.62	.34	.52	.64	.61	.59	.53	.64	.55	.66
68	.52	.47	.55	.49	.49	.41	.41	.56	.47	.59	.33	.53	.38	.58
69	.63	.60	.61	.65	.60	.38	.50	.67	.61	.60	.50	.71	.50	.69
70	.49	.44	.54	.54	.51	.37	.49	.61	.51	.56	.41	.52	.41	.58
71	.23	.26	.19	.28	.26	.29	.42	.35	.27	.32	.32	.29	.26	.23
72	.49	.51	.58	.57	.51	.33	.43	.61	.49	.65	.43	.63	.51	.64
73	.46	.48	.52	.66	.54	.31	.48	.61	.57	.51	.42	.56	.45	.56
74	.48	.41	.42	.47	.45	.35	.40	.45	.45	.49	.34	.45	.30	.47

Note. This correlation table includes correlations between items 15-74 and items 15-28.

Item #	29	30	31	32	33	34	35	36	37	38	39	40	41	42
29	-													
30	.67	-												

Item #	29	30	31	32	33	34	35	36	37	38	39	40	41	42
31	.50	.55	-											
32	.62	.65	.59	-										
33	.67	.66	.43	.59	-									
34	.59	.63	.50	.60	.65	-								
35	.62	.66	.44	.61	.60	.61	-							
36	.60	.65	.58	.60	.56	.55	.58	-						
37	.64	.66	.49	.64	.66	.62	.64	.62	-					
38	.59	.52	.47	.52	.49	.52	.52	.66	.53	-				
39	.64	.67	.54	.61	.56	.62	.63	.69	.59	.72	-			
40	.61	.60	.42	.57	.64	.66	.58	.56	.58	.54	.65	-		
41	.59	.66	.46	.57	.54	.56	.60	.67	.60	.61	.76	.60	-	
42	.59	.65	.44	.58	.58	.62	.57	.60	.62	.51	.66	.64	.67	-
43	.56	.61	.47	.55	.56	.61	.57	.53	.65	.51	.59	.63	.57	.61
44	.63	.69	.56	.64	.61	.66	.60	.61	.64	.58	.66	.56	.61	.62
45	.67	.75	.51	.65	.69	.68	.65	.65	.71	.58	.69	.70	.67	.69
46	.61	.64	.47	.64	.63	.63	.60	.56	.64	.51	.61	.70	.63	.59
47	.64	.72	.48	.65	.67	.66	.63	.61	.65	.53	.65	.66	.66	.64
48	.60	.62	.43	.56	.62	.53	.54	.47	.58	.43	.54	.62	.50	.53
49	.56	.64	.42	.52	.61	.64	.55	.51	.57	.49	.60	.68	.55	.56
50	.39	.49	.28	.44	.43	.45	.44	.31	.44	.26	.37	.47	.42	.45
51	.54	.63	.40	.52	.57	.57	.55	.49	.62	.47	.56	.58	.59	.60
52	.47	.54	.32	.46	.52	.53	.52	.48	.49	.39	.50	.56	.52	.45
53	.57	.60	.33	.54	.64	.59	.54	.47	.59	.47	.51	.61	.49	.54
54	.61	.62	.47	.61	.56	.64	.64	.65	.65	.58	.70	.58	.70	.66
55	.58	.58	.31	.45	.62	.52	.47	.39	.53	.37	.44	.59	.41	.51
56	.51	.56	.53	.59	.50	.58	.50	.61	.59	.49	.58	.53	.56	.54
57	.50	.46	.42	.44	.51	.53	.47	.44	.47	.39	.53	.59	.43	.44
58	.57	.54	.52	.55	.52	.54	.52	.64	.53	.72	.67	.57	.59	.52

Item #	29	30	31	32	33	34	35	36	37	38	39	40	41	42
59	.43	.38	.22	.29	.44	.34	.38	.28	.38	.21	.31	.50	.37	.32
60	.62	.61	.45	.62	.66	.59	.64	.54	.66	.52	.64	.64	.61	.60
61	.38	.40	.22	.36	.49	.42	.37	.23	.38	.19	.29	.40	.34	.35
62	.53	.55	.46	.51	.49	.50	.49	.50	.51	.49	.54	.44	.52	.56
63	.58	.60	.46	.60	.56	.57	.58	.55	.62	.51	.60	.60	.58	.61
64	.61	.61	.40	.58	.59	.65	.63	.49	.59	.43	.59	.66	.57	.64
65	.58	.59	.47	.57	.51	.55	.54	.61	.54	.63	.58	.50	.57	.58
66	.50	.55	.32	.45	.56	.51	.49	.42	.47	.38	.47	.50	.47	.54
67	.64	.68	.48	.60	.59	.59	.59	.57	.60	.55	.66	.57	.61	.62
68	.50	.53	.38	.52	.53	.49	.45	.42	.50	.37	.51	.54	.51	.58
69	.62	.65	.45	.60	.63	.60	.58	.59	.65	.56	.64	.60	.67	.70
70	.54	.55	.44	.60	.51	.58	.55	.46	.58	.43	.55	.60	.48	.56
71	.29	.32	.28	.26	.32	.43	.31	.28	.32	.29	.30	.41	.28	.30
72	.63	.61	.40	.56	.62	.56	.60	.53	.60	.52	.59	.62	.56	.58
73	.52	.59	.49	.48	.52	.55	.51	.58	.52	.54	.67	.59	.55	.58
74	.49	.47	.32	.42	.52	.47	.47	.40	.48	.35	.44	.60	.44	.45

Note. This correlation table includes correlations between items 29-74 and items 29-42.

Item #	43	44	45	46	47	48	49	50	51	52	53	54	55	56
43	-													
44	.65	-												
45	.64	.69	-											
46	.62	.60	.70	-										
47	.65	.64	.75	.78	-									
48	.55	.56	.66	.61	.65	-								
49	.57	.63	.66	.61	.63	.57	-							
50	.49	.45	.49	.50	.54	.47	.50	-						
51	.60	.61	.65	.63	.63	.56	.65	.50	-					
52	.49	.53	.56	.54	.59	.55	.51	.41	.48	-				

Item #	43	44	45	46	47	48	49	50	51	52	53	54	55	56
53	.54	.57	.63	.59	.64	.64	.54	.49	.59	.52	-			
54	.61	.68	.68	.59	.64	.49	.56	.44	.56	.54	.54	-		
55	.45	.49	.59	.56	.60	.59	.54	.41	.58	.52	.65	.46	-	
56	.53	.59	.60	.57	.58	.50	.50	.38	.46	.42	.46	.58	.41	-
57	.43	.48	.55	.57	.53	.46	.51	.41	.43	.39	.41	.43	.46	.47
58	.56	.64	.59	.55	.55	.53	.50	.31	.47	.40	.47	.59	.41	.53
59	.32	.34	.45	.47	.45	.43	.46	.39	.43	.44	.42	.32	.51	.38
60	.62	.64	.69	.68	.71	.57	.64	.57	.64	.57	.61	.66	.54	.55
61	.30	.39	.47	.43	.41	.48	.39	.42	.39	.42	.46	.34	.55	.32
62	.57	.55	.55	.48	.51	.41	.41	.40	.43	.36	.46	.54	.35	.51
63	.61	.56	.62	.59	.65	.54	.53	.49	.51	.59	.55	.60	.51	.55
64	.53	.57	.68	.65	.68	.62	.54	.52	.55	.58	.58	.60	.62	.53
65	.53	.61	.58	.53	.63	.51	.45	.37	.43	.47	.50	.62	.37	.52
66	.52	.52	.56	.52	.58	.56	.55	.45	.54	.50	.52	.50	.59	.39
67	.57	.66	.74	.63	.69	.53	.55	.40	.55	.51	.58	.67	.56	.59
68	.47	.53	.60	.53	.56	.56	.52	.49	.59	.55	.60	.55	.56	.40
69	.58	.69	.76	.61	.66	.54	.61	.47	.62	.55	.56	.70	.57	.56
70	.56	.55	.60	.57	.58	.48	.50	.56	.52	.49	.50	.62	.50	.53
71	.36	.28	.33	.39	.37	.29	.46	.23	.30	.27	.27	.27	.26	.38
72	.54	.59	.66	.61	.61	.62	.53	.42	.64	.49	.67	.61	.60	.43
73	.59	.63	.64	.55	.62	.50	.54	.35	.52	.40	.52	.57	.46	.54
74	.49	.44	.56	.54	.55	.50	.55	.38	.52	.54	.46	.46	.55	.50

Note. This correlation table includes correlations between items 43-74 and items 43-56.

Item #	57	58	59	60	61	62	63	64	65	66	67	68	69	70
57	-													
58	.50	-												
59	.36	.26	-											
60	.56	.58	.45	-										
61	.41	.25	.54	.44	-									
62	.41	.50	.23	.50	.25	-								

Item #	57	58	59	60	61	62	63	64	65	66	67	68	69	70
63	.44	.53	.43	.66	.37	.49	-							
64	.50	.47	.47	.63	.53	.44	.63	-						
65	.42	.55	.24	.50	.29	.50	.54	.51	-					
66	.37	.46	.33	.56	.38	.42	.54	.50	.46	-				
67	.48	.61	.37	.64	.43	.50	.62	.61	.60	.55	-			
68	.39	.43	.46	.59	.48	.37	.54	.63	.45	.54	.58	-		
69	.47	.57	.41	.68	.43	.53	.61	.65	.56	.55	.71	.65	-	
70	.46	.45	.39	.64	.44	.57	.52	.57	.49	.51	.51	.54	.59	-
71	.37	.28	.26	.24	.28	.28	.26	.32	.32	.21	.31	.19	.27	.35
72	.39	.54	.36	.60	.36	.41	.57	.63	.56	.55	.61	.62	.64	.56
73	.52	.60	.34	.57	.33	.46	.54	.51	.48	.41	.61	.48	.58	.45
74	.51	.40	.68	.57	.50	.36	.51	.55	.38	.38	.47	.45	.51	.48

Note. This correlation table includes correlations between items 57-74 and items 57-7.

Item #	71	72	73	74
71	-			
72	.27	-		
73	.32	.50	-	
74	.29	.43	.47	-

Note. This correlation table includes correlations between the items 71-74.

Table C3

*Pooled Exploratory Factor Analysis Factor Loadings and Item Deletions with Multiple
Imputation Correction for Missing Values (MICE-PMM)*

Item #	Behavior	FA1	FA2	FA3
01	**Inspiring squad members to believe in their mission**	**0.43**	**0.41**	**0.42**
02	Encouraging squad members to come up with creative solutions to problems	0.57	0.38	0.30
03	Knowing what resources are available to the squad	0.57	0.47	0.18
05	**Facilitating conversations during post-challenge debriefs**	**0.42**	**0.32**	**0.48**
06	Checking in with squad members	0.51	0.37	0.37
07	Giving individual Soldiers constructive feedback on how they can improve performance	0.56	0.45	0.29
08	Being sensitive to cultural differences in the squad	0.32	0.19	0.51
09	Providing access to resources for squad members' well-being	0.67	0.38	0.27
10	**Inspiring squad members to work together towards a shared goal**	**0.60**	**0.50**	**0.22**
11	**Creating effective plans**	**0.54**	**0.50**	**0.16**
12	Listening to negative feedback from squad members	0.63	0.22	0.22
13	Performing tasks effectively	0.42	0.59	0.13
14	Providing effective strategies for dealing with challenges	0.59	0.48	0.22
15	Backing the squad to chain-of-command	0.57	0.39	0.19
16	Anticipating challenges the squad might face	0.55	0.41	0.22
17	Being willing to perform the same tasks they ask their Soldiers to do	0.67	0.41	0.07
18	Identifying warning signs of squad distress	0.72	0.36	0.23
19	Being fair when giving feedback to individual Soldiers	0.63	0.34	0.27
20	Challenging the squad with difficult training	0.11	0.52	0.33
21	Offering praise to the squad following good performance	0.57	0.17	0.40
22	Helping the squad manage ongoing stress	0.74	0.34	0.28
23	Encouraging respect for squad members' personal boundaries/privacy	0.65	0.27	0.29
24	**Establishing clear goals for the squad**	**0.50**	**0.56**	**0.18**
25	Explaining to Soldiers why they are told to do certain things	0.63	0.10	0.26
26	Monitoring the needs of the squad	0.70	0.39	0.22
27	Allowing Soldiers to change course if standard operating procedures (SOPs) are not working	0.68	0.22	0.05
28	Taking the time to fully understand the situation before reacting	0.67	0.41	0.17
29	Creating backup plans for when things do not go as expected	0.64	0.48	0.11
30	Assigning resources to squad members who need them	0.67	0.48	0.18
31	Adjusting leadership style to suit the needs of individual squad members	0.59	0.12	0.29
32	Being honest about the limits of his/her knowledge	0.67	0.37	0.16
33	Helping the squad refocus on the mission after a disruption	0.47	0.59	0.23

Item #	Behavior	FA1	FA2	FA3
34	Getting all squad members' input about what happened after a challenging event	0.56	0.38	0.38
35	Mentoring squad members	0.58	0.44	0.21
36	Helping squad members to balance work obligations with personal/family obligations	0.76	0.21	0.17
37	Displaying appropriate teamwork behaviors	0.61	0.46	0.25
38	Respecting squad members' time	0.74	0.15	0.09
39	Being understanding when squad members experience personal challenges	0.75	0.30	0.21
40	**Assuring squad members that challenges can be overcome**	**0.50**	**0.51**	**0.35**
41	Providing help to squad members when they experience personal challenges	0.67	0.36	0.15
42	Being honest with Soldiers when reviewing a challenging event	0.61	0.46	0.11
43	Making sure new Soldiers are integrated into the squad	0.56	0.41	0.24
44	Making changes in response to Soldier feedback, when appropriate	0.68	0.37	0.20
45	**Helping the squad with challenging tasks**	**0.62**	**0.56**	**0.20**
46	**Encouraging teamwork during challenges**	**0.52**	**0.53**	**0.25**
47	**Supporting squad members in skill development**	**0.59**	**0.57**	**0.20**
48	Responding to challenges quickly and accurately	0.40	0.62	0.11
49	**Helping the squad find meaning in the challenges they encounter**	**0.47**	**0.45**	**0.42**
50	Encouraging friendly competition within the squad	0.22	0.50	0.26
51	Explaining how the squad's mission fits with the overall mission	0.49	0.53	0.19
52	Encouraging squad members to take on leadership roles	0.41	0.51	0.23
53	Maintaining composure during emergencies	0.40	0.66	0.07
54	Encouraging open and honest communication in the squad	0.66	0.39	0.15
55	Keeping the squad focused on mission priorities	0.24	0.72	0.18
56	Being tolerant towards individual differences in the squad	0.58	0.27	0.35
57	**Emphasizing squad performance over individual performance**	**0.36**	**0.36**	**0.39**
58	Providing Soldiers with enough time to adjust to changing plans	0.69	0.22	0.13
59	Enforcing Army standards	0.00	0.56	0.39
60	Promoting team-building during training	0.48	0.57	0.24
61	Enforcing performance standards during training	0.03	0.60	0.33
62	Assigning work according to the strengths of each member of the squad	0.56	0.30	0.15
63	Showing trust towards other leaders	0.54	0.47	0.19
64	Providing feedback to the squad on how they can improve performance	0.46	0.63	0.23
65	Allowing Soldiers to make independent decisions, when appropriate	0.69	0.32	0.03
66	Insisting that squad members do what they say they are going to do	0.34	0.55	0.09
67	Requesting additional resources when the squad needs them	0.61	0.49	0.16
68	Establishing clear expectations for the squad	0.37	0.61	0.08
69	**Helping the squad adapt to operational changes**	**0.60**	**0.55**	**0.12**
70	**Assessing the strengths and weaknesses of each squad member**	**0.48**	**0.48**	**0.23**

Item #	Behavior	FA1	FA2	FA3
71	**Sharing personal stories about challenges they have experienced**	**0.28**	**0.15**	**0.40**
72	**Communicating the plan/mission to squad members**	**0.55**	**0.59**	**0.01**
73	Acknowledging the impact of deployment on squad members' lives	0.59	0.36	0.22
74	Promoting the values of the Army	0.21	0.51	0.46
Proportion Variance Explained		0.30	0.20	0.07

Note: The bolded items were deleted from further analysis due to cross-loading or too small factor loadings (< 0.50). Item 4 was deleted prior to the EFA because it was not significantly correlated with any of the other items and it was not rated highly for importance to unit resilience by Soldiers.

Table C4

Exploratory Factor Analysis Iteration 1 Factor Loadings and Item Deletions

Item #	Behavior	FA1	FA2	FA3
02	Encouraging squad members to come up with creative solutions to problems	0.58	0.44	0.13
03	**Knowing what resources are available to the squad**	**0.57**	**0.53**	**0.05**
06	Checking in with squad members	0.54	0.42	0.21
07	Giving individual Soldiers constructive feedback on how they can improve performance	0.58	0.48	0.16
08	Being sensitive to cultural differences in the squad	0.37	0.16	0.56
09	Providing access to resources for squad members' well-being	0.69	0.41	0.17
12	Listening to negative feedback from squad members	0.65	0.27	0.10
13	Performing tasks effectively	0.41	0.60	0.11
14	**Providing effective strategies for dealing with challenges**	**0.60**	**0.50**	**0.17**
15	Backing the squad to chain-of-command	0.57	0.41	0.15
16	Anticipating challenges the squad might face	0.55	0.45	0.13
17	Being willing to perform the same tasks they ask their Soldiers to do	0.66	0.43	0.05
18	Identifying warning signs of squad distress	0.73	0.37	0.19
19	Being fair when giving feedback to individual Soldiers	0.64	0.36	0.24
20	Challenging the squad with difficult training	0.13	0.58	0.15
21	Offering praise to the squad following good performance	0.61	0.21	0.26
22	Helping the squad manage ongoing stress	0.76	0.37	0.17
23	Encouraging respect for squad members' personal boundaries/privacy	0.68	0.26	0.28
25	Explaining to Soldiers why they are told to do certain things	0.65	0.12	0.13
26	Monitoring the needs of the squad	0.71	0.40	0.16
27	Allowing Soldiers to change course if standard operating procedures (SOPs) are not working	0.68	0.27	0.07
28	Taking the time to fully understand the situation before reacting	0.67	0.42	0.15
29	Creating backup plans for when things do not go as expected	0.63	0.49	0.09
30	**Assigning resources to squad members who need them**	**0.67**	**0.51**	**0.09**
31	Adjusting leadership style to suit the needs of individual squad members	0.62	0.15	0.21
32	Being honest about the limits of his/her knowledge	0.67	0.38	0.11
33	Helping the squad refocus on the mission after a disruption	0.47	0.62	0.14
34	Getting all squad members' input about what happened after a challenging event	0.60	0.42	0.21
35	Mentoring squad members	0.59	0.46	0.15
36	Helping squad members to balance work obligations with personal/family obligations	0.77	0.21	0.14
37	Displaying appropriate teamwork behaviors	0.62	0.49	0.16

Item #	Behavior	FA1	FA2	FA3
38	Respecting squad members' time	0.74	0.15	0.07
39	Being understanding when squad members experience personal challenges	0.77	0.29	0.17
41	Providing help to squad members when they experience personal challenges	0.67	0.36	0.15
42	Being honest with Soldiers when reviewing a challenging event	0.61	0.46	0.10
43	Making sure new Soldiers are integrated into the squad	0.57	0.42	0.19
44	Making changes in response to Soldier feedback, when appropriate	0.69	0.39	0.12
48	Responding to challenges quickly and accurately	0.39	0.63	0.09
50	Encouraging friendly competition within the squad	0.24	0.51	0.16
51	**Explaining how the squad's mission fits with the overall mission**	**0.50**	**0.54**	**0.12**
52	Encouraging squad members to take on leadership roles	0.43	0.51	0.23
53	Maintaining composure during emergencies	0.39	0.66	0.07
54	Encouraging open and honest communication in the squad	0.66	0.39	0.14
55	Keeping the squad focused on mission priorities	0.24	0.72	0.17
56	Being tolerant towards individual differences in the squad	0.61	0.25	0.36
58	Providing Soldiers with enough time to adjust to changing plans	0.69	0.22	0.09
59	**Enforcing Army standards**	**0.01**	**0.51**	**0.59**
60	Promoting team-building during training	0.49	0.55	0.27
61	Enforcing performance standards during training	0.05	0.62	0.32
62	Assigning work according to the strengths of each member of the squad	0.57	0.30	0.13
63	Showing trust towards other leaders	0.55	0.44	0.25
64	Providing feedback to the squad on how they can improve performance	0.46	0.61	0.23
65	Allowing Soldiers to make independent decisions, when appropriate	0.67	0.33	0.02
66	Insisting that squad members do what they say they are going to do	0.35	0.56	0.06
67	Requesting additional resources when the squad needs them	0.61	0.48	0.16
68	Establishing clear expectations for the squad	0.37	0.60	0.11
73	Acknowledging the impact of deployment on squad members' lives	0.60	0.34	0.22
74	Promoting the values of the Army	0.24	0.45	0.60
Proportion Variance Explained		0.33	0.20	0.05

Note: The bolded items were deleted from further analysis due to cross-loading or too small factor loadings (< 0.50).

Table C5

Exploratory Factor Analysis Iteration 2 Factor Loadings and Item Deletions

Item #	Behavior	FA1	FA2	FA3
02	**Encouraging squad members to come up with creative solutions to problems**	**0.48**	**0.43**	**0.38**
06	Checking in with squad members	0.40	0.40	0.50
07	**Giving individual Soldiers constructive feedback on how they can improve performance**	**0.45**	**0.45**	**0.45**
08	Being sensitive to cultural differences in the squad	0.24	0.23	0.50
09	Providing access to resources for squad members' well-being	0.59	0.39	0.42
12	Listening to negative feedback from squad members	0.54	0.25	0.40
13	Performing tasks effectively	0.35	0.57	0.27
15	**Backing the squad to chain-of-command**	**0.47**	**0.38**	**0.41**
16	**Anticipating challenges the squad might face**	**0.45**	**0.42**	**0.39**
17	Being willing to perform the same tasks they ask their Soldiers to do	0.58	0.39	0.33
18	Identifying warning signs of squad distress	0.63	0.36	0.45
19	Being fair when giving feedback to individual Soldiers	0.54	0.35	0.45
20	Challenging the squad with difficult training	0.03	0.57	0.31
21	Offering praise to the squad following good performance	0.50	0.22	0.43
22	Helping the squad manage ongoing stress	0.66	0.36	0.43
23	Encouraging respect for squad members' personal boundaries/privacy	0.60	0.28	0.39
25	Explaining to Soldiers why they are told to do certain things	0.57	0.11	0.35
26	Monitoring the needs of the squad	0.61	0.39	0.42
27	Allowing Soldiers to change course if standard operating procedures (SOPs) are not working	0.64	0.23	0.21
28	Taking the time to fully understand the situation before reacting	0.58	0.40	0.39
29	Creating backup plans for when things do not go as expected	0.58	0.47	0.28
31	Adjusting leadership style to suit the needs of individual squad members	0.53	0.15	0.38
32	Being honest about the limits of his/her knowledge	0.59	0.37	0.36
33	Helping the squad refocus on the mission after a disruption	0.42	0.61	0.27
34	Getting all squad members' input about what happened after a challenging event	0.50	0.43	0.38
35	Mentoring squad members	0.50	0.45	0.36
36	Helping squad members to balance work obligations with personal/family obligations	0.74	0.22	0.27
37	Displaying appropriate teamwork behaviors	0.54	0.48	0.35
38	Respecting squad members' time	0.78	0.16	0.10
39	Being understanding when squad members experience personal challenges	0.76	0.31	0.23

Item #	Behavior	FA1	FA2	FA3
41	Displaying appropriate teamwork behaviors	0.67	0.37	0.19
42	Respecting squad members' time	0.59	0.47	0.19
43	Being understanding when squad members experience personal challenges	0.53	0.44	0.25
44	Providing help to squad members when they experience personal challenges	0.65	0.39	0.27
48	Being honest with Soldiers when reviewing a challenging event	0.38	0.63	0.15
50	Making sure new Soldiers are integrated into the squad	0.22	0.53	0.15
52	Making changes in response to Soldier feedback, when appropriate	0.38	0.53	0.26
53	Responding to challenges quickly and accurately	0.40	0.67	0.06
54	Encouraging friendly competition within the squad	0.64	0.41	0.21
55	Encouraging squad members to take on leadership roles	0.23	0.74	0.12
56	Maintaining composure during emergencies	0.55	0.30	0.34
58	Encouraging open and honest communication in the squad	0.73	0.24	0.10
60	Keeping the squad focused on mission priorities	0.48	0.58	0.21
61	Being tolerant towards individual differences in the squad	0.01	0.64	0.23
62	Providing Soldiers with enough time to adjust to changing plans	0.55	0.32	0.19
63	Promoting team-building during training	0.53	0.48	0.22
64	Enforcing performance standards during training	0.41	0.64	0.28
65	Assigning work according to the strengths of each member of the squad	0.67	0.33	0.13
66	Showing trust towards other leaders	0.35	0.58	0.07
67	Providing feedback to the squad on how they can improve performance	0.58	0.49	0.25
68	Allowing Soldiers to make independent decisions, when appropriate	0.37	0.61	0.13
73	Insisting that squad members do what they say they are going to do	0.57	0.37	0.25
74	Requesting additional resources when the squad needs them	0.21	0.51	0.33
Proportion Variance Explained		0.28	0.19	0.10

Note: The bolded items were deleted from further analysis due to cross-loading or too small factor loadings (< 0.50).

Table C6

Exploratory Factor Analysis Iteration 3 Factor Loadings and Item Deletions

Item #	Behavior	FA1	FA2	FA3
06	**Checking in with squad members**	**0.47**	**0.42**	**0.36**
08	Being sensitive to cultural differences in the squad	0.27	0.23	0.62
09	Providing access to resources for squad members' well-being	0.65	0.40	0.28
12	Listening to negative feedback from squad members	0.60	0.27	0.25
13	Performing tasks effectively	0.39	0.59	0.14
17	Being willing to perform the same tasks they ask their Soldiers to do	0.64	0.41	0.16
18	Identifying warning signs of squad distress	0.69	0.37	0.30
19	Being fair when giving feedback to individual Soldiers	0.60	0.37	0.34
20	Challenging the squad with difficult training	0.09	0.58	0.21
21	Offering praise to the squad following good performance	0.55	0.23	0.38
22	Helping the squad manage ongoing stress	0.72	0.37	0.30
23	Encouraging respect for squad members' personal boundaries/privacy	0.64	0.29	0.34
25	Explaining to Soldiers why they are told to do certain things	0.62	0.12	0.25
26	Monitoring the needs of the squad	0.68	0.41	0.27
27	Allowing Soldiers to change course if standard operating procedures (SOPs) are not working	0.68	0.24	0.03
28	Taking the time to fully understand the situation before reacting	0.64	0.42	0.25
29	Creating backup plans for when things do not go as expected	0.63	0.48	0.13
31	Adjusting leadership style to suit the needs of individual squad members	0.58	0.16	0.30
32	Being honest about the limits of his/her knowledge	0.64	0.39	0.22
33	Helping the squad refocus on the mission after a disruption	0.45	0.62	0.17
34	Getting all squad members' input about what happened after a challenging event	0.55	0.44	0.31
35	Mentoring squad members	0.55	0.46	0.22
36	Helping squad members to balance work obligations with personal/family obligations	0.76	0.22	0.18
37	Displaying appropriate teamwork behaviors	0.59	0.49	0.23
38	Respecting squad members' time	0.77	0.16	0.04
39	Being understanding when squad members experience personal challenges	0.77	0.32	0.16
41	Providing help to squad members when they experience personal challenges	0.68	0.37	0.12
42	Being honest with Soldiers when reviewing a challenging event	0.60	0.47	0.10
43	Making sure new Soldiers are integrated into the squad	0.55	0.44	0.20

Item #	Behavior	FA1	FA2	FA3
44	Making changes in response to Soldier feedback, when appropriate	0.68	0.40	0.16
48	Responding to challenges quickly and accurately	0.39	0.63	0.06
50	Encouraging friendly competition within the squad	0.23	0.53	0.13
52	Encouraging squad members to take on leadership roles	0.40	0.54	0.22
53	Maintaining composure during emergencies	0.40	0.67	0.01
54	Encouraging open and honest communication in the squad	0.65	0.42	0.15
55	Keeping the squad focused on mission priorities	0.23	0.74	0.10
56	Being tolerant towards individual differences in the squad	0.57	0.30	0.35
58	Providing Soldiers with enough time to adjust to changing plans	0.72	0.24	0.06
60	Promoting team-building during training	0.49	0.58	0.19
61	Enforcing performance standards during training	0.03	0.65	0.24
62	Assigning work according to the strengths of each member of the squad	0.56	0.32	0.14
63	Showing trust towards other leaders	0.54	0.48	0.20
64	Providing feedback to the squad on how they can improve performance	0.44	0.65	0.21
65	Allowing Soldiers to make independent decisions, when appropriate	0.69	0.34	-0.01
66	Insisting that squad members do what they say they are going to do	0.35	0.58	0.02
67	**Requesting additional resources when the squad needs them**	**0.60**	**0.50**	**0.15**
68	Establishing clear expectations for the squad	0.37	0.62	0.06
73	Acknowledging the impact of deployment on squad members' lives	0.58	0.37	0.21
74	Promoting the values of the Army	0.22	0.51	0.39
Proportion Variance Explained		0.32	0.20	0.06

Note: The bolded items were deleted from further analysis due to cross-loading or too small factor loadings (< 0.50)

Table C7

Exploratory Factor Analysis Iteration 4 (Final Iteration) Factor Loadings

Item #	Behavior	FA1	FA2	FA3
08	Being sensitive to cultural differences in the squad	0.29	0.22	0.67
09	Providing access to resources for squad members' well-being	0.66	0.41	0.23
12	Listening to negative feedback from squad members	0.62	0.27	0.19
13	Performing tasks effectively	0.40	0.59	0.11
17	Being willing to perform the same tasks they ask their Soldiers to do	0.65	0.41	0.12
18	Identifying warning signs of squad distress	0.71	0.38	0.26
19	Being fair when giving feedback to individual Soldiers	0.61	0.37	0.31
20	Challenging the squad with difficult training	0.11	0.58	0.17
21	Offering praise to the squad following good performance	0.57	0.24	0.34
22	Helping the squad manage ongoing stress	0.74	0.38	0.24
23	Encouraging respect for squad members' personal boundaries/privacy	0.65	0.29	0.31
25	Explaining to Soldiers why they are told to do certain things	0.63	0.13	0.20
26	Monitoring the needs of the squad	0.69	0.41	0.21
27	Allowing Soldiers to change course if standard operating procedures (SOPs) are not working	0.68	0.25	-0.01
28	Taking the time to fully understand the situation before reacting	0.65	0.42	0.22
29	Creating backup plans for when things do not go as expected	0.63	0.49	0.10
31	Adjusting leadership style to suit the needs of individual squad members	0.60	0.17	0.26
32	Being honest about the limits of his/her knowledge	0.65	0.39	0.18
33	Helping the squad refocus on the mission after a disruption	0.46	0.63	0.15
34	Getting all squad members' input about what happened after a challenging event	0.56	0.44	0.28
35	Mentoring squad members	0.57	0.47	0.17
36	Helping squad members to balance work obligations with personal/family obligations	0.77	0.23	0.14
37	Displaying appropriate teamwork behaviors	0.60	0.49	0.20
38	Respecting squad members' time	0.76	0.17	0.05
39	Being understanding when squad members experience personal challenges	0.77	0.32	0.14
41	Providing help to squad members when they experience personal challenges	0.68	0.38	0.09
42	Being honest with Soldiers when reviewing a challenging event	0.60	0.48	0.08
43	Making sure new Soldiers are integrated into the squad	0.56	0.44	0.18
44	Making changes in response to Soldier feedback, when appropriate	0.68	0.40	0.12
48	Responding to challenges quickly and accurately	0.39	0.64	0.05
50	Encouraging friendly competition within the squad	0.24	0.54	0.10

Item #	Behavior	FA1	FA2	FA3
52	Encouraging squad members to take on leadership roles	0.41	0.54	0.19
53	Maintaining composure during emergencies	0.39	0.67	0.03
54	Encouraging open and honest communication in the squad	0.65	0.42	0.12
55	Keeping the squad focused on mission priorities	0.23	0.74	0.11
56	Being tolerant towards individual differences in the squad	0.58	0.30	0.36
58	Providing Soldiers with enough time to adjust to changing plans	0.71	0.24	0.05
60	Promoting team-building during training	0.49	0.58	0.19
61	Enforcing performance standards during training	0.03	0.65	0.25
62	Assigning work according to the strengths of each member of the squad	0.56	0.32	0.12
63	Showing trust towards other leaders	0.54	0.48	0.18
64	Providing feedback to the squad on how they can improve performance	0.45	0.65	0.19
65	Allowing Soldiers to make independent decisions, when appropriate	0.69	0.34	-0.02
66	Insisting that squad members do what they say they are going to do	0.35	0.58	0.01
68	Establishing clear expectations for the squad	0.37	0.62	0.04
73	Acknowledging the impact of deployment on squad members' lives	0.58	0.37	0.20
74	Promoting the values of the Army	0.23	0.51	0.42
Proportion Variance Explained		0.32	0.20	0.05