2015

LOOKING "UPSTREAM": THE ROLE OF BASIC PSYCHOLOGICAL NEEDS SATISFACTION IN SERVICE MEMBERS' FUTURE ORIENTATION

Bradley J. Antonides
Virginia Commonwealth University

LOOKING "UPSTREAM": THE ROLE OF BASIC PSYCHOLOGICAL NEEDS SATISFACTION IN SERVICE MEMBERS' FUTURE ORIENTATION

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University

By: BRADLEY JOLINE ANTONIDES
Master of Science, Virginia Commonwealth University, 2012
Bachelor of Science, Kansas State University, 2002

Director: Steven Danish, Ph.D.
Professor Emeritus
Department of Psychology

Virginia Commonwealth University
Richmond, Virginia
July, 2015

Acknowledgements

Thank you Steve for your guidance throughout my professional development. I appreciate what you have done and continue to do for the many in need. Thank you also to my committee members, Dr. Paul Perrin, Dr. Trevin Pickett and Dr. Scott McDonald whose advice and patience helped complete this project and broaden my own perspective about a personally important topic. Thanks to Dr. Jeff Green for catalyzing my interests early on in my studies and challenging me to consume more literature than I thought possible. Thank you as well to my classmates, and now colleagues, for their friendship, support and assistance from the start and throughout. I think I've caught up with you all finally. Thank you Sheila especially, for leaping faithfully over 6 years ago when we decided we could do this. Finally, I want to thank my parents for their support and my children Marcus and Lily, who give the only perfect kind of encouragement.

Table of Contents

List of Tables

List of Figures

Abstract

LOOKING "UPSTREAM": THE ROLE OF BASIC PSYCHOLOGICAL NEEDS
SATISFACTION IN SERVICE MEMBERS' FUTURE ORIENTATION

By Bradley Joline Antonides, M.S.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of
Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2015

Major Director: Steven Danish, Ph.D.
Professor Emeritus
Department of Psychology

OBJECTIVE: This study explores psychological experiences that may influence service

members' self-concepts and future orientations. As stable, optimistic, future orientations have

been associated with resilience to psychological distress and suicidality (Johnson, et al., 2011), it

is worthwhile to explore how service members' attitudes toward the future might be shaped in

the context of intrapersonal and interpersonal experiences. METHOD: Data were collected from

service members of the Virginia National Guard ($N = 192$) and included a Transportation unit, an

Engineer unit, an Infantry unit and a group with no specific unit affiliation or substantive military

experience. The study is a cross-sectional design that seeks support for the hypothesis that

interpersonal and intrapersonal psychological needs differentially influence one's *future orienation*. RESULTS: Analysis demonstrated that *autonomy, competence* and *relatedness* each play partial mediating roles with respect to the *identity style-identity commitment* relationship. Further analysis demonstrated that all three psychological needs also significantly predict *identity commitment*, but that the intrapersonal needs of *autonomy* and *competence* are stronger predictors than the interpersonal need, *relatedness*. The competing hypothesis that *psychological needs balance* would outperform the psychological needs variables as predictors of *identity commitment* was not confirmed. CONCLUSIONS: The data indicate that all three psychological needs variables are significantly influential (by degree and category) with regard to protective factors that involve identity-based processes and identity-based beliefs. Implications and areas for future research are discussed.

Looking "Upstream": The Role of Basic Psychological Needs Satisfaction in Service Members' Future Orientation

Service Members' face many challenges in the performance of duties they are bound by oath to execute. In addition to the highly stressful occupational demands placed on them, prolonged exposure to austere and frequently dangerous environments can understandably overwhelm coping resources (Britt, Davison, Bliese & Castro, 2004; Greenberg & Jones, 2011). Additionally, returning from such environments to the relative safety of civilian or garrison (non-combat) roles and activities requires additional skills of adaptability and re-integration (Danish & Antonides, 2013). Coinciding with these realities, recent increases in rates of psychological distress and mental illness have focused needed attention on service members and the challenging environments in which they operate (Trofimovich, Skopp, Luxton & Reger, 2012; Bryan, Jennings, Jobes, & Bradley, 2012). To better understand these challenges, this study explores psychological experiences that may influence service members' self-concepts and future orientations. As stable, optimistic, future orientations have been associated with resilience to psychological distress and suicidality (Johnson, et al., 2011), it is worthwhile to explore how service members' attitudes toward the future might be shaped in the context of intrapersonal and interpersonal pressures specific to their unique environments.

Background and Significance

In 2004, the Department of Defense (DOD) began expanding initiatives to identify root causes for increases in service member rates of psychological distress (e.g. depression, PTSD, suicidality) with an aim toward developing more effective strategies of prevention and intervention. In efforts to explain rising suicide rates, one such initiative, the "Army STARRS" project (Study to Assess Risk and Resilience in Service members), gathered and analyzed socio-

demographic data from 2004 to 2009 on an unprecedented number of Regular Army Soldiers (N = 975,057). Among several study findings, researchers (Schoenbaum et al., 2014) concluded that predictors for Army suicides were strikingly similar to civilians (e.g., gender, age, intimate partner problems and history of mental health disorders).

Previously, Leardmann et al., (2013) using longitudinal data from the "Millennium Cohort Study" (N = 15, 560) found similar associations with gender, mental disorders and alcohol use, but, surprisingly, not suspected deployment related factors (e.g., combat exposure, number of deployments). Additionally, recent large sample studies (Nock et al., 2014) found evidence that under-reported, preexisting mental health disorders partially accounted for the current rise in service member suicides. Interestingly, these findings were contrary to suggestions that multiple, lengthy deployments were contributing to the rise in suicide rates and psychological distress. Despite efforts to find military specific predictors for the increase, only precipitants common to most populations were identified (Logan et al., 2014).

Notably, a recent study (Reger et. al., 2015) also found little support for speculation that increases in sucide rates might be associated with differential exposure to deployments or lowered accession standards (also see review by Castro & Kintzel, 2014). Early separation from service, rather, and discharges under other than honorable conditions were instead found to be significant predictors. Recent meta-anlayses by Bryan and colleagues (2015) also found evidence for an association between specific combat experiences (e.g., witnessing killings) and suicide-related outcomes, potentially explaining inconsistencies in previous findings. However, combat exposure, in general, was not found to be directly related to current increases in suicide rates.

While suicide rates for the military have been historically low (Nock et. al., 2013), they have, nevertheless, surpassed rates for the general civilian population leading to ongoing

2

speculation and concern. Interestingly, incidental findings suggest Army decedents disclose or communicate their intent to commit suicide less often than civilians, have fewer previous attempts (Logan et al., 2014) and use more lethal means (Anestis & Bryan, 2012). Not only does this point to possible cultural differences, but it also suggests that the detection of suicide contemplators may be more difficult in military populations. Logan and colleagues found, for example, that only 25% of Army decedents were receiving mental health treatment near the time of death, prompting researchers to comment that prevention efforts, "beyond mental health treatment" may be needed to reduce suicide mortality in the Army (Logan et al., 2014).

The Search for Resilience

In a strong statement, Nock et al., (2013) specify that the identification of "*modifiable* risk and protective factors" is the most important future direction for suicide research, emphasizing that *protective* factors are particularly important because so little is known about them. The lack of empirical studies and the relatively recent emergence of the field of positive psychology, they note, may be encouraging attitudes of skepticism regarding their importance. The reluctance to examine protective factors has been noted by others previously (Bryan, Ray-Sannerud, Morrow & Etienne, 2013) with a variety of reasons attributed. For example, longstanding, conceptual confusion about the definition of "Resiliency", which captures the general notion of what a protective factor provides, has been noted as problematic. Despite the reluctance to rigorously examine protective factors, emerging evidence supports arguments that while risk factors have a strong relationship with suicidal behaviors, interventions that focus on reducing risk factors *and* increasing protective factors have greater effectiveness. Addressing both risk and resilience simultaneously appears to optimize effects (Bryan & Rudd, 2006).

Notably, there has been a burst of recent findings with regard to several protective factors and suicidality in service members. Bryan, Andreski, McNaughton-Cassill, & Osman (2014) found *agency* (competence and autonomy) to be associated with decreased emotional distress and severity of suicidal ideation ($N = 273$). In a smaller, separate study ($N = 77$), Bryan and colleagues found *pride* (positive self-bias) moderated the interaction of *shame* (core, punitive, identity-based appraisals) with *hopelessness* and severity of suicidal ideation (Bryan, Ray-Sannerud, Morrow & Etienne (2013). *Self-Forgiveness*, was also found to significantly differentiate suicide attempters from those who only contemplated suicide in a large sample ($N = 476$) of student veterans (Bryan, Thieiault & Bryan, 2014). Relevant to the current study, *optimism*, one aspect of *future orientation*, was found to buffer the effects of *hopelessness* (also measuring future orientation) in military patients ($N = 97$) and was significantly associated with less severe suicidal ideation in a study by Bryan, Ray-Sannerud, Morrow & Etienne (2013).

Future Orientation as an Identity-Based Phenomenon

With respect to suicidality, *future orientation*, is frequently identified by researchers and clinicians as an important protective factor widely assessed, measured and studied (Johnson et. al., 2011). Johnson and colleagues identify 19 studies investigating *future orientation* and risk for suicide, specifying that *hopefulness* and *dispositional optimism* (positive future expectancies) are two common conceptualizations demonstrating protection against suicidality. It has been argued elsewhere, however, (Bryan, Ray-Sannerud, Morrow & Etienne, 2013; Osman et. al., 2010) that *future orientation* is multi-factorial and should include separate dimensions of risk and resilience, as well as state-based cognitive-behavioral features complimenting more enduring characteristics.

Osman and colleagues (2010), for example, propose that one's overall disposition toward the future is better represented by measuring behaviors, attitudes about the future and trait-like features (e.g., *dispositional optimism*). In comparison, *Future Time Perspective* (Chin & Holden, 2013; Miller & Brickman, 2004; Visser & Hirsch 2014; Zimbardo, & Boyd, 1999) is an alternative view introducing cognitive-behavioral tendencies through concepts like *future connectedness* (e.g., orienting toward future goals through planning). Accounting for cognitive-behavioral processes as well as content (e.g., specific beliefs) about one's *future orientation*, it is suggested, significantly expands conceptualization, measurement and potential usefulness of *future orientation* as a predictor of psychological distress.

Future orientation, as an identity-*involved* phenomenon, is considered particularly suitable in the present study given prominent theories implicating identity-based cognitions in suicidality (e.g., Fluid Vulnerability Theory; Rudd, 2006). Cognitive explanations for suicide (detailed in Chapter 2) posit that identity-based cognitions mediate the relationship between chronic risk and acute (behavioral) suicide factors. Moreover, identity-based cognitions (beliefs) are often uniquely distinct with regard to content (e.g., "I am worthless", "others reject me", "I cannot change this"). A broader view of *future orientation*, however, might also include other modes of cognition. In addition to *beliefs* about self, others and the future, for example, sub-categories of *process* (e.g., coping style, cognitive traits) might expand conceptualizations of this suicide-relevant, cognitive phenomenon.

Experientially (and symbolically), suicide is often conceptualized as the ultimate assault on (or affirmation *of*) one's devalued identity (e.g. destroying the defective *self* or demonstrating one's worthlessness). It is appropriate, therefore, to consider identity-related processes as potential moderators of suicide risk and resilience because the contemplation of suicide (i.e.,

5

suicidal ideation) can be viewed as an extreme, negative orientation toward one's identity and future. As conceptualized in this study, an identity-based, *future orientation* attempts to capture this robust theoretical continuity and conceptual specificity (i.e., theoretically integrated and conceptually distal to suicide).

This congruency will be detailed in Chapter 2 across literatures of well-being and identity, representing the distinct but inter-related domains of motivation and cognition, respectively. Demonstrating this continuity, it is hoped, will provide a theoretically consistent framework for investigating protective factors like *future orientation* in distal (*non*-acute) settings. However, identity-based, *future orientations* represent only one set of factors under examination for this study. Self-determination Theory (Ryan & Deci, 2000) provides a second, motivational framework for examining the intrapersonal and interpersonal protective factors related to well-being that may influence the processes deriving one's future orientation.

Self-Determination Theory and the Military Environment

Self-determination Theory (SDT) posits that all humans possess an innate growth instinct that flourishes in environments promoting the satisfaction of three distinct psychological needs (i.e., autonomy, competence and relatedness). Experiencing satisfaction in intrapersonal needs for autonomy and competence as well as the interpersonal need for relatedness is viewed as accounting for one's overall sense of well-being (Deci & Ryan, 2000). Preliminary evidence will also be reviewed examining basic psychological needs and their influence on proximal factors of suicidality. Interestingly, basic psychological needs have been referred to as "novel" protective factors for suicidality (Bureau, Mageau, Vallerand, Rousseau & Otis, 2012) because they have been largely overlooked in this regard. Additional studies (Luyckx, K., Lens, W., Smits, I., & Goossens, L., 2010; Luyckx, K., Goossens, L., Duriez, B., & Vansteenkiste, M., 2009) have

6

examined the influence of basic psychological needs on identity-processes (outside the context of suicidality) and suggest that, differentially, they play roles in predicting commitment to one's self-concept and future.

SDT variables like autonomy, competence and relatedness, may also be of particular interest to researchers who investigate military settings and populations, as they appear particularly salient in these environments. Institutional and contextual pressures which suppress individual autonomy to ensure success of group or mission goals (e.g. highly authoritative military units) may elevate ones experienced desire for satisfying alternative needs. Likewise, suppression of any or all three needs which can occur in rigidly demanding, coercive or punishing, hierarchical (e.g., rank structured) organizations, may motivate pursuit of compensatory needs detrimental to psychological health (Deci & Ryan, 2000).

Also consistent with Self-determination theory is the notion that military environments may satisfy certain needs while suppressing or thwarting others. This is particularly true in settings where competence is a highly desirable trait but relationships are often strained by poor leadership, rank structure or unpredictable and unstable alliances. (Greenberg & Jones, 2011). In these situations satisfied needs for competence may be offsetting or protective (though not optimal) even when relatedness needs and autonomy needs are thwarted. Complicating this view, some evidence has shown that balance of these needs, even when lower than one individual need, may be a better predictor of psychological adjustment (Sheldon & Niemiec, 2006). However, this may not hold true for other outcomes that are more identity-involved (e.g. future orientation).

The Present Study

To build on recent interest in protective factors, and their importance to suicidality, this study will examine relationships between an identity-based, *future orientation* and *basic psychological needs satisfaction* as defined by Self-determination Theory. As it has been recommended (Conner & Simmons 2014; Jobes, 2013) that new directions in suicide prevention and intervention investigate "upstream" or distal factors, it is not desirable to test for direct (proximal) links to suicidal thoughts or behaviors. Instead, the aim of this study is to better understand how protective factors and, importantly, relationships between *distal*, protective factors might be more thoroughly understood and nurtured. Chapter 2 will next provide further background and rationale for investigating the two protective factors introduced above, followed by the statement of the problem, review of the empirical literature and introduction of the general hypotheses for this study.

<div align="center">

Review of the Literature

</div>

Current Military Strategies

In 2013, at the request of the DOD, the Institute of Medicine (IOM) selected a group of experts to evaluate current DOD strategies and programs for the prevention of psychological disorders in service members. Their fundamental finding was that "few of DOD's prevention interventions are theory or evidence-based" (Denning, Meisnere & Warner, 2014). A systematic review outlining current DOD strategies and interventions revealed little evidence of efficacy or effectiveness, noting that many focused exclusively on psycho-educational approaches delivered in mass training formats. Among others, the group selected the Army's flagship*, Comprehensive Soldier Fitness* (CSF) initiative for review. Based on the Penn Resiliency Program (Cornum, Matthews, Seligman, 2011; Reivich, Seligman & McBride, 2011), CSF aims to teach service

members basic, self-administered cognitive skills to enhance resiliency. IOM's conclusions were in line with most external reviews of CSF which found that any detectable, positive effects of the program have been small and unclear at best (Denning, Meisnere & Warner, 2014). Stronger criticisms point to evidence suggesting these programs may be potentially harmful (Smith, 2013).

The report also indicated that most efforts by DOD agencies continue to focus on delivery of services in clinical settings. Exceptions to this included the Army's "Gatekeeper" training programs, like *Ask, Care, Escort (ACE)* and *Applied Suicide Intervention Skills Training (ASSIST)*. These programs were designed to teach peers and leaders how to identify and react to acute risk factors and imminent warning signs of suicide; however, the lack of consistent evaluations with these and most DOD-sponsored programs was a pervasive criticism by the IOM. Consequently, the preventative effects of these and similar programs are unknown (Denning, Meisnere & Warner, 2014). The IOM also did not identify any recognizably effective interventions being attempted prior to service members becoming acutely distressed and suicidal, leading some to question the policies guiding prevention efforts entirely. Castro & Kinzel (2014), for instance, have called for unification of suicide prevention under more appropriate health-related agencies rather than its current subordination to the human resources directorate.

The recent STARRS findings indicating that service members are under-reporting pre-enlistment mental health history (predicting later suicidal behaviors) has led many, including the IOM, to call for, innovative, non-mental health outreach and prevention strategies that occur prior to ("upstream" of) suicidal thoughts and behaviors. It is hoped that better screening and innovation will capture at risk populations who may not otherwise come into contact with a behavioral health professional and continue to "struggle in silence" (Denneson et al., 2014). With

few exceptions, there has been little evidence reported to suggest theoretically grounded, practical interventions at any level of the organization are being implemented or developed. Those that come closest (e.g., ACE, OSCAR), have yet to be rigorously evaluated or demonstrate effectiveness (Steenkamp, Nash, & Litz, 2013).

The Culture of Containment in Service Member Suicides

Leading researchers and practitioners who specialize in military suicides speak openly about pursuing new directions altogether. Bryan, Jennings, Jobes, & Bradley, (2012) write in a candid critique that prevention of suicides in the military requires a new "mindset" compatible with the cultural differences of the population. Their criticism of current approaches, among many things, points to the overuse of mass briefings and trainings that exclusively rely on identification of imminent warning signs. According to the authors this "identify and refer" strategy exemplified by the Army's ACE program targets only moments of crisis after the acuity of service members' distress has become elevated. They warn that this may serve to associate signs of distress (which can signify adaptive processes are occurring) with psychiatric disorders. They also posit that this promotes an unproven assumption that simply connecting service members with mental health providers will solve the problem. Subsequent mental health stigma may be underestimated, ignoring also that the problem could be in the service member's social or work environment and better addressed there.

In addition to a better appreciation of military culture, Bryan and colleagues advise integrating prevention into all aspects of military life and addressing daily, quality of life issues. They also recommend teaching "basic" psychological principles like "hardiness" (resilience) and "self-enhancement" but in ways that seem reasonable to the military leaders best positioned to make an impact. They note as critical that "gate-keepers", typically low to mid-level leaders

(noncommissioned officers), not just be "told to enact prevention" but be "shown how", and then given "corrective feedback". While these principles are presumably at the core of the Army's current CSF program, there is no evidence of any formal requirements placed on leaders at a meaningful supervisory level. Neither are there any apparent external or internal rewards for consistently promoting these core features (i.e., resiliency, hardiness), or indeed any instruction about how to do so. Assessment of these constructs in their subordinates, by those who know them best, and the systematic cultivation of environments that foster them is notably absent.

A recent RAND report, "Developing a Research Strategy for Suicide Prevention in the Department of Defense (2014)", states as one of its ten overarching recommendations that organizations must encourage collaboration between critical stakeholders. Specifically mentioned are "noncommissioned officers" and mental health providers, who are identified as essential to promoting the "diffusion of research into practice". A second recommendation highlights the importance of identifying and training specific groups who will be responsible for administering innovative interventions. Such a recommendation aims to ensure "Leadership buy-in" and peer (end-user) engagement, allowing select, "receptive" individuals to be taught about the intervention before training their peers in how to apply it (Ramchand et al., 2014). In response to these recommendations, previous attempts to develop innovative strategies (as described above) are relevant to the current study and will be briefly described.

Development of an "Upstream" Intervention

The current study's focus on distal ("upstream") protective factors originated in part from earlier efforts to develop a non-clinical, risk-reduction intervention for service member suicide. In 2010, at the request of the Virginia Army National Guard, work began on that intervention which produced an instrument known to its developers as the APFA (Assessment *as*

11

Psychological First Aid). The APFA intervention was initially conceived to be a very brief, psychosocial assessment, performed by Leaders on their Soldiers and by Soldiers on themselves. In a simple and concise manner, the APFA instrument (see Appendix 1) directed Leaders to assess how their Soldiers might perceive themselves in three experiential domains (i.e., *autonomy, relatedness* and *competence*). Soldiers would also be asked (separately) to assess themselves in the same three domains, and ratings would later be compared to Leader ratings for discrepancies.

As development of the intervention proceeded, it became clear that multiple social-psychological mechanisms were potentially embedded within the intervention, offering additional theoretical and empirical weight to its proposed effectiveness. By improving role clarity, task clarity and perceptions of task control, for example, the intervention was thought to target specific mechanisms for increasing Leaders' perceptions of responsibility (Britt, Adler & Bartone, 2001; Britt & Bliese, 2003; Schlenker, Britt, Pennington, Murphy & Doherty, 1994). It was predicted that participating Leaders would, over time, also improve their self-efficacy for the task of assessment.

Additionally, the APFA was designed to be a *subtle* behavioral intervention influencing group processes, attitudes and behavioral trajectories as opposed to pressured identification and management of acute suicidality. The goal was *autonomous* attitude change toward the act of assessment and, more importantly, the objects of assessment (i.e., Soldiers and their psychological functioning). It was anticipated that a less coercive approach might foster self-efficacy for intervention, facilitating access to care before crises developed. It was further believed that the *mere* assessment of Soldiers' psychological domains by their Leaders (independent of subsequent treatment/management) would be influential because assessment has

been shown to positively change social dynamics within groups during informal, and often, pre-conscious identity (role) negotiations (Swan, 1987; Swann, Milton & Pozner, 2000).

Statement of the Problem

While the APFA assessment was thought to have underlying mechanisms influencing group dynamics, a more prominent surface feature is in focus for this study. That surface feature is the APFA content domains to which participants are exposed (i.e., the APFA items). Whereas the assessment *process*, is believed to change group dynamics by gently redirecting attention, the *content* of the APFA was intended to fix Leaders' attention on the basic psychological needs domains defined by Self-determination Theory (i.e., *autonomy*, *relatedness*, and *competence*). The problem identified for this study is determining how these broadly influential domains of psychological functioning may independently interact with important, modifiable, risk and resilience factors for suicidality (i.e., identity-based, *future orientation*). Conveniently, this approach also follows recommendations (Bryan, Jennings, Jobes & Bradley, 2012; Jobes, 2013; Nock et al., 2013) to extend the research base by examining the network of suicide-related mechanisms interacting *between* modifiable protective factors.

Specific Research Questions

In order to justify application of basic psychological needs domains to the APFA intervention, I will establish the domains' relevance and utility in two ways. First, Research Question 1 (RQ1) will guide a review of previous studies investigating the relationship of SDT concepts to proximal suicide factors (e.g., suicidal ideation). The intent in this preliminary approach is to broadly examine how SDT constructs (under acute conditions) may become closely associated with suicidality despite appearing less obvious in distal settings.

Research Question 2 (RQ2) will seek to demonstrate the versatility of SDT constructs,

through statistical analyses supporting their hypothesized associations to an identity-based, *future orientation*. This approach will establish how SDT variables, in addition to their proximal influence on suicidality, may also serve as "novel protective factors" in distal settings (Bureau, Mageau, Vallerand, Rousseau & Otis, 2012). It is hoped, as well, that answering RQ1 and RQ2 will illustrate the substantial nomological network of related risk and resilience factors, supporting the argument that the APFA intervention is well-suited for use in distal (preventative) settings. An overview of Self-determination Theory and a brief introduction to identity-based, *future orientation* will next reveal a framework for subsequent discussions of RQ1 and RQ2.

Self-Determination Theory

Self-determination Theory (SDT) (Deci & Ryan, 1985; Ryan & Deci, 2000) has been described by its architects as a "meta-" or "macro-theory" of motivation, human development and well-being (Deci & Ryan, 2008). That is, SDT is a theory of motivation that encompasses other theories of cognition, emotion and behavior. A primary tenet of SDT is that quality (not quantity) of motivation is the principle psychological determinant of success and adaption with regard to an individual's cognitive, affective and behavioral outcomes. Types of motivation identified within SDT include intrinsic motivation (internally derived/regulated), extrinsic motivation (externally regulated) and amotivation (apathy). While early research efforts focused on differentiating between distinct types of motivation, the theory has developed rapidly and now extends to applications of personality (identity) development, self-regulation, and well-being.

Intrinsic motivation has been shown to reflect higher levels of functioning and satisfaction with respect to basic psychological needs (Vallerand, Koestneer & Pelletier, 2008). Alternatively, *extrinsically* motivated individuals experience less satisfaction while engaged in activities that are aversive or externally regulated by others. For example, merely providing

14

incentives to excel in things you already like to do (mild external regulation) has been shown to decrease motivation and performance (Deci, Koestner & Ryan, 1999). Finally, the furthest end of the external motivation continuum is represented by "apathetic" (amotivated) individuals who must be coerced in some way to perform an activity. This extreme category is also, according to SDT research, the least satisfied in terms of basic psychological needs satisfaction and general well-being (Ryan & Deci, 2000).

From an existential perspective, SDT assumes that humans have an innate desire to be active agents in the construction of meaning and purpose in the context of their environment and the activities they pursue (i.e. intrinsically motivated). Further, individuals long to integrate their identities (i.e, achieve a coherent, authentic sense of self) and prefer environments that foster personal growth at optimal levels of functioning. Foundationally, SDT takes a perspective of, *person in context*. This view is represented, in SDT language, by the "dialectic-organismic" framework, asserting that there is tension within the context of a person-environment relationship, wherein, basic psychological needs are either satisfied or thwarted. These experiences then determine the type of motivation experienced in the performance of required or desired activities. The three basic psychological needs identified by Self-Determination Theory will now be reviewed.

Defining the Main SDT Constructs

While seminal work initially focused on isolating and understanding *intrinsic* motivation, SDT theorists also proposed the existence of certain "propensities" (tendencies) toward satisfying distinct psychological needs (Deci & Ryan, 1985). Individuals were found to be naturally inclined toward activities that satisfied a particular cluster of psychological experiences, and a robust research effort soon identified *autonomy* (self-directedness),

relatedness (sense of belonging) and *competence* (environmental mastery/effectiveness) as the constructs that captured these sought after experiences. These *basic* psychological needs are considered naturally "evolved propensities" (innate and irreducible) that require no further explanation than what is provided by the tenets of natural selection. Individuals satisfying these three needs respond by performing at higher levels of functioning, promoting a view of *self* (identity) that is more authentic and committed (Ryan and Deci, 2000a).

A distinction is drawn, however, between SDT's basic psychological needs and other important desires and motivations (drives). Feeling safe, emotionally undisturbed or undistracted, for example, are human desires that promote psychological homeostasis or a "set-point" of *stability*. The basic psychological needs identified by SDT, in contrast, satisfy an implicit *growth* instinct (beyond homeostasis). Their satisfaction helps assimilate one's experiences into consistent views of an emerging, *actualized self* (Ryan, Kuhl & Deci, 1997). SDT further describes this as the process of internalization (integration of values and accepted social regulations), the mechanism by which these *actualized* identities are constructed and regulated (Ryan & Deci, 2003). Satisfying the basic psychological needs of *autonomy*, *relatedness* and *competence* is believed to provide the nutriments (*psychological nourishment*) for optimizing continuous integration of the *self* and psychological well-being throughout the life-span (Ryan & Deci, 2000a). In a broad sense, SDT encompasses a theory about identity development and identity maintenance, but from the perspective of (and emphasizing) *motivation* rather than cognition, affect or behavior.

From these basic tenets, much of SDT's successes have emerged across domains such as work, academics and the health professions. The consistent findings and growth of SDT-related studies over the last four decades testifies to its growing appeal and solid empirical base

(Vallerand, Koestneer & Pelletier, 2008). As SDT is rooted in the tradition of humanistic and positive psychology, it is only recently that interest in using SDT as a framework to rigorously understand and address severe, psychopathological concerns (e.g., suicidality) have emerged. To determine whether SDT constructs are suitable for distal (preventative) suicide interventions, it is important to understand first how the SDT framework is currently being viewed in the context of more proximal, clinical settings. To achieve this understanding, RQ1 and emerging literature will now be discussed which examines how SDT is conceptualized, applied and studied in the context of acute settings and proximal factors related to suicidality.

Research Question One: Is There Evidence Supporting the Association of SDT Domains (*Relatedness, Autonomy, and Competence*) With Proximal Suicide Risk and Resilience?

From the context of their own clinical experience, SDT developers have consistently taken the view that a positive psychology approaches should not ignore pathology (Ryan & Deci, 2000). They suggest that psychopathological conditions (e.g. Borderline Personality Disorder) are intimately involved in severe disruptions to any or all of the three basic psychological needs (Ryan, 2005). Moreover, the SDT literature is rich with evidence suggesting that the thwarting of basic psychological needs invariably accompanies a sense of dysphoria, fostering disorders of thought and emotion throughout the lifespan (Deci & Ryan, 2008; La Guardia, Ryan, Couchman & Deci, 2000). With specific regard to suicide, the authors note that clinical research on self-harming behaviors implicates deficits in both relatedness and autonomy. Further, "…people with whom [they] have worked clinically, who have actually been suicidal, have invariably been dealing with significant threats to relatedness, shame, or hopelessness concerning ineffectiveness at central life goals, or with a deep sense of their agency having been vanquished. " (Ryan and Deci, 2000b, p. 321).

17

SDT and psychotherapy. Supporting this view, Britton, Williams and Conner (2008) published two case studies and reviewed literature investigating the role of autonomy support in psychotherapy with suicidal patients. They suggested along with Deci & Ryan (2008) that the SDT framework explains well how techniques of Motivational Interviewing (Miller & Rollnick, 2002) work with a variety of patients. Motivational Interviewing (MI) has traditionally been presented by its developers as an atheoretical technique that facilitates behavior change; however, there is recent interest (Vansteenkiste & Resnicow, 2012) in understanding how MI might be applied within the context of suicidality. Techniques of the approach (e.g., "rolling with resistance", promoting self-efficacy, expressing empathy), borrow largely from the trans-theoretical explanations of behavior change developed by Prochaska and colleagues (Norcross, Krebs & Prochaska, 2011; Prochaska, Norcross & DiClemente, 2005). They also appear to overlap considerably with SDT concepts.

Referencing earlier work (Markland, Ryan, Tobin & Rollnick, 2005; Vansteenkiste, & Sheldon, 2006), Britton and colleagues propose that the autonomy supportive stance inherent in MI is the central component explaining its general success as a psychotherapeutic technique. They also elaborate on the complimentary nature of SDT and MI, describing how "rolling with resistance" is respectful of *autonomous action*, promoting self-efficacy enhances experiences of *competence* and expressing *accurate* empathy fosters perceptions of *relatedness* in the therapeutic relationship. They go on to discuss the role autonomy, relatedness and competence could play in several clinically relevant processes, identifying two of the more vexing treatment complications for suicidal patents (i.e., avoiding/terminating treatment and attempting suicide).

In later collaborations with leading Cognitive Behavioral Therapy (CBT) researchers, Britton, Patrick, Wenzel & Williams (2011) examine literature and present case studies

demonstrating positive outcomes associated with integrating SDT, MI and CBT in suicidal patients. Exploring, again, two of the more problematic aspects of managing suicidality (treatment dropout and suicide attempts), they combine two empirically supported approaches (MI and CBT) within an *autonomy supportive* (SDT) framework. Vansteenkiste & Resnicow (2012) later discuss developments in clinical SDT interventions, also with an aim toward integrating MI approaches. They advise, as do Britton and colleagues (2008), that SDT methods are appealing but have yet to mature with regard to replicable protocols or a strong evidence base in clinical settings. Nevertheless, momentum for applying these approaches appears to be gaining, as recent efforts to rigorously examine SDT constructs in the context of suicide and its correlates continue to expand.

SDT variables related to distal and proximal suicide factors. Appropriate to the traditions of positive psychology, the predominant focus of SDT has been the influence of basic psychological needs on the construct of *well-being* and improved living (for SDT conceptualization of *well-being* see Ryan and Deci, 2001). This review, however, also aims to highlight recent applications toward the more severe circumstances of life. It seems appropriate, therefore, to examine a theory that allows for the discussion of suicide-related protective factors (e.g. *well-being*, *future orientation and agency*) from a body of research that actively reports on them. Several SDT researchers, taking recommendations to shift the focus toward prevention, appear to be moving in this direction.

Bureau, Mageau, Vallerand, Rousseau & Otis, J. (2012) represent one of the earliest attempts to systematically investigate the moderating effects of self-determination on suicidal behaviors. Following a line of reasoning similar to Nock et al., (2013), researchers investigated the influence of *autonomous motivation* on mediators of negative life events and suicidal

19

ideation (i.e. *hopelessness*). Reviewing previously researched protective factors (e.g. optimism, problem-solving, emotional intelligence and happiness), they hypothesized that self-determination (measured as *motivation type*) may be an overlooked protective factor against acute suicidality. In their study of late adolescent Canadians ($N = 682$), results supported the moderating role of self-determination on negative life events, hopelessness and suicidal ideation.

McGraw, Pickering, Ohlson & Hammermeister, (2012) examined associations between *intrinsic motivation* and known risk/protective factors for suicide (e.g., hopelessness, self-esteem, depression and loneliness) in a sample of Army Infantry Soldiers ($N= 427$). While the focus of this study was not suicide behaviors, it is the first known exploration of SDT constructs related to *risk* and *resilience* factors in a military sample. Results demonstrated expected correlations between motivation type (intrinsic vs extrinsic) and outcome variables for the predominantly male, adult sample (*Mean Age* = 25.8) Results also demonstrated that these more adaptive motivational qualities were strongly, negatively correlated with known suicide risk factors (hopelessness, loneliness, anger, depression, anxiety and stress) but positively associated with *self-esteem*.

SDT, self-esteem and suicide. Johnston et al. (2011) identify *self-esteem* as a *belief/appraisal* having substantial empirical support as a suicide factor. In a clinical military sample ($N = 77$), Bryan, Ray-Sannerud, Morrow & Etienne (2013), investigating a similarly positive, self-based appraisal, also found support for *pride's* buffering effects on the relationship between *hopelessness* and suicidal ideation. Given the demonstrated influence of *self-esteem* and other *self*-appraisals on risk and resilience, it is important to briefly examine how SDT proponents have conceptualized *self-esteem* with regard to distress and suicidal behaviors.

Lakey, Hirsch, Nelson & Nsamenang, (2014) thoroughly review this conceptualization in

a recent study investigating the buffering effects of *contingent self-esteem* on depressive symptoms and suicidal ideation. The authors first review meta-analytic studies (Sowislo & Orth, 2013) and the *self-esteem* literature in general to support arguments that *self-esteem* is a robust protective factor. Next they show that SDT constructs are strongly associated with both general well-being and *self-esteem*, before explaining SDT's nuanced view of *contingent* and *true self-esteem* (also see Heppner, Kernis, Nezlek, Foster, Lakey & Goldman, 2008). They go on to describe subtle but important differences between *contingent self-esteem* (unstable/fragile), based on external expectancies, and *true self-esteem* (secure/stable), which is argued to be regulated by internal demands and intrinsic motivation (Deci & Ryan, 1995; Kernis, 2000). They then contrast this approach with traditional classifications of *self-esteem* (e.g. trait vs state) to frame the discussion of their study findings.

In Lakey and colleagues' sample of college students ($N = 371$), it was found that high, overall *self-esteem* related to lower depressive symptoms and less risk for suicidal behavior. Introducing SDT variables, however, researchers also found that individuals differed in severity of depressive symptoms and suicidal behaviors depending on the type of self-esteem reported (*contingent* vs *true*). Briefly, high, but *contingent* (unstable) *self-esteem*, was related to poorer outcomes with respect to depressive symptoms and suicidal behaviors. They concluded that high, *contingent self-esteem* was not significantly different in terms of outcomes than those who reported low, *non-contingent self-esteem* (i.e., low, stable *self-esteem)*. To describe it differently, high, unstable *self-esteem* was no healthier than lower *self-esteem* that was internally regulated (i.e. intrinsically derived). Study authors go on to make further arguments that a *contingent/true* framework has more explanatory power than traditional *self-esteem* conceptualizations because it accounts for both contingent and non-contingent forms.

21

Basic psychological needs satisfaction and suicidality. Thus far, general SDT concepts (i.e., *intrinsic motivation, self-determination, true self-esteem*) have been discussed in the context of clinical practice and emerging suicide research. To provide further support that SDT constructs are suitable as potential mediators and/or moderators, this review now examines the influence of basic psychological needs (i.e. *autonomy, relatedness, competence*) on suicidal cognitions and related risk/protective factors (e.g. negative life events, subjective well-being). While the empirical base appears to be expanding with regard to these more specific constructs and suicidality (Wei, Shaffer, Young & Zakalik, 2005; Moreau & Mageau, (2011), it is, to date, limited in scope. Three recent studies; however, examine *autonomy*, *relatedness*, and *competence*, in the context of suicidal cognitions (i.e. ideation) and other cognitive precursors to suicide (e.g. *thwarted belongingness*). These studies more directly address RQ1, providing an unambiguous investigation of the main SDT constructs for this proposed study and their association to proximal suicide factors. They are now reviewed.

In an undergraduate sample ($N = 439$), Rowe, Walker Britton & Hirsch, (2013) examined the influence of basic psychological needs satisfaction on the relationship between negative life events and suicidal ideation. All three needs were independently examined and found to be significant buffers after controlling for age, sex and depressive symptoms. This study represents the first to examine the independent contributions of each psychological need in relation to suicidal behaviors. While researchers also reported total needs satisfaction in accordance with the scale developers' instructions, there has been recent criticism over treating the total score from the Basic Psychological Needs Satisfaction (BPNS) scale as evidence of a unitary construct (Johnston & Finney, 2010). This was a noted limitation by the study authors, however, additional analyses in the study also examined each of the three needs separately. Researchers concluded

that bolstering any or all basic psychological needs may be an important suicide prevention strategy for individuals experiencing high stress and recommended further study.

Hill & Petit (2013), exploring basic psychological needs satisfaction and suicidal ideation among college students, found support for an indirect effects model within the context of Joiner's Interpersonal Psychological Theory (IPT) of suicide (Van Orden, Witte, Cukrowicz, Braithwaite, Selby & Joiner, 2010). Within their sample (*N*= 449), two competing models described the unique contributions of needs satisfaction using the BPNS scale (discussed above). Researchers reported that an indirect model provided the best fit for the data, which showed all three needs significantly predict *thwarted belongingness*, *perceived burdensomeness* and suicidal ideation. The study represents a preliminary step toward examination of basic needs within specific theoretical frameworks of suicidality.

Most recently, Tucker & Wingate (2014) replicated the above findings in a college sample (*N* = 336) while examining the specific role played by IPT predicted factors. Results demonstrated that both *thwarted belongingness* and *perceived burdensomeness* mediated the relationship between basic needs and suicidal ideation (as measured by the BPNS scale). Reverse mediational models were not supported, indicating that basic psychological needs experiences may be sequentially primary to cognition. Post hoc analyses examined the unique contributions of the three individual needs; however, only *relatedness* remained significant. IPT factors were, nevertheless, found to mediate the relationship between *relatedness* and suicidal ideation after controlling for depression. This is an important finding because it supports the view that SDT variables contribute to and influence proximal factors, strengthening the argument for their suitability in suicide intervention strategies. Table 1 (below) provides a summary of the reported relations identified in the above studies.

23

Table 1.

Correlations between SDT Variables and Proximal Factors for Suicidality

SDT Variables	Proximal Factors				
	Depressive Symptoms (or) Hopelessness	*Suicidal Ideation (or) Behavior*	*Thwarted Belongingness (or) Perceived Burdensomeness*	*Shame (or) Loneliness*	*Self-worth*
Psychological Needs (total)	-	-		-	
Autonomy	-	-	-		+
Relatedness	-	-	-		+
Competence	-	-	-		+
Autonomy Support		-			
Intrinsic Motivation	-	-			+
True Self-esteem	+				
Self-determination	-	-			

Theoretical Considerations for Distal and Proximal Suicide Factors

Tucker and Wingate (above) also discuss that basic psychological needs may be a relatively weak predictor of suicidal behaviors but a good predictor of distal risk factors. That is, basic psychological needs may better predict "*upstream risk*". If this is true, then it may also be demonstrated that basic psychological needs predict "*upstream resilience*" (e.g., *future orientation*). This fits well with Johnson and colleagues' argument that *risk* and *resilience* factors represent separate, but interrelated categories. Additionally, theoretical models of suicide (discussed next in detail) find distal and proximal factors equally compelling in understanding how suicidal episodes (modes) are activated (e.g., Rudd, 2006).

Tucker and Wingate go on to recommend examining distal resilience factors that deter the *emergence* of proximal risk. For example, how does *autonomy* prevent activation of maladaptive, *self-schemas* that (under certain conditions) lead to suicidal ideation and

hopelessness? This is, perhaps, a complex or convoluted distinction; however, the notion that suicidality emerges in a complex, *non*-linear manner is well-supported by theories that promote an episodic view of this phenomenon. Fluid Vulnerability Theory (Rudd, 2006) for instance, distinguishes *acute* (proximal) risk from *chronic* (distal) risk and posits that when both are present, the suicidal mode is most likely to be activated. A closer examination of current theoretical models of suicide will be introduced next, followed by a discussion of identity and identity-based, *future orientations*.

Current theories. Despite a reported lack of theoretical *grounding* for suicide interventions (Hollon et al., 2002; Linehan, 2008; Wenzel & Beck, 2008), theory continues to advance our understanding. This may be, as Nock et al., (2013) comment, a fortunate byproduct of the attention and funding currently focused on service member suicidality. Two nationally recognized theories of suicide have been examined with regard to military populations and continue to gain support. The Interpersonal Psychological Theory of Suicide (IPT) (Joiner, 2005) and Fluid Vulnerability theory (FVT) (Rudd, 2006) seek to explain the mechanisms (e.g. learned capability, cognitive vulnerability) leading to suicidal behavior. Important to this proposed study, both FVT and IPT have a shared focus on maladaptive, identity-based cognitions (e.g., unlovability, thwarted belongingness, perceived burdensomeness). Both theories also implicate impoverished interpersonal environments, particularly when negative attributions about one's worth, identity and the future are reinforced by others. Both theories are now briefly described in more detail.

Joiner's interpersonal psychological theory of suicide. IPT specifically addresses the self-other perceptions of "thwarted belongingness" and "sense of burdensomeness" as well as a condition of "acquired capability" through desensitization (learned ability to commit suicide)

(Van Orden et al., 2010). According to IPT, when imminent suicidal conditions are present, both the will and ability to follow through with this otherwise extremely difficult act are available. It has been argued that specific cultural factors within military populations (e.g. stoicism, trauma exposure) put service members at considerably greater risk (Selby et al., 2010). Ribeiro and colleagues (2014), for example, recently examined a military population (N = 1208) and found that levels of acquired capability (desensitization to physiological pain and fear of death or self-harm) moderate the relationship between agitation and acute suicidality.

   Fluid vulnerability theory. Drawing on original work by Aaron Beck (1976) and complimenting IPT, Fluid Vulnerability Theory (FVT) explains how episodic distress may combine with the vulnerability of maladaptive, identity-based cognitions about the self, others and the future (*cognitive triad*). When these factors combine, a limited period of extreme danger and vulnerability, termed the "suicidal mode" (Rudd, 2006) is said to be present. According to Beck, modes consist of integrated systems of cognition, affect, physiology and motivation (Wenzel & Beck, 2008). Like IPT's perceptions of perceived burdensomeness and thwarted belongingness, it is argued that destructive, irrational beliefs (e.g., unlovability, hopelessness) provide an enduring context for the emergence of acute suicidal behaviors by creating "susceptibility" within the cognitive system (e.g., impaired problem solving, rigid thinking, distortions). In particular, FVT implicates the persistent nature of identity-based cognitions. Rudd (2006) termed this phenomenon the suicidal belief system.

   Recent development of a suicide specific measure of hopelessness (Bryan et al., 2014) found support for FVT in a military population (*N* = 175). The Suicide Cognitions Scale successfully isolated the two proposed factors of Rudd's suicidal belief system "unloveablity" and "unbearability" with each factor measuring beliefs about *self-worth* and coping efficacy for

distress tolerance, respectively. Both scales also significantly predicted future suicide attempts better than other risk factors in military samples. While beliefs (i.e. content) within the cognitive system of Beck's description of modes are accounted for in the scales, process-related cognitions (e.g. attribution bias) and other systems (e.g. motivation) are not.   Additionally, neither FVT nor IPT attempt to incorporate the contributions of protective factors or discuss their role in resiliency. In light of more recent work, however, this appears to be changing.

Origins of Identity

Contemporary researchers largely view *Identity* as one's beliefs about the *self* and the subsequent presentation of this *self*-view to others (Schwartz, 2001). However, *identity*, as a psycho-social construct, emerged from Erik Erikson's original conceptualization (1950, 1963), reflecting psychoanalytic theories of personality (Schwartz, 2001). To Erikson, *identity* explained, in part, personality expression and development across various stages of the lifespan. Erikson also believed *Identity* could be examined at various levels of interaction between a person and that person's social environment (Erikson, 1974). That is, identity (similar to SDT concepts) was believed to be reflected in the tension between person and environment.

Erikson's clinical observations of struggling, World War II veterans inspired his formulation of *Identity* as a telescoping, tripartite, *psycho-social* interaction (ego-personal-social) (1950, 1963). At the least accessible and change-resistant level, Erikson (1974, 1980) described an imperceptible *intra*-psychic phenomenon which he postulated to be one's "ego identity" (the intuitive understanding of *self*). A non-deliberate process (ego-synthesis) was presumed to consolidate one's ego-identity, which was also embedded within wider contexts of inter-group roles (personal identity) and roles constructed by society (social identity).

At the level of "personal identity", *who one believes they are* interacts with *how they project themselves to others* (Erikson, 1950, 1963). Personal identity may or may not be consistent with ego-identity and therefore, the congruency of these two aspects of identity may predict how functional or unstable (*dystonic*) one's identity is. This still represents an incomplete picture of identity, however. The final, and broadest level incorporates both previous levels ([intra]-ego identity and [inter]-personal identity) within the larger context of societal norms.

According to Erikson (1974), "Social identity" or "group identity" is formed as an individual interprets and then internalizes or rejects the values, beliefs, behaviors, and expectations (i.e., norms) of the social milieu to which he or she belongs. Similar again to SDT's conceptualization of the internalization process (Deci, Eghrari, Patrick & Leone, 1994), social identity represents the degree of acceptance and inner solidarity with a group's ideals, describing how embedded the person is in their social environment (Erikson, 1980). From this telescoping conceptualization, the psychometric development of identity proceeded with attempts to isolate the pivotal and more salient aspects of identity-based beliefs and processes.

The identity status paradigm (Marcia, 1966) was the first psychometric effort to emerge from Erikson's conceptualization of personal identity. Marcia isolated two aspects of identity, an individual's level of exploration and subsequent commitment to work, political beliefs and religion. These life categories were also viewed by Erikson to be the most salient identity defining domains. According to Marcia's model, by measuring and intersecting dimensions of exploration and commitment, one's *identity status* can be ascertained and described by any of four quadrant categories (i.e. *achieved, diffuse, moratorium* and *foreclosed*)

While criticized for failing to capture the entire identity construct as Erikson envisioned it (Kroger, 2000; Schwartz, 2005), the identity status conceptualization continues to be refined

psychometrically and is still considered useful in clinical and research settings (Adams, 2010). However, the model is limited in that the identity statuses only provide a cross-sectional view of one's identity at a particular time in his or her life. Because the intensity and motivation for identity exploration can vary unpredictably, the *identity status* model is also thought to be confounded by other process variables (Berzonsky, 2003a; Kroger 2003). As discussed next a more practical approach is demonstrated by partitioning an individual's more enduring and constructive identity features. A closer examination of *identity style,* and cognitive-behavioral strategies related to one's identity-based, *future orientation* will now be examined.

Defining the Main Identity Constructs

Identity style. Berzonsky (1989) expanded the measurement of identity by examining information processing styles related to Marcia's (1966) identity status paradigm. Influenced by self-construction theory (Kelly, 1955; Epstein, 1980), Berzonsky (1990) conceptualizes identity from a social-cognitive, process-perspective, discovering that attitudes toward determining one's identity correlate strongly with identity outcomes (e.g. *identity status*) and beliefs about one's self-concept and future (*identity commitment*). In his foundational work, Berzonsky (1989, 1990) isolated three processing styles (*informational, diffuse-avoidant*, *normative*) and described their role with regard to one's commitment to self, others and the future (i.e. the cognitive triad). This conceptualization improves significantly over previously discussed notions of *future orientation* as both identity-based *beliefs* and cognitive-behavioral *processes* related to one's future are encompassed within a single theoretical framework. The identity styles and their relationship to *identity commitment* are discussed next in more detail.

The *identity styles* of Berzonsky's model reflect an individual's preferred cognitive-behavioral strategies for exploring and overcoming personal problems as well as deciding and

executing plans about the future (Berzonsky, 1990; Berzonsky & Kuk, 2000; Berzonsky & Neimeyer, 1994). *Informational styles* were found to relate strongly with *achieved* and *moratorium* identities and are characteristic of approach orientations demonstrating pro-active decision-making, exploration and problem-solving (i.e. future oriented and solution focused). In contrast, *diffuse-avoidant styles* were found to positively relate to a *diffuse identity status* reflecting a confused or apathetic approach to processing identity-relevant information (i.e., avoidant orientations). Individuals with *diffuse-avoidant* styles also report avoidance of thoughts about the future and resistance to active deliberation about personal problems. Finally, *normative* styles reflect a *foreclosed* identity (accepting without critical examination) and are also considered an avoidant strategy.

Identity commitment. The Identity Style Inventory (ISI) was developed to measure identity processing orientations (Berzonsky, 1989; 1992) and has gone through several revisions since its inception (Berzonsky, Soenens, Luyckx, Smits, Papini & Goossens, 2013). An early improvement over previous conceptualizations of identity was recognition of the role that identity commitments play in determining the associations between *style* and *status*. Briefly, both informational and normative identity styles are significantly, positively related to higher *identity commitment* (certainty, clarity and confidence about one's identity), while diffuse styles are significantly and negatively associated.

The inclusion of a belief-based *identity commitment* sub-scale adds to the power and specificity of Berzonsky's conceptualization due to its additional explanatory properties. Consequently, *identity style*, in the context of *identity commitment*, effectively captures the relationship between cognitive processing tendencies (approach vs avoidance) and future-oriented, identity-based beliefs (self/future-certainty). In simple terms, Berzonsky's framework

30

identifies both the degree of clarity, and one's preferred strategy for solving problems about the future and the *self*.

Berzonsky's partitioning of *identity style* and *identity commitment* also suggests both stable (chronic) and dynamic (acute) aspects are operating together (see Adams, 2010). *Identity commitment* is dynamic in that it reflects the stability (or instability) of identity decisions subsequent to the degree of structural elaboration (*self-complexity*) that has occurred (Linville, 1987; Ryan, LaGuardia & Rawsthorne, 2001). This is also conceptually consistent with cognitive explanations of suicide modes (e.g., FVT) which infer that acutely distressing processes (e.g., suicidal ideation) are activated in the presence of chronic vulnerabilities (e.g., uncertain, identity-based beliefs).

The reviewed literature suggests that *identity commitment* reflects (chronic) resilience when high and/or (chronic) vulnerability is low. Likewise, *identity style*, which captures preferred (but modifiable) cognitive-behavioral strategies are thought to modify and/or alter the self-concept (Berzonsky, 2004). This, arguably, is protective, when one is (chronically) open and oriented toward *self* and future-related information (*informational styles*), or (chronically) maladaptive when thoughts of the self, one's problems and the future are avoided (*diffuse-avoidant style*). Together, *identity style* and *identity commitment* may be conceptualized as a distal system of cognition that both generates and sustains one's protective or maladaptive future orientation.

Additionally, the relationship of *identity commitment* to *identity styles* and other beneficial outcomes is robust (Berzonsky, 1990; Berzonsky & Cieciuch, 2014). The breadth of utility for Berzonsky's conceptualization becomes more evident, however, when examining associations of *identity style* and *identity commitment* with the multitude of factors distally

31

related to suicide risk and resilience (see Table 2 below). An introduction to RQ2 will follow

next, exploring the interpersonal and intrapersonal components of basic psychological needs and

their hypothesized relationships with identity-based, *future orientations*.

Table 2.

Survey of Reported Correlations Involving Identity Processes and Distal Suicide Factors

Risk/Resilience Factor	*Informational*	*Diffuse-avoidant*	*Identity Commitment*
Coping			
Problem-focused Coping	+	-	+
Avoidant Coping	-	+	-
Emotion-focused Coping	-	+	-
Personality			
Neuroticism	-	+	-
Extraversion	+		+
Openness	+	-	
Agreeableness	+	-	+
Conscientiousness	+	-	+
Adaptive Perfectionism			+
Maladaptive Perfectionism			-
Rumination			
Self-Reflection	+		
Self-Rumination		+	
Self-insight	+	-	
Cognitive Processing Bias			
Rational processing	+	-	+
Agency	+	-	+
Self-esteem	+	-	+
Psychological Well Being			
Environmental Mastery		-	+
Positive Relations	+	-	+
Purpose in Life	+	-	+
Personal Growth	+	-	+
Autonomy	+	-	+
Self-Acceptance	+	-	+

Identity and SDT's Interpersonal-Intrapersonal Framework

It is notable that both intrapersonal factors and interpersonal factors comprise the

figurative scaffolding within SDT. *Autonomy* (feeling self-directed) and *competence* (mastery

experiences), for example, represent, self-evaluative components (i.e., intrapersonal). *Relatedness*, in comparison, is characterized by interpersonal perceptions about the self with others (e.g., affiliation) and the estimation of others' feelings *toward* oneself (e.g., feeling that "others accept me"). It was previously shown that SDT variables are associated with proximal, interpersonal suicide factors such as *thwarted belongingness* (Joiner, 2005) and *unloveability* (Rudd, 2006). Basic psychological needs satisfaction, however, has not been examined with respect to one's intrapersonal, *future orientation*. In order to further support SDT's relevance (now within a distal setting), each components' differential influence on future-oriented, identity processes will be considered.

Research Question 2: How Do Interpersonal Components (*Relatedness*) and Intrapersonal Components (*Autonomy* and *Competence*), Differentially Relate to Identity-Based, Future-Oriented Cognition (i.e., *Identity Style* and *Identity Commitment*)?

  Distal and proximal contexts. To answer this and related questions, it is important first to examine why interpersonal and intrapersonal contexts are important to consider together. To review, Joiner's, (2005) Interpersonal Psychological Theory of suicide is an empirically supported model with both interpersonal components (*thwarted belongingness*, *perceived burdensomeness*) and intrapersonal components (*hopelessness*). Both components, constituting IPT's conceptualization of a *desire for death*, demonstrate reliability in predicting proximal, suicide behaviors (Van Orden, et al. 2010). Similarly, Fluid Vulnerability Theory (Rudd, 2006) is another empirically supported theory of suicide which implicates both maladaptive interpersonal beliefs (e.g., *unloveability*) and pessimistic, intrapersonal predictions (e.g., *hopelessness*). In short, both theories encompass interpersonal and intrapersonal aspects of one's self-concept and future.

Fluid Vulnerability Theory (FVT) further proposes that prior to the emergence of acute suicidality, irrational beliefs about the self, others and the future create chronic, "cognitive susceptibility" (e.g., impaired problem-solving). More specifically, FVT implicates identity-based cognitions, which (owing to their chronic nature) contribute to the formation of "suicidal belief systems" (Rudd, 2006). It is reasonable, then, to investigate how interpersonal and intrapersonal components of future-oriented systems interact *outside* the context of acute suicidality as this may represent the distal origins of such a belief system. The proposed identity framework representing motivational antecedents (basic needs satisfaction), self-evaluative, cognitive tendencies (*identity style*) and self-future beliefs (*identity commitment*) is thought to capture this distal context especially well. For clarity, Figure 1 (below) organizes all reviewed suicide-related factors according to their predominantly distal or proximal nature.

Distal Factors ("upstream risk-resilience")			**Proximal Factors** ("downstream risk-resilience")
Self-Determined Experiences	Cognitive Abilities (tendencies)	Cognitive Beliefs (attitudes)	
Intrinsic Motivation *True Self-Esteem* ***Autonomy*** ***Relatedness*** ***Competence***	*Perfectionism* *Coping* *Rumination* *Emotion Regulation*	*Agency* *Sense of Worth* *Perceived Support* *Well-Being* *Hopelessness*	*Desensitization (acquired capability)* *Suicidal Ideation* *Acute Agitation* *Perceived Burdensomeness* *Thwarted Belongingness* *Depression* *Perceptions of Worthlessness* *Negative Life Events* *Desire for Death*
	Future Orientation		
	Dispositional Optimism	*Hopefulness*	
	Identity Style (information processing)	***Identity Commitment*** (future oriented beliefs)	

Figure 1.   Distal and proximal factors related to suicidality

34

Bridging Identity Theory and SDT. The discussion and hypotheses to follow reflect a specific aim to understand how SDT constructs might differentially influence the strength and clarity of ones' self-concept and future. The value in this approach is found in determining whether and how one's *future orientation* may be susceptible to (or protected by) each component. In general, the questions to be answered might be framed in a number of ways. Are intrapersonal SDT components more or less protective to identity commitments than interpersonal components? Does one component blunt the potentially deleterious effects of another? Is it important that all three basic psychological needs be met equally, or are specific components more important to one's future orientation than others? By investigating these possibilities, it is hoped that participants of future APFA interventions assessing these domains may be better informed, and those who facilitate them, might gain a nuanced understanding of their value.

General hypotheses. Consistent with identity theory, identity styles (as stable cognitive tendencies) precede the formation of identity commitments. The reviewed literature also supports the view that SDT variables likely play moderating and mediating roles with regard to the *identity style - identity commitment* link. The stability of future-oriented identity processes, therefore, is hypothetically dependent upon positive feedback from the environment. This feedback would also presumably include both the interpersonal and intrapersonal evaluations described previously as satisfaction of *autonomy*, *competence* and *relatedness* needs, approximating a reciprocal system (Luyckx, Goossens, Duriez & Vansteenkiste, 2009).

Competence and autonomy experiences, however, are also thought to amplify or blunt active processing of self-relevant information beyond their identity-*sustaining* effects. It is believed that competence experiences in particular (beyond the effects of *relatedness*) better

explain known relationships between diffuse *identity styles* and the lack of clarity (i.e., identity confusion) regarding one's self-concept and future (i.e., *identity commitment*). It is hypothesized, therefore, that competence will fully mediate the *style-commitment* relationship between these identity processes.

In contrast, *relatedness* is believed to moderate the above relationship under specific circumstances. That is, *relatedness* plays a role in determining the strength of the *style-commitment* link, when a deferential style of information processing is preferred and consistently utilized. More specifically, *relatedness* is believed to amplify the negative relationship between *diffuse identity styles* and *identity commitment*. However, this relationship is hypothesized to interact with and be mitigated by higher *competence*, subsequently reducing the moderation effect of low *relatedness* to non-significance.

Previous findings (Luyckx, Goossens, Duriez & Vansteenkiste, 2009) also suggest that *relatedness* partially mediates the *style-commitment* relationship when normative processing approaches are evident. Acceptance by and connection with important others, it is believed, promotes confidence in one's current strategies for collecting and evaluating self-relevant information. This confidence is thought to be particularly evident in identity style approaches that defer judgments to authoritative or admired others. Therefore, it is also hypothesized that *relatedness* will partially mediate the positive relationship between *normative identity styles* and *identity commitment,* replicating earlier findings.

Finally, a competing hypothesis concerns the fact that all three needs, when balanced, have been shown to predict higher subjective well-being, independent of one's total amount of needs satisfaction (Sheldon & Niemiec, 2006). Therefore, the effects of psychological needs *balance* on *identity commitment* will also be investigated to determine whether balance predicts

36

confidence in identity-based beliefs beyond the direct effects of individual needs or identity styles. This concludes Chapter 2. Chapter 3 (Methods) will follow with a brief description of participants, measures and procedures. A suggested plan of analysis and specific hypotheses will also be presented.

Methods

Participants

The data for this study were previously collected for use in a study of identity and well-being (Antonides, 2011) that investigated institutional differences between National Guard service members and undergraduate university students. This study will utilize only the participant data collected from the National Guard sample ($N = 192$). Military units selected for participation included a Transportation unit, an Engineer unit, an Infantry unit and a group with no specific unit affiliation or substantive military experience. While the term "service member" in title of this study may convey a general idea of someone in the military, it is important for readers to know that there are important cultural and compositional differences between full-time, "active duty" forces and reserve forces, such as the National Guard. Limitations for generalizing findings from this study to all "service members" will be further discussed in Chapter 5.

Data collection occurred during a regularly scheduled training assembly (drill) day in various locations across Virginia. Participants were selected by the Virginia National Guard according to their schedules and convenience. National Guard personnel directors coordinated directly with researchers to arrange specific times and locations of each data collection. Unit liaisons then assisted researchers by providing classroom settings to conduct the data collection. During data collections, Service members were assembled by their unit leaders and briefly

informed by the researcher about the intent of the study and their option not to participate. Consent was implied for those who completed the questionnaire. After each participant indicated that they had completed the questionnaires, they were collected, screened for completion and the participant was thanked and dismissed. All materials were collected, safeguarded and securely transported to Virginia Commonwealth University psychology department computer laboratory for compilation and analysis of the data.

Response bias was identified as a significant threat to reliability and subsequently to the external validity of this analysis. Due to the often, highly controlled and authoritarian environment within the Armed Services, it is possible that some participants in the National Guard sample might have felt obligated to respond in a manner that is desirable to superiors ranked above them. In an effort to control for this possibility, assurances were made to Service Members that participation is both anonymous and voluntary. Administration of the measures were made in a non- coerced environment by a civilian administrator unaffiliated with the Service Member's chain of command (i.e., supervisors). Additionally, Service Members can be easily influenced by significant morale events (e.g., pending deployments, death of unit member, group disciplinary actions), that may affect the style of response to items on questionnaires. To control for this possibility, interviews within the chain of command about such events were conducted and group differences were also explored. International participants, participants who spoke another 1st language,and incomplete surveys were excluded from the analyses. Demographic data are summarized below in Table 3.

Table 3.

National Guard Characteristics as a Percentage of the Sample

Characteristic	National Guard (*n* = 192)
Age Category	
18-19	23.4
20-21	31.3
22-23	23.4
24-25	21.9
Gender	
Female	27.1
Male	72.9
Race	
Caucasian	68.2
African-American	16.7
Latino/Latina	2.6
Asian/Pacific Island	2.6
Other/ More than one	9.9
Marital Status	
Married	11.6
Divorced	4.7
Never Been Married	83.7
Parent	
Yes	18.3
No	81.7
Rank	
E4 and below	94.3
E5 and above	5.7
Combat History	
Never	71.3
Recent (< 12 Months)	16.7
Past (> 12 Months)	12.0
Full-time College/Univ. Student	
Yes	46.4
No	53.6
Unit Affiliation	
Transportation	34.9
Engineers	21.9
Infantry	19.3
Contractually Obligated	24.0

Design

The current study is a cross-sectional, descriptive, non-experimental design that seeks support for the hypotheses outlined in Chapter 2. This study has two important aims that are different but supported by the original study for which the data were collected. First, by examining each Self-Determination Theory variable independently, limitations identified by Johnston & Finney (2010) regarding the use of the BPN scale as an index score are addressed. Second and more importantly, the implications of the findings between the original and the proposed study are distinctly different in terms of contributions to the literature and practical applications of the theories involved. The significance of each of these points are elaborated below.

As previously identified, Johnston and Finney (2010) discuss several shortfalls in ongoing applications of Gagné's, (2003) adapted Basic Needs Satisfaction in General scale (see below for a description of the scale). They point to several instances where the measure may have been used inappropriately and attempt to improve the overall psychometrics of the scale through item revision and robust factor analytic techniques. Their primary concern is the use of an index score of the three needs in several reported study findings (i.e. combining *autonomy, competence and relatedness*). It is argued that use of the scale in this way relies on previous studies that overestimated its psychometric flexibility. This is problematic, as the authors discuss, because Self-Determination Theory views each of the basic psychological needs as separate constructs. When treated as such, however, the subscales have demonstrated weaker reliability estimates, and several researchers have opted to combine the sub-scales into a measure of *total* needs satisfaction with stronger internal consistency ratings.

Johnston and Finney, citing personal correspondence with Edward Deci (2008), note that the developers believe the scale is versatile and can be scored either way. This is not strongly disputed in their critique, however, their criticisms are primarilly methodological and aim to improve the scale's psychometric properties, not contest the validity of SDT variables. Nevertheless, the total needs index score was used in this manner (according to the developers recommendations) for this researcher's original study, exploring identity among service-members. This presents an opportunity to improve and expand on the original study's analyses with appropriately detailed statistical methods. More importantly, the implications of findings from a second analyses in this proposed study will contribute in a wholly different manner than what was intended in the original study, as discussed next.

The focus of inquiry for the first study involved the examination of institutional differences for levels of *identity commitment* in Reserve Force service-members. As discussed in the unpublished manuscript (Antonides, 2013), this was an exploratory comparison of hypothesized identity differences among populations with varying levels of military experience (e.g., combat participation). It was anticipated that measures of idenity (*identity style, identity commitment* and *identity status*), in particular, would demonstrate reliability in this distinct, class of emerging adults. This finding, it was hoped, would prepare the way for futher study of identity processes in service member populations, an understudied group in terms of developmental constructs. It was deemed important, at the time, to also include a measure of psychological well-being (i.e., basic psychological needs satisfaction) in order to explore and support the external validity of the identity measures which were the primary focus.

While it was hypothesized and discussed in the original study's literature review that identity processes were distinct from, but likely related to psychological needs, the scope of the

first analyses was notably, and intentionally restrained. As indicated later in the discussion of the original study findings, this first comparative study constituted a preliminary investigation into identity processes that occur when service members are exposed to potentially disintegrative experiences (e.g., combat). Contrasting this with the current study aims is an important task, considering the data were collected in the first study under the auspices of exploring group differences in identity. There was, consequently, no sophisticated intention of exploring the nature of the relation between identity processes and Self-Determination Theory. Further, while it was suspected, the importance of psychological needs satisfaction as a distal factor associated with suicide was neither appreciated or addressed explicitly.

The current study seeks to do just that. Having subsequently developed an intervention with those specific aims, it is merely convenient that an available data set might contribute to this understanding and support the APFA intervention. Additionally, There is nothing inherently flawed procedurally, by later expanding the conceptual scope of the current study and pursuing analyses that have more explanatory power. It is often the case that one set of observations generates new hypotheses that require more penetrating inquiries. A description of the previous measures proposed for the current study now follows.

Measures

Identity style was measured using the Identity Style Inventory - Version 4 (ISI-4), a 5-point Likert-type scale assessing style of information processing related to identity relevant topics (Smits, et. al., 2008). The measure contains 24 items characterizing a responder's identity style as having a *normative*, *diffuse-avoidant*, or *informational* orientation. *Normative* styles reflect a participant's reported tendency to defer life-decisions to important others and disregard alternatives. Sample questions are, "When making a decision about my future, I automatically

follow what close friends or relatives expect from me" and "I think it's better to hold on to fixed values rather than to consider alternative value systems". The *diffuse-avoidant* sub-scale measures responses that indicate avoidance of deliberation regarding life-decisions, personal problems and the future. Sample questions for the *diffuse-avoidant* sub-scale are, "I try not to think about or deal with personal problems as long as I can" and "I try to avoid personal situations that require me to think a lot and deal with them on my own". The *informational* sub-scale is representative of individuals who actively deliberate about life decisions and problems. Sample questions measuring *informational* styles are, "When making important life decisions, I like to have as much information as possible" and "When making important life decisions, I like to think about my options". Recent studies using the ISI4 (Luyckx, Lens, Smits & Goossens, 2010) obtained Cronbach's alphas for *information-oriented*, *normative* and *diffuse-avoidant* styles of: .78, .74 and .77, respectively.

Identity commitment was measured using a 9-item sub-scale included in all versions of Berzonsky's Identity Style Inventory. The *identity commitment* sub-scale measures the reported degree of clarity (i.e., level of certainty) about one's beliefs, values, future plans and life goals. Sample questions are, "I have clear and definite life goals", "I know what I want to do with my future" and "I am emotionally involved and committed to specific values and ideals". During development of a 5th version of the ISI, Berzonsky, et. al., (2013) reported adequate internal consistency ratings (Cronbach's alpha = 0.82) for the *commitment* sub-scale in an American undergraduate sample ($N = 403$).

Psychological needs satisfaction was measured using the Basic Needs Satisfaction in General scale. This scale, adapted from Ilardi, Leone, Kasser, & Ryan (1993), is a 7 point Likert-type scale assessing the domains of *competence*, *relatedness* and *autonomy*. There are 21 items

in this scale assessing each of three psychological needs domains previously reviewed in Chapter 3. Sample questions are, "I feel like I am free to decide for myself how to live my life" (*autonomy*), "Often, I do not feel very competent" (*competence*) and "People in my life care about me (*relatedness*). This adapted scale has been validated in two separate studies using samples of undergraduate students and military veterans (Gagné, 2003; Kashdan, Julian, Merritt, & Uswatte, 2006). This scale has demonstrated acceptable psychometric properties for each of the domain's subscales, reporting Cronbach's alphas of .69 (Relatedness), .83 (Competence) and .61 (Autonomy), but has higher reliability estimates (.89) when combined and averaged as an index of total needs satisfaction (Deci, et al., 2001). Previous analyses of the current study data showed similar reliability estimates for these and all subscales described above (see Table 4 below).

Psychological needs balance was computed according to the procedures used by Sheldon & Niemiec (2006). First, the absolute values of the differences between all three psychological needs variables were summed for each participant's satisfaction rating. Participant's total summed values across the three needs were then subtracted from the highest observed sum of values in the sample (7.64). This, in effect, "reverse scored" the *balance* variable so that higher scores reflected higher balance (less variability) across the three psychological needs. Graphs of the distribution were visually examined and demonstrated roughly normal variable characteristics. Improvement of the data were attempted through transformation of the variables, as values indicated a slightly positive, kurtotic distribution for the computed *balance* variable. However, transformation failed to improve all the variables and worsened others.

Table 4.

Reliability Estimates for Identity and Psychological Needs Satisfaction Subscales by Group

Index/Subscale	National Guard (*n=192*)	VCU (*n=94*)
Identity Commitment	.80	.83
Normative Identity	.70	.77
Diffuse Identity	.79	.69
Informational Identity	.75	.74
Psychological Needs Index*	.85	.89
Autonomy	.62	.64
Competence	.65	.82
Relatedness	.80	.82

* Psychological Needs Index not analyzed in this study (see discussion above)

Procedure

Participants were administered the questionnaires during a regularly scheduled training assembly day ("drill") in various National Guard armories across Virginia. Participants were selected by the Virginia National Guard according the organization's needs. Coordination was made directly with researchers to arrange specific times and locations of each data collection. Unit liasons assisted researchers by providing classroom settings to conduct the data collection. Service members were then assembled by their unit leaders and briefly informed by the researcher about the intent of the study and their option not to participate. Consent was implied for those who completed the questionnaire. After each participant indicated that they had completed the questionnaires, they were collected, screened for completion and the participant was thanked and dismissed. All materials were safeguarded and securely transported to Virginia Commonwealth University psychology department for compilation and analysis of the data.

Plan of Analysis

    Hypothesis 1(a-c). To support the suspected role of *competence* in the relationship between strategies of information processing and identity commitments, tests of mediation were conducted according to the procedures and criteria outlined by Baron & Kenny (1986). It was hypothesized that (a) *competence* will fully mediate the negative relationship between *diffuse identity styles* and *identity commitment*. It was also hypothesized that (b) *autonomy* would partially mediate the negative relationship between *diffuse identity styles* and *identity commitment*. To support (c) the suspected partial mediating role of relatedness in the positive relationship between *normative identity styles* and *identity commitment* a test for mediation was also performed.

    Hypothesis 2 (a-c). Hierarchical linear regression was used to support (a) the hypothesized role of *relatedness* and *diffuse identity* as significant predictors of *identity commitment*. In step 2, *competence* was added to the model to determine whether (b) the contribution of *relatedness* (demonstrated by hypothesis 2a) was reduced to non-significance when competence is added to the model. Finally, hypothesis 2(c) was tested by introducing the *autonomy* variable in step 3. It was hypothesized that *autonomy,* while demonstrating significance as a predictor, would not significantly improve the final model.

    Hypothesis 3. Hierarchical linear regression was also used to test the competing hypothesis that psychological needs *balance* is a predictor of identity commitment. It was hypothesized that *balance* among the basic psychological needs would be a stronger predictor of *identity commitment* than the level of one's *identity styles* or *psychological needs satisfaction* ratings.

46

Results

Preliminary Analyses

SPSS version 22.0 was used to analyze the data. The data were entered by the experimenter, and screened for missing responses. Group mean substitutions were used for National Guard participants with missing data (15 items) on all scales and subscales. Means, standard deviations and ranges for all variables are reported in Table 5. Data were examined for outliers, normality, linearity and independence. Outliers were retained as they were deemed legitimately representative of the target population. Graphs of distributions were also visually examined for normality and in all cases appeared roughly normal. Skewness and Kurtosis values for all variables were deemed acceptable and appropriate for the sample size. Preliminary analyses were performed to identify significant influences on the outcome variable associated with demographic characteristics. Small but insignificant group differences were found for gender on identity commitment ($p =. 07$). No additional covariants were identified for inclusion in the main analyses.

Table 5.

Means, Standard Deviations and Ranges for National Guard Service Members, ($N = 192$)

Variable	*M*	*SD*	Range
Identity Commitment	38.01	5.12	22
Normative Identity	23.09	5.01	26
Diffuse Identity	20.11	6.33	30
Informational Identity	28.53	4.06	23
Autonomy	37.27	6.29	33
Relatedness	45.19	7.71	37
Competence	32.85	5.71	27
Balance	5.52	1.20	7.64

A three-way (2 x 2 x 2) factorial ANOVA was also performed to explore group affiliation variables possibly influencing one's identity. Participants were not found to be significantly different on scores of the dependent variable (*identity commitment*) with respect to several categories salient to one's identity (i.e., work status, academic status and combat deployment history), F (7, 184) = .837, *p* = .558.

Main Analyses

Hypothesis 1(a) stated that *competence* will fully mediate the negative relationship between *diffuse identity* and *identity commitment*. A significant relationship between *diffuse identity* and *identity commitment* was first established [F (1, 190) = 75.78, *p* < .001; R^2 = .29, β = -.53]. Next, *diffuse identity* was found to significantly predict *competence*, [F (1, 190) = 46.90, *p* < .001; R^2 = .20, β = -.45]. After controlling for *diffuse identity*, *competence* predicted the level of *identity commitment*, [F (2, 189) = 57.46, *p* < .001; R^2 = .38, β = .31]. Using the Sobel test, it was found that the magnitude of the relationship between *diffuse identity* on *identity commitment* decreased significantly when *competence* was included (Z = -4.21, *p* < .000). *Competence* partially mediated the relationship between *diffuse identity* and level of *identity commitment* which still held a significant relationship. The hypothesis was partially supported.

Figure 2. Partial mediation of diffuse-avoidant identity and identity commitment

Hypothesis 1(b) stated that *autonomy* will partially mediate the negative relationship between *diffuse identity* and *identity commitment*. A significant relationship between *diffuse identity* and *identity commitment* was first established [F (1, 190) = 75.78, p < .001; R^2 = .29, β = -.53]. Next, *diffuse identity* was found to significantly predict *autonomy*, [F (1, 190) = 20.04, p < .001; R^2 = .10, β = -.31]. After controlling for *diffuse identity*, *autonomy* predicted the level of *identity commitment*, [F (2, 189) = 51.49, p < .001; R^2 = .35, β = .27]. Using the Sobel test, it was found that the magnitude of the relationship between *diffuse identity* on *identity commitment* decreased significantly when *autonomy* was included (Z = -3.15, p = .002). *Autonomy* partially mediated the relationship between *diffuse identity* and level of *identity commitment* which still held a significant relationship. The hypothesis was supported.
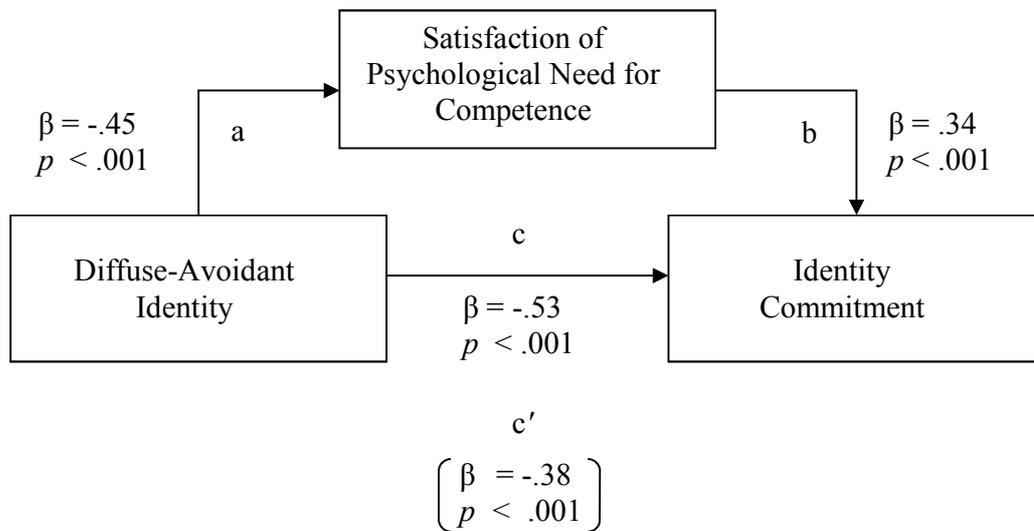
49

Figure 3. Partial mediation of diffuse-avoidant identity and identity commitment

Hypothesis 1(c) stated that *relatedness* will partially mediate the negative relationship between *normative identity* and *identity commitment*. A significant relationship between *normative identity* and *identity commitment* was first established [$F (1, 190) = 10.15$, $p < .01$; $R^2 = .05$, $\beta = .26$]. *Normative identity*, however, was not found to significantly predict *relatedness*, [$F (1, 190) = 1.074$, $p = .30$; $R^2 = .01$, $\beta = .08$]. After controlling for *normative identity*, *relatedness* predicted the level of *identity commitment*, [$F (2, 189) = 13.72$, $p < .001$; $R^2 = .13$, $\beta = .28$]. The Sobel test, was not performed due to failure of meeting all criteria supporting mediation. The hypothesis was not supported.

To explore whether *relatedness* will instead partially mediate the negative relationship between *diffuse identity* and *identity commitment,* an additional test for mediation was performed. A significant relationship between *diffuse identity* and *identity commitment* was previously established [$F (1, 190) = 75.78$, $p < .001$; $R^2 = .29$, $\beta = -.53$]. Next, *diffuse identity* was found to significantly predict *relatedness*, [$F (1, 190) = 16.42$, $p < .001$; $R^2 = .08$, $\beta = -.28$].

50

After controlling for *diffuse identity*, *relatedness* predicted the level of *identity commitment*, [$F_{(2, 189)} = 41.82$, $p < .001$; $R^2 = .31$, $\beta = .15$]. Using the Sobel test, it was found that the magnitude of the relationship between *diffuse identity* on *identity commitment* decreased significantly when *relatedness* was included ($Z = -2.08$, $p = .04$). *Relatedness* partially mediated the relationship between *diffuse identity* and level of *identity commitment* which still held a significant relationship. The exploratory hypothesis was supported.
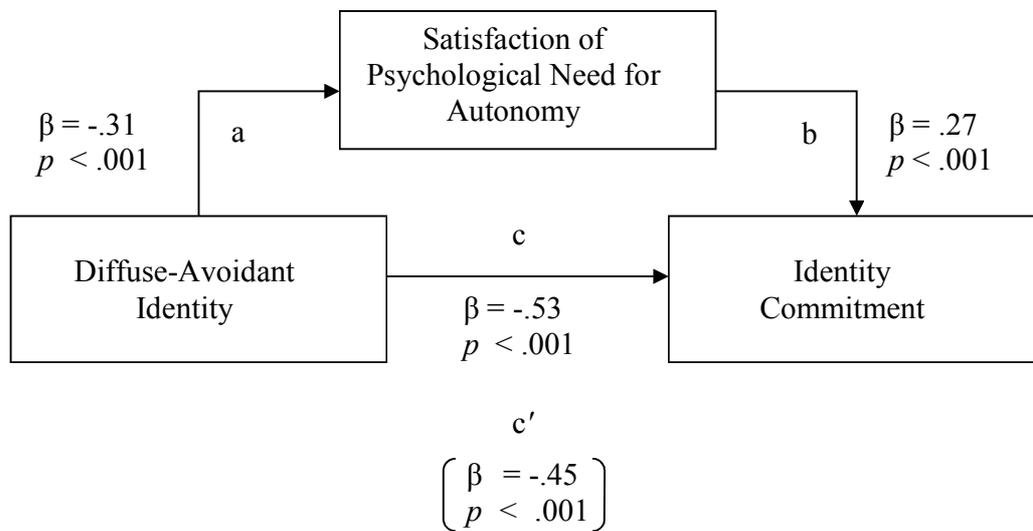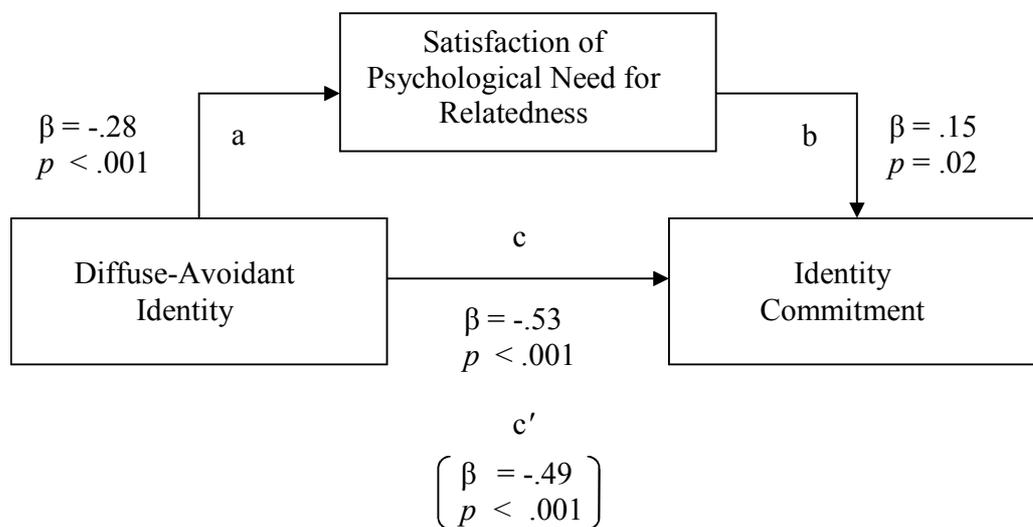

Figure 4. Partial mediation of diffuse-avoidant identity and identity commitment

Hypothesis 2 states that psychological needs variables contribute disproportionately as predictors of *identity commitment* according to their interpersonal or intrapersonal emphasis. Hierarchical regression was used to determine the extent of this varying influence and variables were entered according to theoretically supported assumptions. *Identity Commitment* was first entered as the criterion variable. As previous results (hypothesis 1) supported *relatedness* as a partial mediator in the relationship between *diffuse identity* and one's level of *identity commitment*, both *relatedness* and *diffuse identity* were entered together at step 1. As expected,

relatedness and *diffuse identity* accounted for a significant proportion of the variance of one's level of identity commitment, $R^2 = .31$, $F(2, 189) = 41.82$, $p < .001$ confirming hypothesis 2(a). The *competence* variable was then entered at step 2.

The addition of *competence* accounted for a significant increase in the total amount of variance explained, $\Delta R^2 = .07$, $F(1, 188) = 21.57$, $p < .001$. Further, the previous relationship of *relatedness* (step 1) as a predictor of *identity commitment* was reduced to non-significance (see Table 6 for betas and coefficients by step). At step 3, the *autonomy* variable was entered. The addition of the *autonomy* variable accounted for a small, though significant increase in the total variance, $\Delta R^2 = .01$, $F(1, 187) = 21.57$, $p = .04$, partially supporting, but not confirming hypothesis 2(c). In sum, the variables entered into the model accounted for approximately 39% of the variance in level of *identity commitment*, $R^2 = .39$, $F(4, 187) = 30.17$, $p < .001$. In the final model, the *competence* variable accounted for the most change in variance, thus confirming hypothesis 2(b).

Table 6.

Hierarchical Multiple Regression Analyses Predicting Identity Commitment

	R^2	ΔR^2	*B*	*SE B*	β
Step 1	.307***				
Diffuse Identity			-.397	.051	-.491***
Relatedness			.102	.042	.153*
Step 2	.378***	.07**			
Diffuse Identity			-.309	.052	-.382***
Relatedness			.003	.045	.005
Competence			**.303**	**.065**	**.338***
Step 3	.392***	.014*			
Diffuse Identity			-.305	.052	-.377***
Relatedness			-.030	.047	-.045
Competence			.245	.071	.273**
Autonomy			**.128**	**.061**	**.157***

Note. * $p < .05.$ ** $p < .01.$ *** $p < .001.$ (*N* = 192)

Hypothesis 3 states that psychological needs *balance* will predict *identity commitment* beyond the satisfaction of psychological needs. This competing hypothesis was based on previous research (Sheldon & Niemiec, 2006) demonstrating that *balance* was associated with higher levels of well-being. Hierarchical regression was used to determine the extent of this influence and variables were entered according to theoretically supported assumptions and previous research. *Identity Commitment* was first entered as the criterion variable. As previous results (hypothesis 1) demonstrated that all three psychological needs variables significantly predict one's level of *identity commitment*, they were entered at step 1 simultaneously. As expected, *autonomy, relatedness* and *competence* accounted for a significant proportion of the variance in one's level of identity commitment, $R^2 = .28$, $F(3, 188) = 24.27$, $p < .001$. The *balance* variable was then entered at step 2.

53

The addition of *balance*, however, only accounted for a small, non-significant increase in the total amount of variance explained, $\Delta R^2 = .01$, $F(1, 187) = 2.95$, $p = .09$. Further, the strength of previous relationships for *autonomy, competence* and *relatedness* (step 1) as predictors of *identity commitment* appeared largely unaffected by introducing the *balance* variable (see Table 7 for betas and coefficients by step). At step 3, the *identity style* variables were entered together. This accounted for a substantially larger and significant increase in the total variance, $\Delta R^2 = .25$, $F(3, 184) = 32.56$, $p < .001$. In sum, the final model accounted for 54% of the variance in level of *identity commitment*, $R^2 = .54$, $F(7, 184) = 30.41$, $p < .001$.

Table 7.

2nd Hierarchical Multiple Regression Analyses Predicting Identity Commitment

	R^2	ΔR^2	B	SE B	β
Step 1	.279***				
Competence			.376	.073	.420***
Autonomy			.144	.051	.176*
Relatedness			-.018	.042	-.026
Step 2	.290***	.011			
Competence			.377	.072	.420***
Autonomy			.177	.069	.218*
Relatedness			-.021	.051	-.032
Balance			**-.481**	**.280**	**-.113**
Step 3	.536***	.246***			
Competence			.242	.062	.269***
Autonomy			.195	.057	.239*
Relatedness			-.079	.042	-.119
Balance			-.860	.232	-.202***
Normative Identity			**.358**	**.053**	**.350***
Diffuse Identity			**-.378**	**.047**	**-.467***
Informational			**.081**	**.066**	**.064**

Note. *p < .05. ** p < .01. *** p < .001. (N = 192)

The *balance* variable also accounted for significant changes in the final model; however, the direction of change was opposite that which was expected. Higher balance scores significantly predicted lower levels of identity commitment Thus, hypothesis 3 was not confirmed. It appears that despite previous findings associating *balance* with subjective well-being, *balance,* in this analysis, was not found to be a good predictor of identity commitment. It is noteworthy, also, that *balance* did correlate significantly with the intrapersonal domains of *autonomy* (r =.35) and *competence* (r =.20), but not the interpersonal domain of *relatedness* (r =.02). Discussion of the above findings will follow in Chapter 5. Intercorrelations for all study variables are found below in Table 8.

Table 8.

Intercorrelations of study variables for National Guard Participants

Variable	1	2	3	4	5	6	7	8
1. COM	1							
2. COMP	.511***	1						
3. AUT	.412***	.597***	1					
4. REL	.292***	.530***	.544***	1				
5. DIF	-.534***	-.445***	-.309***	-.282***	1			
6. INF	.241***	.208**	.182**	.185**	-.209**	1		
7. NORM	.225**	-.053	.025	.075	.181**	.036	1	
8. BAL	.042	.201**	.345***	.157*	-.212**	.049	.067	1

Note N= 192. COM = Identity Commitment; COM = Competence; AUT = Autonomy; REL = Relatedness; DIF = Diffuse Identity Style; INF= Informational Identity Style; NORM = Normative Identity Style; BAL = Balance. * $p < .05$. ** $p < .01$. *** $p < .001$

Discussion

The purpose of this study was to describe how specific, protective factors and, importantly, relationships between these protective factors, may operate in distal, non-clinical settings. To extend the research base related to resilience, I examined relationships between *basic psychological needs satisfaction* and an identity-based, *future orientation*. The overarching aim of this approach was to inform researchers developing strategies for suicide intervention and prevention by determining how interpersonal and intrapersonal domains of psychological needs satisfaction uniquely influence specific, identity-based, resilience factors. First, a summary of findings and preliminary interpretations will be introduced. The implications of these findings, potential areas for future research and study limitations will also be presented.

Hypothesis testing was conducted in three phases. In phase I, I sought to confirm the suspected mediating role of each of the three psychological needs, replicating previous research and guiding the ordering of variables for subsequent hypotheses in phases II and III. In Phase II, I sought further refinement and understanding of the differential influence of intrapersonal psychological needs (i.e. *competence, autonomy*) and the interpersonal psychological need (*relatedness*) on identity processes. In Phase III, I investigated a model that included all of the study variables and introduced a competing hypothesis that *psychological needs balance* is a better predictor of *identity commitment* than either psychological needs or identity style.

In phase I, it was hypothesized that future-oriented identity processes are influenced by information ("feedback") from the environment. This feedback has been previously shown (Luyckx, Goossens, Duriez & Vansteenkiste, 2009) to involve both intrapersonal and interpersonal factors described by the self-determination concepts, *autonomy*, *competence* and *relatedness*. To confirm and expand on this view, tests of mediation were performed on each of these variables to demonstrate their suspected role(s) in the relationship between information-

processing strategies (*identity style*) and clarity of one's self-concept and future (*identity commitment*).

Hypothesis 1(a) stated that *competence* would fully mediate this identity style-commitment link and, as suspected, all of the requirements for mediation were met. However, the "(c) pathway" from the selected predictor variable (*diffuse identity*) to the criterion variable (*identity commitment*) remained significant when both variables were included in the regression model. Only partial mediation, therefore, was evident in this sample. This indicates that while experiencing *competence* may significantly explain the relationship between pro-active information processing and being future orientated, it may not be the only factor playing a role.

As hypothesized, and supporting results from hypothesis 1(a) above, *autonomy* also demonstrated partial mediation of the relationship between *diffuse identities* and *identity commitment*, confirming hypothesis 1(b). This can be interpreted to mean that neither *autonomy* nor *competence* are independently the exclusive mediators for the examined relationships, but instead, likely work in a complementary fashion. This is important, as it indicates that both intrapersonal needs (as conceptualized here) work in a similar fashion with respect to one's identity-based, *future orientation*. Next I sought to determine whether the interpersonal need (relatedness) played a similar or uniquely different role.

Because *relatedness* has previously demonstrated mediation between *normative identity* and *identity commitment* (Luyckx, Goossens, Duriez & Vansteenkiste, 2009), this was tested in hypothesis 1(c). In this analysis, however, the "(a) pathway" from *normative identity* to the putative mediator, *relatedness* failed to reach significance ($p = .15$) despite correlating positively as expected ($r = .08$). Earlier research findings were, therefore, only partially replicated in this sample. To explore these inconsistent findings, *relatedness* was then examined as a potential

mediator between *diffuse identity* and *identity commitment*. Adams (2010) has stated previously that both normative and diffuse strategies are avoidant and may share motivational characteristics. Despite no *a priori* assumptions, the role of *relatedness* as a partial mediator in the relationship between *diffuse identity* and *identity commitment* was, therefore, suspected. This *post-hoc*, exploratory hypothesis was tested and subsequently confirmed, suggesting that similar to *competence* and *autonomy*, the interpersonal need (*relatedness*) plays a role in developing one's *future orientation*, though to a lesser degree.

Overall, test results of Hypothesis 1 supported the conclusion that the three psychological needs variables each play partial mediating roles with respect to the *diffuse identity style-identity commitment* relationship. While this has been supported by previous research, of special interest in this study was any indication of differential influence reflecting the interpersonal and intrapersonal emphasis of the three needs. As discussed earlier, complimentary theories of suicide vary with regard to their focus on intrapersonal, identity-based cognitions (e.g. Fluid Vulnerability Theory) or interpersonal cognitions (e.g., Interpersonal Psychological Theory). Hypothesis 1 aimed to highlight the resulting variability of any effects found as this may inform suicide prevention researchers investigating or referencing these theoretical models of suicide.

It was reasoned that effects from the intrapersonal domains (i.e., competence and autonomy) would be more pronounced as identity-based, future orientations tend to be more concerned with appraisals of the *self* (rather than others). Overall, this was partially supported by hypothesis 1(b) demonstrating effect sizes for *competence* ($\beta = .31$) and *autonomy* ($\beta = .29$) contrasting with the relatively weaker effects of *relatedness* ($\beta = .15$). Similarly, the decrease in magnitude of the relationships when performing the Sobel test evidenced the same pattern with

58

competence (Z = -4.21) and *autonomy* (Z = -3.15) exceeding the effects of *relatedness* (Z = -2.08) as a partial mediator.

In this sample, at least, it appears that the intrapersonal psychological needs, *competence* and *autonomy*, are more influential than the interpersonal need, *relatedness*, with respect to the *diffuse identity style- identity commitment* link and, subsequently, one's *future orientation*. They are similar, however, in that all three basic psychological needs appear to play active mediating roles with respect to the involved identity processes. What this implies, is that all three needs are independently important, by degree, with respect to interventions which may focus on assessing their satisfaction or nurturing the environments which support them.

Hypothesis 2 also stated that psychological needs variables contribute disproportionately as predictors of *identity commitment* according to their interpersonal or intrapersonal emphasis. To refine this variability in Phase II, I further illustrated these differences by entering the weakest variable, *relatedness* (inferred from Hypotheses 1 results), in step 1 followed by the stronger intrapersonal variables *competence* and *autonomy* in step 2 and step 3 respectively. While all three models were significant, *competence* demonstrated the most influence by effectively reducing the *relatedness* effect to insignificance (from β = .15 to .005) in step 2. After *competence* was introduced, the total variance explained by the step 1 variables improved significantly (from 31% to 38%). Though not a focus for this analysis, it also appears that both *diffuse identity* (β = -.38) and *competence* (β = .34) are comparably influential at step 2 with similar measures of effect size. However, because the interpersonal variable, *relatedness,* decreased to insignificance in step 2 and remained so in the final model (β = -.045), its influence over the identity processes predicting commitment appears limited.

59

It was next hypothesized in 2(b) that *autonomy* would also be a significant predictor, but would not significantly increase the total variance explained for the final model. This was partially supported by the results, as *autonomy* unexpectedly increased the proportion of variance explained by a significant but small amount (1%). This was still consistent with the general hypothesis that the intrapersonal variables are stronger predictors. Among the three significantly contributing variables, however, *autonomy* contributed the least in terms of measures of effect size (β =.16) compared with *competence* (β = .27) and *diffuse identity* (β = -.38). Notably, *autonomy* (r_i^2 =.04) and *competence* (r_i^2 =.01) together combined to uniquely explain 5% of the total variance in the final model contrasting with *relatedness* (r_i^2 <.01) which uniquely contributed only 0.1%. The intrapersonal psychological needs appear to have more influence with regard to *future orientation* as conceptualized and measured in this study.

Hypothesis 3 was introduced in Phase III to test hypothesis 1 and 2 against the competing notion that *psychological needs balance* would demonstrate stronger influence as a predictor. As Sheldon and Niemiec (2006) found, less variability (*balance*) among the three psychological needs has been shown to predict psychological well-being. Berzonsky (2003, 2014) also demonstrated the role of *identity commitment* (stable identities) to well-being measures and the importance of *identity commitment* in other identity-related processes. It was reasonable, therefore, to test whether *balance* in the scores of psychological needs would better predict higher identity commitment (stability) than high self-ratings of psychological needs. A model was subsequently tested which pitted the three psychological needs entered simultaneously at step 1 with the created *balance* variable, entered at step 2. As the results indicated, however, *balance* did not significantly improve the model ΔR^2 = .01, *p* = .09 at step 2, nor did *balance* contribute significantly to the amount of variance explained.

60

Surprisingly, *balance* did emerge as a significant predictor (β = -.20) in the final model, however, the effect was in the opposite direction hypothesized. It is likely that this represents error introduced by multicolinearity of the balance variable with the SDT variables which may be causing a suppressor effect. In all, *balance* uniquely explained only a small proportion of the total variance for the final model (r_i^2 =.03). More interesting is the directionality of the effect which emerged only after introducing the identity style variables, suggesting an unanticipated interaction. As there was negligible improvement (ΔR^2 = .01, p = .09) at step 2, it appears that with regard to *identity commitment*, *psychological needs balance* does not does not outperform *psychological needs satisfaction* as a significant predictor; however it is was not explored in this analysis whether this was the result of a suppressor effect described above. In light of this, it is not possible to either confirm or disconfirm hypothesis 3 at step 3.

It is notable, also, that *balance* significantly and positively correlated with both intrapersonal variables [*autonomy* (r =.35) and *competence* (r =.20)] while the interpersonal variable, *relatedness*, was found not to correlate significantly (r =.02). This pattern was similarly evident in the study by Sheldon & Niemiec (2006) who reported findings of *balance* and *relatedness* trending toward small magnitude correlations. This again highlights the distinctive nature of interpersonal and intrapersonal psychological needs variables, but in this instance, with regard to the patterned variability of ratings. Nevertheless, hypothesis 3 was not confirmed, lending more weight to hypothesis 1 and 2 which posited the stronger influence of the intrapersonal variables, *competence* and *autonomy*. In particular, *competence* outperformed among the three psychological needs variables as a better predictor of *identity commitment*. This may be especially important for researchers with an interest in examining future orientation as a buffer in populations that seek to overcome interpersonal deficits or challenges.

61

It is notable also that *balance* significantly and positively correlated with both intrapersonal variables [*autonomy* ($r = .35$) and *competence* ($r = .20$)] while the interpersonal variable, *relatedness*, was found not to correlate significantly ($r = .02$). This pattern was similarly evident in the study by Sheldon & Niemiec (2006) who reported findings of *balance* and *relatedness* trending toward small magnitude correlations. This again highlights the distinctive nature of interpersonal and intrapersonal psychological needs variables, but in this instance, with regard to the patterned variability of self-ratings. Nevertheless, hypothesis 3 was not confirmed at step 2, lending more weight to hypothesis 1 and 2 which posited the stronger influence of the intrapersonal variables, *competence* and *autonomy*. In particular, *competence* outperformed among the three psychological needs variables as a better predictor of *identity commitment*. This may be especially important for researchers with an interest in examining future orientation as a buffer in populations that seek to overcome interpersonal deficits or challenges.

Implications of Findings

As previously discussed, an overarching aim of this study was to lend support to the strategy of examining (assessing) psychological needs domains in distal settings emphasizing prevention. To better inform researchers interested in this strategy, Research Question 2 sought to investigate, empirically, how interpersonal components (*relatedness*) and intrapersonal components (*autonomy* and *competence*) differentially relate to one's identity-based, future-oriented cognition (i.e., *identity style* and *identity commitment*). What was evident from the findings in this study is the uniquely independent role and relative importance of *competence* as a predictor of *future orientation*. Likewise, *autonomy* appears to play a significant role, though to a somewhat lesser degree. This is not surprising as both *autonomy* and *competence* overlap

conceptually, but arise independently from internal mastery experiences in distinctly different domains (Ryan & Deci, 2001).

As discussed earlier, *future orientation* (e.g., hopelessness) is an often assessed intrapersonal construct in clinical settings; however, little is known about its protective qualities, distal origins or how it may be nurtured as a protective factor. Additionally, much of the focus in proximal settings tends to target and examine interpersonal dysfunction which is viewed, legitimately so, as a major factor increasing risk for suicidality. Research on suicidality in military settings, however, shows that this may be problematic as many do not, in fact, make it to clinical settings despite free access to medical care. This view is robustly supported by research demonstrating alarmingly poor utilization rates.

For example, from 2008-2010, combined services data showed that suicide attempters (N = 1964) and completers (N = 870) in the military did not reliably access behavioral health services (Bush, et al 2013). In suicide attempters, only 34% had any prior outpatient behavioral health care, and, of those completing suicide, only 48% had prior care. Another, more recent study of U.S. Armed Forces members (N = 1939) who completed suicide between 2001 and 2010 showed only 28.7% had contact with mental health services in the thirty days prior to the event (Trofimovich, Skopp, Luxton & Reger, 2012). Logan, et al. (2014) also reported on U.S. Army personnel (N =104) who had completed suicide between 2005 and 2010 (matched demographically with civilian decedents; N =416). Only 27% of Army decedents and 28% of civilian decedents, in their review, had received recent mental health treatment. This again points to the importance of examining more closely, settings that are distal to the emergence to of acute distress.

Yet, prevention and intervention solutions for this problem remain elusive, as evidenced by the steady increase in suicide rates over the last decade (Bryan, Jennings, Jobes, & Bradley (2012). The Armed Forces Health Surveillance Center (AFHSC) recently examined mortality data from 1998–2011 and found that since 2010, suicide has become the second-leading cause of death in service members (Trofimovich, Skopp, Luxton & Reger, 2012). Despite consistent calls (e.g., Jobes, 2013) for "unconventional and innovative approaches" at the population-health level, however, research and development remains problematic in military settings. One reason may be that innovation, by definition, represents change and is not always well received by established institutions. Secondly, with an almost exclusive reliance on Randomized Controlled Trials (RCTs) and evidenced-based treatments as the "gold standard" in delivery of health care (Jobes, Bryan & Neal-Walden, 2009), there is often little patience or funding available for innovative or non-traditional approaches occurring outside of a strictly clinical setting.

The distinction between interpersonal and intrapersonal satisfaction, highlighted by the findings in this study, may be particularly important to prevention strategists in military settings who have an interest in examining protective factors in distal, non-clinical settings. As discussed in the literature review, there is a convenient bifurcation within the theoretical literature that alternatively examines both intrapersonal factors and interpersonal factors. This presents opportunity for more precise examinations with regard to these "fracture lines" possibly indicating that identity concerns and interpersonal dysfunction contribute to suicidality in parallel ways and could be treated with equal but independent weight.

Additionally, it was discussed earlier that military settings are uniquely suited for a more intentional separation (and assessment) of these domains. This is due to the often forced or exaggerated salience of one or the other domains (interpersonal or intrapersonal) as a function of

the unique environments in which service members operate. This is illustrated by the fact that military units, by necessity, are often interpersonally challenged by both the professional, legally binding, hierarchical rank structure and the requirement (i.e., "duty") to frequently subordinate one's own needs (physical or psychological) in order to ensure mission success and group integrity. Consequently, *competence* may emerge as the only possible avenue for psychological needs satisfaction, particularly if interpersonal needs are thwarted and *autonomy* is suppressed for the survival of the unit. Alternatively, if all three needs are thwarted, either intentionally or as a result of the extreme difficulty in negotiating austere environments (e.g., combat), then this may lead to more acute distress as evidenced by the literature review examining RQ1.

Future Research

As early as 2002, a chorus of leading researchers and practitioners including Linehan (2008), David Barlow (Hollon et al., 2002) and others began speaking to the necessity of developing suicide research from within a theoretical framework (Wenzel & Beck, 2008). They advised that interventions should be theory driven in order to examine both efficacy and any proposed mediating or moderating mechanisms. Nevertheless, current approaches and interventions, continue to emphasize a medical model, focusing on the "eradication of disease" (Linehan, 2008). Likewise, many military studies still gravitate toward associating psychiatric diagnoses with suicide outcomes (e.g., Skopp et al., 2012). As one editorial summarized following findings by Leardmann et al., (2013) "…there is no vaccine for mental health disorders" (Engle, 2013), voicing little optimism that innovation or novel theoretical approaches are worthwhile.

Despite this resistance, it has also been noted by many leading researchers of suicide in the military (Nock et al., 2013) that there are, in fact, very few RCTs actually showing treatment

efficacy in reducing suicide as a primary outcome. After evaluating some 44 RCTs, Linehan, Comtois, & Ward-Ciesielski, (2012) found only one notable exception. The "Caring Letters" projects, first conducted by Jerrome Motto, (1976) and more recently by Luxton et al, (2014), demonstrated that writing letters to previously suicidal inpatients after they were discharged, significantly reduced subsequent attempts. It is noteworthy that this intervention does occur outside of a clinical setting and, at the time it was first developed, had no grounding theoretical framework or empirically derived support (i.e., true innovation).

Self-determination Theory (Ryan & Deci, 2000) may prove to be a uniquely appropriate framework for examining antecedents to suicidality in distal settings, although it is still relatively unexplored from an evidenced-based treatment approach. However, this may not be a critical point for future military researchers investigating strategies that focus on prevention and intervention. While the importance of experiencing satisfaction of interpersonal or intrapersonal psychological needs to individuals may be justification for continued research in those areas, military leaders responsible for those individuals, may find the information more worthwhile.

The potential value in training leaders (formally or informally) to accurately assess those domains in their subordinates (e.g., APFA intervention) may, therefore, be the best rationale for exploring interventions that take a less clinical, proximal approach. This is especially relevant if we require or demand (e.g., officially order) leader involvement at the lay-person's level of intervention. The findings presented herein, may provide a solid starting point for further investigation of such an approach by advocating the recognition and leveraging of interpersonal and intrapersonal distinctions among these needs. It is likely they represent natural and intuitive teaching points for assessment and intervention to leaders at all levels.

Study Limitations

There are several limitations to the present study. First, the study used a correlational, cross-sectional design that does not prove causality. Tests of mediation are provisional in such cases and should be strongly guided by theory in the construction of study hypotheses. This was an ever-present and discussed consideration in selecting the proposed mediational pathways reported above. Second, correlational designs should also be interpreted with caution regarding their generalizability to larger populations as common source method variance can be potentially detrimental to external validity. Additionally, this study was conducted with National Guard Service Members, who have separate norms from full-time active duty populations. Cultural differences may have influenced how participants responded, therefore, conclusions from these findings may not generalize to all Service Member populations. As the data were collected for the purposes of a previous study, the probability for randomly occurring tests of significance due to multiple analyses was increased. In light of this, significant findings from this study between $p = .05$ and $p = .01$, though few in number, should be interpreted cautiously.

Conclusion

Conner & Simons, (2014) report in a recent review of 23 externally funded RCT studies (most by DOD), that few innovations in the delivery of suicide interventions exist outside of a "face to face" clinical context. The authors also reported that few data exist on the impact of "upstream" interventions, especially in military settings and that none of their reviewed studies used protective factors for suicide as a primary outcome measure. Only recently have researchers (Nock et al, 2013) and agencies like the NIMH's National Action Alliance for Suicide Prevention Task force for Research Prioritization (Pearson, Claassen & Booth, 2014) called for more research on the moderating effects of protective factors like *future orientation* and

psychological needs satisfaction. If, as Bryan & colleagues (2012) suggest, a culture of "identify and refer" does exist in the military, then both leaders and those charged with providing care for service members may be unintentionally limited by strategies of containment, unable to engage in prevention that focuses on the emerging benefits of protective factors.

One should also consider that the historical separation of mental health providers and service members operating in combat settings was institutionally imposed by necessity. These historical barriers, however, may now be perpetuating stigma and preventing Leaders from performing to the higher ends of their capabilities. In response, some have advocated for using a "military occupational mental health model" to help translate when, where and how the "occupational context" impacts training, intervention and treatment (Adler & Castro, 2013). This, the authors' suggest, could provide a framework for integrating concepts like "stress buffering" during the development of innovative programs that address mental health issues (Castro, 2014). A framework, as such, might then allow new and more powerful, interventions like those introduced by the APFA to be attempted. It appears that the present course of action is not meeting goals for the standard of care our military service members deserve.

List of References

List of References

Adams, G., Munro, B., Doherty-Poirer, M., Munro, G., Petersen, A. M. R., & Edwards, J. (2001). Diffuse-avoidance, normative, and informational identity styles: Using identity theory to predict maladjustment. *Identity: An International Journal of Theory and Research*, *1*(4), 307-320.

Adams, G., (2010). *Ego-Identity Formation in Adolescence and Early Adulthood-Theory and Measurement.* Lexington, KY.

Adler, A., & Castro, C. (2013). An Occupational Mental Health Model for the Military. *Military Behavioral Health*, *1*(1), 4145.

Ahmedani, B., Simon, G., Stewart, C., Beck, A., Waitzfelder, B., Rossom, R., … Solberg, L. (2014). Health Care Contacts in the Year Before Suicide Death. *Journal of General Internal Medicine*, *29*(6), 870–877.

Anestis, M., Bagge, C. L., Tull, M. T., & Joiner, T. E. (2011). Clarifying the role of emotion dysregulation in the interpersonal-psychological theory of suicidal behavior in an undergraduate sample. *Journal of psychiatric research*, *45*(5), 603-611.

Anestis, M., & Bryan, C. (2013). Means and capacity for suicidal behavior: a comparison of the ratio of suicide attempts and deaths by suicide in the US military and general population. *Journal of affective disorders*, *148*(1), 42-47.

Antonides, B. (2011). *Identity and psychological needs among National Guard Service Members and Undergraduates*. (Unpublished master's thesis). Virginia Commonwealth University, Richmond, VA.

Antonides, B. (2013). *Institutional differences: Identity and psychological needs of National Guard Service Members.* Unpublished Manuscript.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, *51*(6), 1173.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin, 117*(3), 497.

Beaumont, S. L., & Zukanovic, R. (2005). Identity Development in Men and its Relation to Psychosocial Distress and Self-Worth. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, *37*(1), 70.

Beck, A.T. (1976). *Cognitive Therapy and the Emotional Disorders.* New York: International Universities Press

Beck, J. S. (1995). *Cognitive Therapy: Basics and Beyond.* New York: Guilford Press.

Berzonsky, M. (1989). Identity style: Conceptualization and measurement. *Journal of adolescent research, 4*(3), 268-282.

Berzonsky, M. (1990). Self-construction over the lifespan: A process perspective on identity formation. In G. J. Neimeyer & R. A. Neimeyer (Eds.), *Advances in personal construct theory* (Vol. 1, pp. 155-186). Greenwich, CT: JAI.

Berzonsky, M. (1992). Identity style and coping strategies. *Journal of Personality*, *60*(4), 771-788.

Berzonsky, M. D. (1994). Self-identity: The relationship between process and content. *Journal of research in personality*, *28*(4), 453-460.

Berzonsky, M. (2003a). The Structure of Identity: Commentary on Jane Kroger's View of Identity Status Transition. *Identity*, *3*(3), 231-245.

Berzonsky, M. (2003b). Identity style and well-being: Does commitment matter?. *Identity: An International Journal of Theory and Research*, *3*(2), 131-142.

Berzonsky, M. D. (2004). Identity processing style, self-construction, and personal epistemic assumptions: A social-cognitive perspective. *European Journal of Developmental Psychology, 1,* 303–315.

Berzonsky, M. D. (2008). Identity formation: The role of identity processing style and cognitive processes. *Personality and Individual Differences, 44,* 643–653.

Berzonsky, M. D. (2011). A social-cognitive perspective on identity construction. In S. J. Schwartz, K. Luyckx, & V. Vignoles (Eds.), Handbook of identity theory and research (Vol. 1, pp. 55–76). London:Springer.

Berzonsky, M. D., & Cieciuch, J. (2014). Mediational Role of Identity Commitment in Relationships Between Identity Processing Style and Psychological Well-Being. *Journal of Happiness Studies*, 1-18.

Berzonsky, M. D., Nurmi, J. E., Kinney, A., & Tammi, K. (1999). Identity processing style and cognitive attributional strategies: Similarities and difference across different contexts. *European Journal of Personality*, *13*(2), 105-120.

Berzonsky, M. D., Cieciuch, J., Duriez, B., & Soenens, B. (2011). The how and what of identity formation: Associations between identity styles and value orientations. *Personality and Individual Differences*, 50, 295–299.

Berzonsky, M. D., & Ferrari, J. R. (1996). Identity orientation and decisional strategies. *Personality and Individual Differences*, *20*(5), 597-606.

Berzonsky, M. D., & Ferrari, J. R. (2009). A diffuse-avoidant identity processing style: Strategic avoidance or self-confusion? *Identity: An International Journal of Theory and Research*, *9*(2), 145-158.

Berzonsky, M. D., & Kuk, L. S. (2000). Identity status, identity processing style, and the transition to university.Journal of Adolescent Research, 15, 81–98.

Berzonsky, M. D., & Luyckx, K. (2008). Identity styles, self-reflective cognition, and identity processes: A study of adaptive and maladaptive dimensions of self-analysis. Identity: An International Journal of Theory and Research, 8, 205–219.

Berzonsky, M., & Neimeyer, G.J. (1994). Ego identity status and identity processing orientation: The moderating role of commitment. *Journal of Research in Personality*, *28*, 425–435.

Berzonsky, M. D., Soenens, B., Luyckx, K., Smits, I., Papini, D. R., & Goossens, L. (2013). Development and validation of the revised Identity Style Inventory (ISI-5): Factor structure, reliability, and validity. *Psychological assessment*, *25*(3), 893.

Berzonsky, M. D., & Sullivan, C. (1992). Social-Cognitive Aspects of Identity Style Need for Cognition, Experiential Openness, and Introspection. *Journal of Adolescent Research*, *7*(2), 140-155.

Britt, T. W. (1999). Engaging the self in the field: Testing the triangle model of responsibility. *Personality and Social Psychology Bulletin, 25,* 696-706.

Britt, T. W. (2003). Aspects of identity predict engagement in work under adverse conditions. *Self and Identity, 2*, 31-45.

Britt, T W. (2012). Self-engagement moderates the mediated relationship between organizational constraints and organizational citizenship behaviors via rated leadership. *Journal of Applied Social Psychology*, 42(8), 1830-1846.

Britt. T. W., Adler, A. B., & Bartone, P. T. (2001). Deriving benefits from stressful events: The role of engagemen t in meaningful work and hardiness. *Journal of Occupational Health*

Psychology. 6. 53-63.

Britt, T. W., & Bliese, P. B. (2003). Testing the stress-buffering effects of self-engagement among soldiers on a military operation. *Journal of Personality*,*72*, 245–265.

Britt T.W., Davison J, Bliese PD, Castro CA (2004). How leaders can influence the impact that stressors have on soldiers. Military Medicine 169, 541–545.

Britt T.W., Greene-Shortridge TM, Britt TW, Castro CA (2007) The stigma of mental health problems in the Military. *Military Medicine*, 172, 157–161.

Britton, P. C., Williams, G. C., & Conner, K. R. (2008). Self-determination theory, motivational interviewing, and the treatment of clients with acute suicidal ideation. *Journal of Clinical Psychology, 64*(1), 52-66.

Britton, P. C., Patrick, H., Wenzel, A. & Williams, G. (2011). Integrating motivational interviewing and Self-determination theory with cognitive behavioral therapy to prevent suicide *Cognitive and Behavioral Practice 18*(1), 16-27.

Bryan, C., Rudd, M., Wertenberger, E., Etienne, N., Ray-Sannerud, B., Morrow, C., … Young McCaughon, S. (2014). Improving the detection and prediction of suicidal behavior among military personnel by measuring suicidal beliefs: An evaluation of the Suicide Cognitions Scale. *Journal of Affective Disorders*, *159*, 1522.

Bryan, C., Andreski, S., McNaughton-Cassill, M., & Osman, A. (2014). Agency is associated with decreased emotional distress and suicidal ideation in military personnel. *Archives of suicide research : official journal of the International Academy for Suicide Research*, *18*(3), 241-250.

Bryan, C. J., Griffith, J. H., Pace, B. T., Hinkson, K., Bryan, A. O., Clemans, T. A., & Imel, Z. E. (2015). Combat Exposure and Risk for Suicidal Thoughts and Behaviors Among Military Personnel and Veterans: A Systematic Review and Meta-Analysis. *Suicide and Life Threatening Behavior*. doi: 10.1111/sltb.12163

Bryan, C., Jennings, K., Jobes, D., & Bradley, J. (2012). Understanding and Preventing Military Suicide. *Archives of Suicide Research*, *16*(2), 95110.

Bryan, C., Ray-Sannerud, B., Morrow, C., & Etienne, N. (2013). Shame, pride, and suicidal ideation in a military clinical sample. *Journal of Affective Disorders*, *147*(1-3), 212216.

Bryan, C. J., Ray-Sannerud, B. N., Morrow, C. E., & Etienne, N. (2013). Optimism Reduces Suicidal Ideation and Weakens the Effect of Hopelessness Among Military Personnel. *Cognitive therapy and research*, *37*(5), 996-1003.

Bryan, C., Hernandez, A., Allison, S., & Clemans, T. (2013). Combat Exposure and Suicide Risk in Two Samples of Military Personnel. *Journal of Clinical Psychology*, *69*(1), 64–77.

Bryan, C., & Rudd, M. (2006). Advances in the assessment of suicide risk. *Journal of Clinical Psychology*, *62*(2), 185–200.

Bryan, A., Theriault, JL, & Bryan, CJ. (2014). Self-Forgiveness, Posttraumatic Stress, and Suicide Attempts Among Military Personnel and Veterans. Retrieved from http://psycnet.apa.org/psycinfo/2014-51948-001/

Bryan, A. O., Bryan, C. J., Morrow, C. E., Etienne, N., & Ray-Sannerud, B. (2014). Moral injury, suicidal ideation, and suicide attempts in a military sample. *Traumatology*, *20*(3), 154.

Bureau, J., Mageau, G., Vallerand, R., Rousseau, F., & Otis, J. (2012). Self-Determination: A Buffer Against Suicide Ideation. *Suicide and Life-Threatening Behavior*, *42*(4), 377–393.

Bush, N., Reger, M., Luxton, D., Skopp, N., Kinn, J., Smolenski, D., & Gahm, G. (2013). Suicides and Suicide Attempts in the U.S. Military, 2008–2010. *Suicide and Life Threatening Behavior*, *43*(3), 262–273.

Buss, A. (1980). *Self-consciousness and social anxiety.* San Francisco: W.H. Freeman.

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42,116–131.

Cacioppo, J. T., Petty, R. E., & Kao, C. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment*, 48, 306–307.

Castro, C. A., Thomas, J. L., & Adler, A. B. (2006).Toward a liberal theory of military leadership. In A. B. Adler, C. A. Castro, & T. W. Britt (Eds.), *Military life: The psychology of serving in peace and combat* (Vol. 2, pp. 192–212). Westport, CT: Praeger Security International.

Castro, C. A., & Adler, A. B. (2011). Reconceptualizing combat-related posttraumatic stress disorder as an occupational hazard. In A. B. Adler, P. B. Bliese, & C. A. Castro (Eds.), *Deployment psychology: Evidence-based strategies to promote mental health in the military* (pp. 217–241). Washington, DC: American Psychological Association.

Castro, C. (2014). The US framework for understanding, preventing, and caring for the mental health needs of service members who served in combat in Afghanistan and Iraq: a brief review of the issues and the research. European journal of psycho-traumatology, 5(0).

Castro, C., & Kintzle, S. (2014). Suicides in the Military: The Post-Modern Combat Veteran and the Hemingway Effect.*Current Psychiatry Reports*, *16*(8).

Cha, C. B., & Nock, M. K. (2009). Emotional intelligence is a protective factor for suicidal

behavior. *Journal of the American Academy of Child & Adolescent Psychiatry*, *48*(4), 422-430.

Chan, S., Miranda, R., & Surrence, K. (2009). Subtypes of rumination in the relationship between negative life events and suicidal ideation. *Archives of Suicide Research*, *13*(2), 123-135.

Chiarelli, P. (2010). Army Health Promotion, Risk Reduction, Suicide Prevention Report. Washington, DC: Department of Defense.

Chin, J. & Holden, R. (2013). Multidimensional future time perspective as moderators of the relationships between suicide motivation , preparation, and its predictors. *Suicide and Life-Threatening Behavior, 43*(4), 395-405.

Cho-Stutler, L. 2013. *Staff Voices: Q & A on the Army's Embedded Behavioral Health (EBH) Program*.http://www.deploymentpsych.org/blog/staff-voices-q-army%E2%80%99s embedded-behavioralhealth-ebh-program (accessed August 29, 2013).

Clancy Dollinger, S. M. (1995). Identity styles and the five-factor model of personality. Journal of Research in Personality, 29, 475–479.

Conner, K. & Simmons, K. (2014). State of Innovation in Suicide Intervention Research with Military Populations. *Suicide and Life-Threatening Behavior*, *(In Press)*.

Cornum, R., Matthews, M., & Seligman, M. (2011). Comprehensive soldier fitness: building resilience in a challenging institutional context. *The American psychologist*, *66*(1), 4–9.

Corrigan, P. (2004). How stigma interferes with mental health care. *American Psychologist, 59*, 614–625.

Costa. P. T., Jr., & McCrae, R.R. (1985). *The NEO Personality Inventory Manual.* Odessa, FL: Psychological Assessment.

Costa, P. T., Jr., & McCrae, R. R. (1992). Revised NEO Personality Inventory (NEO-PI-R) and the Five Factor Inventory (NEO-FFI): Professional manual. Odessa, FL: Psychological Assessment Resources.

Côté, J. E.,&Levine, C. G. (2002). *Identity formation, agency, and culture: A social psychological synthesis.* Mahwah, NJ: Lawrence Erlbaum.

Cox, D. W., Ghahramanlou-Holloway, M., Greene, F. N., Bakalar, J. L., Schendel, C. L., Nademin, M. E., ... & Kindt, M. (2011). Suicide in the United States Air Force: Risk factors communicated before and at death. *Journal of affective disorders*, *133*(3), 398 405.

Crocetti, E., Rubini, M., Berzonsky, M. D., & Meeus, W. (2009). Brief report: the identity style inventory–validation in Italian adolescents and college students. *Journal of adolescence*, *32*(2), 425-433.

Danish, S. J., Antonides, B.J. & Bechtel, A. (2011). Assessment as Psychological First Aid: (APFA), Unpublished instrument. Life Skills Center, Virginia Commonwealth University.

Danish, S. J., & Antonides, B. J. (2013). The challenges of reintegration for service members and their families. *American Journal of Orthopsychiatry*, *83*(4), 550-558.

Deci, E. L., Eghrari, H., Patrick, B. C.,& Leone, D. R. (1994). Facilitating internalization: The self-determination theory perspective.*Journal of Personality, 62,* 119–142.

Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological bulletin*, *125*(6), 627.

Deci, E., Ryan, R., Gagné, M., Leone, D., Usunov, J., & Kornazheva, B. (2001). Need Satisfaction, Motivation, and Well-Being in the Work Organizations of a Former Eastern Bloc Country: A Cross-Cultural Study of Self-Determination. *Personality & Social Psychology Bulletin*, *27*(8), 930.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, *11*(4), 227-268.

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macro-theory of human motivation , development and health. *Canadian Psychology 49*(3), 182.

Deci, E. L., & Ryan, R. M. (1995). Human agency: The basis for true self-esteem. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 31–50). New York, NY: Plenum.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and self-determination in human behavior*. Springer Science & Business Media.

Deci, E. L., & Vansteenkiste, M. (2004). Self-determination theory and basic need satisfaction: Understanding human development in positive psychology. *Ricerche di Psicologia*.

Denning, L. A., Meisnere, M., & Warner, K. E. (Eds.). (2014). *Preventing Psychological Disorders in Service Members and Their Families: An Assessment of Programs*. National Academies Press.

Department of the Army. (2006). *Army leadership: Competent, confident, and agile* (Field Manual 6–22-100). Retrieved from www.us.army.mil

Denneson, L., Corson, K., Helmer, D., Bair, M., & Dobscha, S. (2014). Mental health utilization

of new-to-care Iraq and Afghanistan Veterans following suicidal ideation assessment.*Psychiatry Research*, *217*(3), 147153.

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D.-W., Oishi, S., & Biswas-Diener, R. (2009). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research, 97*, 143-156.

Duriez, B., & Soenens, B. (2006). Personality, identity styles, and authoritarianism: An integrative study among late adolescents. European Journal of Personality, 20, 397-417.

Engel, C. (2013). Suicide, mental disorders, and the US military: Time to focus on mental health service delivery. *JAMA, 310*(5), 484-5.

Epstein, S. (1980). The self-concept: A review and the proposal of and integrated theory of personality. In E. Staub (Ed.), *Personality: Basic aspects and current research* (pp. 81 – 132).Englewood Cliffs, NJ: Prentice-Hall.

Epstein, S., Pacini, R., Denes-Raj, V., & Heier, H. (1996). Individual differences in intuitive experiential and analytical–rational thinking. *Journal of Personality and Social Psychology*, 71, 390–405.

Erikson, E. (1950, 1963). *Childhood and society*. New York: Norton.

Erikson, E. H. (1967). Identity: Youth and Crisis (New York, 1968). *et passim*, 45-86.

Erikson, E. (1974). *Dimensions of a New Identity*. New York: Norton.

Erikson, E. (1980). *Identity and the Life Cycle*. New York: Norton.

Fincham, F. D., & Jaspars, J. M. (1980). Attribution of responsibility: From man the scientist to man as lawyer. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 13, pp. 81-138). San Diego, CA: Academic Press

Fontana A, Rosenheck R (2008). Treatment-seeking veterans of Iraq and Afghanistan: comparison with veterans of previous wars. Journal of Nervous and Mental Disease 196, 513–521.

Gagné, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion*, *27*(3), 199-223.

Greenberg, N., & Jones, N. (2011). Optimizing mental health support in the military: The role of peers and leaders. In A. B. Adler, P. B. Bliese, & C. A. Castro (Eds.), *Deployment psychology: Evidence based strategies to promote mental health in the military* (pp. 69–101). Washington, DC: American Psychological Association.

Han, B, Compton, WM, & Gfroerer, J. (2014). Mental health treatment patterns among adults

with recent suicide attempts in the United States.*American journal of …*. Retrieved from http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2014.302163

Heppner, W. L., Kernis, M. H., Nezlek, J. B., Foster, J., Lakey, C. E., & Goldman, B. M. (2008). Within-person relationships among daily self-esteem, need satisfaction, and authenticity. *Psychological Science*, *19*(11), 1140-1145.

Hill, R., & Pettit, J. (2013). The Role of Autonomy Needs in Suicidal Ideation: Integrating the Interpersonal-Psychological Theory of Suicide and Self-Determination Theory. *Archives of Suicide Research*, *17*(3), 288-301.

Hirsch, J. K., & Conner, K. R. (2006). Dispositional and explanatory style optimism as potential moderators of the relationship between hopelessness and suicidal ideation. *Suicide and Life-Threatening Behavior*, 36(6), 661–667.

Hirsch, J. K., Conner, K. R., & Duberstein, P. R. (2007). Optimism and suicide ideation among young adult college students. *Archives of Suicide Research*, 11(2), 177–185.

Hirsch, J. K., Wolford, K., LaLonde, S. M., Brunk, L., & Parker-Morris, A. (2009). Optimistic explanatory style as a moderator of the association between negative life events and suicide ideation. Crisis: *The Journal of Crisis Intervention and Suicide Prevention*, 30(1), 48–53.

Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journalof Medicine, 351*, 13–22.

Hollon, S., Muñoz, R., Barlow, D., Beardslee, W., Bell, C., Bernal, G., … Sommers, D. (2002). Psychosocial intervention development for the prevention and treatment of depression: promoting innovation and increasing access.*Biological Psychiatry*, *52*(6), 610630.

Ilardi, B. C., Leone, D., Kasser, T., & Ryan, R. M. (1993). Employee and Supervisor Ratings of Motivation: Main Effects and Discrepancies Associated with Job Satisfaction and Adjustment in a Factory Setting1. *Journal of Applied Social Psychology*, *23*(21), 1789 1805.

Jobes, D. (2013). Reflections on Suicide Among Soldiers.*Psychiatry: Interpersonal and Biological Processes*, *76*(2), 126131.

Jobes, D., Bryan, C., & Neal-Walden, T. (2009). Conducting suicide research in naturalistic clinical settings. *Journal of Clinical Psychology*, *65*(4), 382–395.

Joiner, T. Why people die by suicide. Cambridge, MA, US: Harvard University Press; 2005.

Johnson, J., Wood, A., Gooding, P., Taylor, P., & Tarrier, N. (2011). Resilience to suicidality:

the buffering hypothesis. *Clinical psychology review*, *31*(4), 563–91.

Johnston, M. M., & Finney, S. J. (2010). Measuring basic needs satisfaction: Evaluating previous research and conducting new psychometric evaluations of the Basic Needs Satisfaction in General Scale. *Contemporary Educational Psychology*, *35*(4), 280-296.

Jørgensen, C. R. (2009). Identity style in patients with borderline personality disorder and normal controls. *Journal of personality disorders*, *23*(2), 101-112.

Kashdan, T., Julian, T., Merritt, K., & Uswatte, G. (2006). Social anxiety and posttraumatic stress in combat veterans: relations to well-being and character strengths. *Behaviour Research And Therapy*, *44*(4), 561-583.

Kim, P. Y., Britt, T.W., Klocko, R.P., Riviere, L.A., & Adler, A.B., (2011). Stigma, negative attitudes about treatment, and utilization of mental health care among soldiers. Military psychology, 23(1), 65-81.

Kernis, M. H. (2000). Substitute needs and the distinction between fragile and secure high self esteem. *Psychological Inquiry*, 298-300.

Kelly, G. A. (1955). The psychology of personal constructs. New York: Norton.

Kroger, J. (2000). Ego identity status research in the new millennium. *International Journal of Behavioral Development*, *24*(2), 145-148.

Kroger, J. (2003). What Transits in an Identity Status Transition? *Identity*, *3*(3), 197-220.

La Guardia, J., Ryan, R., Couchman, C., & Deci, E. (2000). Within-Person Variation in Security of Attachment: A Self-Determination Theory Perspective on Attachment, Need Fulfillment, and Well-Being. *Journal of Personality & Social Psychology*, *79*(3), 367-384.

Lakey, C., Hirsch, J., Nelson, L., & Nsamenang, S. (2014). Effects of Contingent Self-Esteem on Depressive Symptoms and Suicidal Behavior. *Death Studies*, *38*(9), 563570.

Leardmann, C., Powell, T., Smith, T., Bell, M., Smith, B., Boyko, E., … Hoge, C. (2013). Risk Factors Associated With Suicide in Current and Former US Military Personnel.*JAMA*, *310*(5), 496–506.

Linehan, M. M., Comtois, K. A., & Ward-Ciesielski, E. F. (2012). Assessing and managing risk with suicidal individuals. *Cognitive and Behavioral Practice*, *19*(2), 218-232.

Linehan, M. (2008). Suicide Intervention Research: A Field in Desperate Need of Development. *Suicide and Life-Threatening Behavior*, *38*(5), 483–485.

Linville, P. W. (1987). Self-complexity as a cognitive buffer against stress related illness and depression. *Journal of Personality and Social Psychology, 52,*663-676.

Logan, J., Skopp, N. A., Karch, D., Reger, M. A., & Gahm, G. A. (2012). Characteristics of suicides among US army active duty personnel in 17 US states from 2005 to 2007.*American journal of public health*, *102 Suppl 1*, S40–4.

Logan, J., Skopp, N., Reger, M., Gladden, M., Smolenski, D., Floyd, C., & Gahm, G. (2014). Precipitating Circumstances of Suicide among Active Duty U.S. Army Personnel Versus U.S. Civilians, 2005–2010. *Suicide and Life-Threatening Behavior*.

Luxton, DD, Thomas, EK, Chipps, J, & Relova, RM. (2014). Caring letters for suicide prevention: Implementation of a multi-site randomized clinical trial in the US military and veteran affairs healthcare systems. *Contemporary clinical*

Luyckx, K., Goossens, L., Duriez, B., & Vansteenkiste, M. (2009). Basic Need Satisfaction and Identity Formation: Bridging Self-Determination Theory and Process- Oriented Identity Research. *Journal of Counseling Psychology*, *56*(2), 276-288.

Luyckx, K., Lens, W., Smits, I., & Goossens, L. (2010). Time perspective and identity formation: Short-term longitudinal dynamics in college students. *International Journal of Behavioral Development*.

Luyckx, K., Schwartz, S. J., Soenens, B., Vansteenkiste, M., & Goossens, L. (2010). The path from identity commitments to adjustment: Motivational underpinnings and mediating mechanisms. *Journal of Counseling & Development*, *88*(1), 52-60.

Luyckx, K., Soenens, B, & Goossens, L, (2006), The personality-identity link in emerging adult women: Convergent findings from complementary analyses, *European Journal of Personality, 20,* 195-215,

Luyckx, K., Soenens, B., Berzonsky, M. D., Smits, I., Goossens, L., & Vansteenkiste, M. (2007). Information-oriented identity processing, identity consolidation, and well-being: The moderating role of autonomy, self-reflection, and self-rumination. *Personality and Individual Differences*, *43*(5), 1099-1111.

Luyckx, K., Soenens, B., Goossens, L., Beckx, K., & Wouters, S. (2008). Identity exploration and commitment in late adolescence: Correlates of perfectionism and mediating mechanisms on the pathway to well-being. *Journal of Social and Clinical Psychology*, *27*(4), 336-361.

Marcia, J. E. (1966). Development and validation of ego identity status. *Journal of Personality and Social Psychology, 5,* 551 – 558.

Markland, D., Ryan, R.M., Tobin, V.J., & Rollnick, S. (2005). Motivational interviewing and self-determination theory. *Journal of Social and Clinical Psychology*, 24(6), 811–831.

Motto, J. A. (1976). Suicide prevention for high-risk persons who refuse treatment. *Suicide and Life-Threatening Behavior, 6*, 223–230.

McGraw, L., Pickering, M., Ohlson, C., & Hammermeister, J. (2012). The Influence of Mental Skills on Motivation and Psychosocial Characteristics. *Military Medicine, 177*(1), 7784.

Messer, B., & Harter, S. (1986). *Manual: The adult self-perception profile*. Denver, CO: University of Denver.

Miller, W. R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change (2nd ed.)*. New York: Guilford Press.

Moreau, E., Mageau, G. (2012). The importance of perceived autonomy support for the psychological health and work satisfaction of health professionals: Not only supervisors count, colleagues too!. *Motivation and Emotion, 36*(3), 268-286.

Motto, Jerome A. Suicide prevention for high-risk persons who refuse treatment. *Suicide and Life-Threatening Behavior*, *6*(4), 223-230.

Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of personality and social psychology*, *89*(6), 852.

Niederkrotenthaler, T., Logan, J., Karch, D., & Crosby, A. (2014). Characteristics of U.S. Suicide Decedents in 2005–2010 Who Had Received Mental Health Treatment.*Psychiatric Services*, *65*(3), 387.

Nock, M., Stein, M., Heeringa, S., Ursano, R., Colpe, L., Fullerton, C., … Collaborators, A. (2014). Prevalence and Correlates of Suicidal Behavior Among Soldiers. *JAMA Psychiatry*, *71*(5), 514.

Nock, M., Deming, C., Fullerton, C., Gilman, S., Goldenberg, M., Kessler, R., … Ursano, R. (2013). Suicide Among Soldiers: A Review of Psychosocial Risk and Protective Factors. *Psychiatry: Interpersonal and Biological Processes*, *76*(2), 97125.

Norcross, J. C., Krebs, P. M., & Prochaska, J. O. (2011). Stages of change. *Journal of clinical psychology*, *67*(2), 143-154.

Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on psychological science*, *3*(5), 400-424.

Nurmi, J. E., Berzonsky, M. D., Tammi, K., & Kinney, A. (1997). Identity processing orientation, cognitive and behavioural strategies and well-being. *International Journal of Behavioral Development*, *21*(3), 555-570.

Osman, A., Gutierrez, P. M., Barrios, F., Wong, J. L., Freedenthal, S., & Lozano, G. (2010). Development and initial psychometric properties of the University of Texas at San Antonio Future Disposition Inventory. *Journal of Clinical Psychology, 66,* 410–429.

Pearson, J. L., Claassen, C. A., & Booth, C. L. (2014). Introduction to the Suicide Prevention Research Prioritization Task Force Special Supplement. *American journal of preventive medicine, 47*(3), S102-S105.

Phillips, T. M., & Pittman, J. F. (2007). Adolescent psychological well-being by identity style. *Journal of Adolescence, 30*(6), 1021-1034.

Prochaska, J.O., Norcross, J.C., & DiClemente, C.C. (2005). Stages of change: Prescriptive guidelines. In G.P. Koocher, J.C. Norcross, & S.S. Hill (Eds.), Psychologists' desk reference (2nd ed.). New York: Oxford University Press.

Ramchand, R., Eberhart, N. K., Guo, C., Pedersen, E., Savitsky, T. D., Tanielian, T., & Voorhies, P. (2014). Developing a Research Strategy for Suicide Prevention in the Department of Defense.

Reger, M. A., Smolenski, D. J., Skopp, N. A., Metzger-Abamukang, M. J., Kang, H. K., Bullman, T. A., ... & Gahm, G. A. (2015). Risk of Suicide Among US Military Service Members Following Operation Enduring Freedom or Operation Iraqi Freedom Deployment and Separation From the US Military. *JAMA psychiatry*.

Reivich, K., Seligman, M., & McBride, S. (2011). Master resilience training in the U.S. Army. *American Psychologist, 66*(1), 2534.

Ribeiro, J. D., Bender, T. W., Buchman, J. M., Nock, M. K., Rudd, M. D., Bryan, C. J., ... & Joiner, T. E. (2014). An investigation of the interactive effects of the capability for suicide and acute agitation on suicidality in a military sample. *Depression and anxiety*. (In Press).

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Rosenberg, M., Schooler, C., Schoenbach, C., & Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American Sociological Review*, 141-156.

Rowe, C., Walker, K., Britton, P., & Hirsch, J. (2013) The relationship between negative life events and suicidal behavior. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 34*(4), 233-241.

Rudd, M. D., Schmitz, B., McClenen, R., Joiner, T., Elkins, G., & Claasen, C. A. (2010). The suicide cognitions scale: A suicide-specific measure of hopelessness. *Journal of Abnormal Psychology*.

Rudd, M. D. (2006). Fluid vulnerability theory: A cognitive approach to understanding the process of acute and chronic risk. In T. E. Ellis (Ed.), Cognition and suicide: Theory, research, and therapy (pp. 355–367). Washington, DC: American Psychological Association.

Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: examining reasons for acting in two domains. *Journal of personality and social psychology*, *57*(5), 49.

Ryan, R, (2005). The developmental line of autonomy in the etiology, dynamics and treatment of borderline personality disorders. *Development and Psychopathology, 17*(04), 987-1006.

Ryan, R., & Deci, E. L. (2000a). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist*, *55*(1), 68-78.

Ryan, R. M., & Deci, E. L. (2000b). The darker and brighter sides of human existence: Basic psychological needs as a unifying concept. *Psychological Inquiry*, *11*(4), 319-338.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. In S. Fiske (Ed.), *Annual review of psychology* (Vol. 52, pp. 141–166). Palo Alto, CA: Annual Reviews, Inc.

Ryan, Kuhl, J., & Deci, E. (1997). Nature and autonomy: An organizational view of social and neurobiological aspects of self-regulation in behavior and development. *Development and Psychopathology, 9*(04), 701-728.

Ryan, R., LaGuardia, J., & Rawsthorne, L. (2005). Self-Complexity and the Authenticity of Self-Aspects: Effects on Well Being and Resilience to Stressful Events. *North American Journal of Psychology*, *7*(3), 431-447

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of personality and social psychology*, *57*(6), 1069.

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69,* 719–727.

Schlenker, B. R., Britt, T.W., Pennington, J., Murphy, R., & Doherty, K. (1994). The triangle model of responsibility. *Psychological Review*, *101*, 632-652.

Schwartz, S. (2001). The Evolution of Eriksonian and, Neo-Eriksonian Identity Theory and Research: A Review and Integration. *Identity*, *1*(1), 7-58.

Schwartz, S. (2005). A new identity for identity research: Recommendations for expanding and refocusing the identity literature. *Journal of adolescent research*, *20* (3), 293.

Schwartz, S. J., Côté, J. E., & Arnett, J. J. (2005). Identity and agency in emerging adulthood two developmental routes in the individualization process. *Youth & Society*, *37*(2), 201 229.

Schoenbaum, M., Kessler, R., Gilman, S., Colpe, L., Heeringa, S., Stein, M., … Collaborators, A. (2014). Predictors of Suicide and Accident Death in the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). *JAMA Psychiatry*, *71*(5), 493.

Selby, E., Anestis, M., Bender, T., Ribeiro, J., Nock, M., Rudd, M., … Joiner, T. (2010). Overcoming the fear of lethal injury: Evaluating suicidal behavior in the military through the lens of the Interpersonal–Psychological Theory of Suicide. *Clinical Psychology Review*, *30*(3), 298307.

Sheldon, K., & Niemiec, C. (2006). It's not just the amount that counts: balanced need satisfaction also affects well-being. *Journal of personality and social psychology*.

Skopp, N. A., Trofimovich, L., Grimes, J., Oetjen-Gerdes, L., & Gahm, G. A. (2012). Relations between suicide and traumatic brain injury, psychiatric diagnoses, and relationship problems, active component, U.S. Armed Forces, 2001-2009. *MSMR*, *19*(2), 7–11.

Smith, S. L. 2013. Could comprehensive soldier fitness have iatrogenic consequences?: A commentary. *Journal of Behavioral Health Services and Research* 40(2):242–246.

Smith, A., Ribeiro, J., Mikolajewski, A., Taylor, J., Joiner, T., & Iacono, W. (2012). An examination of environmental and genetic contributions to the determinants of suicidal behavior among male twins. *Psychiatry research*, *197*(1-2), 60–5.

Smits, I., Berzonsky, M. D., Soenens, B., Luyckx, K., Goossens, L., Kunnen, S. E., & Bosma, H. A. (2008). *The identity style inventory–4*. Internal research report, Catholic University Leuven, Belgium.

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., ... & Harney, P. (1991). The will and the ways: development and validation of an individual differences measure of hope. *Journal of personality and social psychology*, *60*(4), 570.

Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin*, *139*(1), 213.

Soenens, B., Berzonsky, M. D., Dunkel, C. S., Papini, D. R., & Vansteenkiste, M. (2011). Are all identity commitments created equally? The importance of motives for commitment for late adolescents' personal adjustment. *International Journal of Behavioral Development*, *35*(4), 358-369.

Soenens, B., Duriez, B., & Goossens, L. (2005). Social–psychological profiles of identity styles: attitudinal and social-cognitive correlates in late adolescence. *Journal of Adolescence*, *28*(1), 107-125.

Soenens, B., & Vansteenkiste, M. (2011). When is identity congruent with the self? A self determination theory perspective. In S. J. Schwartz, K. Luyckx, & V. L. Vignoles (Eds.), *Handbook of identity theory and research* (pp. 381-402). New York: Springer.

Steenkamp, M., Nash, W., & Litz, B. (2013). Post-Traumatic Stress Disorder. *American Journal of Preventive Medicine, 44*(5), 507512.

Stolarski, M., Fieulaine, N., & van Beek, W. (2015). Time Perspective Theory: The Introduction. In *Time Perspective Theory; Review, Research and Application* (pp. 1-13). Springer International Publishing.

Swann, W. B., Jr. (1987). Identity negotiation: Where two roads meet. *Journal of Personality and Social Psychology, 53,* 1038-1051.

Swann, W. B., Jr., Milton, L. P., & Polzer, J. T. (2000). Should we create a niche or fall in line? Identity negotiation and small group effectiveness. *Journal of Personality and Social Psychology,* 79: 238–250.

Sword, R. M., Sword, R. K., & Brunskill, S. R. (2015). Time Perspective Therapy: Transforming Zimbardo's Temporal Theory into Clinical Practice. In *Time Perspective Theory; Review, Research and Application* (pp. 481-498). Springer International Publishing.

Trapnell, P. D., & Campbell, J. D. (1999). Private self–consciousness and the Five–Factor model of personality: Distinguishing rumination from reflection. *Journal of Personality and Social Psychology, 76,* 284–304.

Trofimovich, L., Skopp, N. A., Luxton, D. D., & Reger, M. A. (2012). Health care experiences prior to suicide and self-inflicted injury, active component, U.S. Armed Forces, 2001 2010. *MSMR, 19*(2), 2–6.

Tucker, R. & Wingate, L. (2014). Basic Need Satisfaction and Suicidal Ideation: A Self Determination Perspective on Interpersonal Suicide Risk and Suicidal Thinking. *Archives of Suicide Research, 18*(3), 282- 294.

Ward-Ciesielski, E. F., & Linehan, M. M. (2014). Psychological Treatment of Suicidal. *The Oxford Handbook of Suicide and Self-Injury*, 367.

Wei, M., Shaffer, P., Young, S., & Zakalik, R. (2005). Adult Attachment, Shame, Depression, and Loneliness: The Mediation Role of Basic Psychological Needs Satisfaction. *Journal of Counseling Psychology, 52*(4), 591.

Wenzel, A., & Beck, A. (2008). A cognitive model of suicidal behavior: Theory and treatment. *Applied and Preventive Psychology, 12*(4), 189-201.

White, J. M., & Jones, R. M. (1996). Identity styles of male inmates. *Criminal Justice and*

Behavior, *23*(3), 490-504.

Vallerand, R. J., Pelletier, L. G. & Koestner, R. (2008). Reflections on Self-determination theory. *Canadian Psychology*, *49*(3), 257.

Van Beek, W., & Kairys, A. (2015). Time Perspective and Transcendental Future Thinking. In *Time Perspective Theory; Review, Research and Application* (pp. 73-86). Springer International Publishing.

Van Orden, K., Witte, T., Cukrowicz, K., Braithwaite, S., Selby, E., & Joiner, T. (2010). The interpersonal theory of suicide. *Psychological review*, *117*(2), 575–600.

Vansteenkiste, M., & Sheldon, K. M. (2006). There's nothing more practical than a good theory: Integrating motivational interviewing and self-determination theory. *British Journal of Clinical Psychology*, 45(Pt 1), 63–82.

Vansteenkiste, M., Williams, G. C., & Resnicow, K. (2012). Toward systematic integration between Self-Determination Theory and Motivational Interviewing as examples of top down and bottom-up intervention development: Autonomy or volition as a fundamental theoretical principle. *International Journal of Behavioral Nutrition and Physical Activity*, *9*(1), 23.

Visser, P. L., & Hirsch, J. K. (2014). Health behaviors among college students: the influence of future time perspective and basic psychological need satisfaction. *Health Psychology and Behavioral Medicine: an Open Access Journal*, *2*(1), 88-99.

Vleioras, G., & Bosma, H. A. (2005). Are identity styles important for psychological well being?. *Journal of adolescence*, *28*(3), 397-409.

Vogt, D. (2011). Mental health-related beliefs as a barrier to service use for military personnel and veterans: A review. *Psychiatric Services, 62*(2), 135-142.

Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual differences metric. *Journal of personality and social psychology*, *77*(6), 1271.

Appendix 1

Assessment *as* Psychological First Aid: A Behavioral Intervention

The Intervention

Assessment *as* **P**sychological **F**irst **A**id (**APFA**) is designed to reduce public stigma
directed toward Soldiers who seek mental health services. APFA targets first responders who are
best positioned to identify and address immediate behavioral health issues in groups most at risk.
For many ARMY units, this is represented by Squad Leaders and the squad members for whom
they are responsible. APFA is a behavioral intervention that aims to change the attitudes and
behavioral trajectory of first responders at the squad level. This is attempted by increasing
perceptions of responsibility through brief assessments and timely, useful feedback. APFA is
also designed to support NCO professional development through facilitated group discussion,
education and training by military mental health professionals. Collection of data during APFA
is not used for the purposes of research publication. Identities of participants and their responses
remain protected during the intervention. Chains of Command are provided a summarized
assessment regarding accuracy of Squad Leaders' assessments and progress achieved during the
intervention; however, no specific information related to individuals is provided.

APFA's four objectives:

> **1**. Increase Squad Leader perceptions of responsibility and confidence in assessing the
> well-being of their Soldiers.
> **2**. Bring the domain of human concerns within the Squad Leader's sphere of influence.
> **3**. Normalize help-giving and help-seeking behaviors for Squad Leaders and Soldiers.
> **4**. Reduce Stigmatization of Soldiers by Squad Leaders.

Time requirements and schedule of administration: For this intervention, APFA will be
conducted over a ninety-day (90-day) period. Within that period, there will be three collection
days. Soldiers will only participate on day (1). Squad Leaders, depending on size of squad, will
take between 10 and 15 minutes to complete their assessments.

Administration: For Soldiers, APFA is a brief three-item questionnaire that asks Soldiers to rate
how satisfied they are in three separate psychological domains: competence, relatedness and self-
direction. The three statements rated are:
> 1. I feel in control of my life.
> 2. I feel competent in most things that I do.
> 3. I feel supported by others.

These three statements are adapted from longer measures that have demonstrated
reliability and validity for assessing psychological needs. In addition to the Soldier self-assessment,

there is also a Leader's assessment, which mirrors the Soldier assessment. Leaders are asked to estimate how each of their Soldiers rate themselves in these areas. Leaders also rate their own self-efficacy (confidence) for accurately assessing their Soldiers and are prompted to indicate behavioral markers that may contribute to low ratings of their Soldiers. Feedback to Squad Leaders will be delivered during NCOPD. The four statements Squad Leaders rate are:

1. This Soldier feels in control of his/her life.
2. This Soldier feels competent in most things he/she does.
3. This Soldier feels supported by others.
4. I feel competent in my assessment of this Soldier in these areas.

Intent: The intent behind the leader's assessment is three-fold. First, following an APFA administration, a Leader's check and a Soldier's check do not always match up. To address this discrepancy, timely feedback is built into the process. A discrepancy between a Soldier's and Leader's assessment will make it immediately apparent to Squad Leaders that more careful attention is indicated. Low ratings may indicate a range of distressing, but approachable, circumstances that can be discussed without invasive psychological discussions of a private nature. However, this may also be a segue to more sensitive and personal topics if the Soldier chooses to disclose this information. Leaders should anticipate that this might occur.

Another aim of the intervention is ritualizing the process of attending to Soldiers' psychological well-being. This requires that a Leader deliberately take the Soldier's perspective for each Soldier in his/her squad over a structured time period. Through repetition, a Leader may *automatically* begin to attend to deficiencies in each or any of the assessed areas. As they might notice the sound a loose track makes on one of their vehicles, they may also begin to notice Soldier behaviors that indicate problems in any of the assessed areas. When a process becomes habitual, it may also begin to feel familiar, anticipated and "normal". Self-consciousness may be reduced because less conspicuous actions and better-attuned interactions with Soldiers occur.

With the APFA intervention, Leaders are attending to the purpose, direction and motivation of the individual as it relates to that individual personally. These are Leader actions mandated by ARMY doctrine (FM 6-22) and falls within the purview of NCO professional development and counseling TTPs. Consequently an innovative, non-stigmatizing "interface" between behavioral health professionals and Leaders is being offered that provides a conduit for delivery of mental health services. A platform for further discussion is now available because there is a "reason to talk" (leadership doctrine) and something to talk about (APFA processes). Education and training is available and recommended for Squad Leaders in an NCOPD venue during this process. Optimally, this would occur over one fiscal quarter in three (1 hour) NCOPD classes. During these sessions, junior NCOs would be educated about the assessment's principles and given individual feedback regarding the iterative accuracy of their ratings. Group discussions, facilitated by behavioral health professionals constitute the method of instruction.

Format of delivery: APFA can also be administered electronically via web-based platforms (e.g., AKO) or on paper. A mobile phone app is currently being considered for development.
If you have questions, please contact Dr. Steve Danish at 804-828-8222 or at sdanish@vcu.edu or CPT Brad Antonides at antonidesbj@vcu.edu

Vita

Bradley Joline Antonides was born on December 5th, 1971, Adams County, Nebraska, and is and

is an American citizen. He graduated from Ferguson High School, Newport News, Virginia in

1990. He received his Bachelor of Science in Life Science from Kansas State University,

Manhattan, Kansas in 2002 and subsequently served as an officer in the United States Army. He

has served in the United States Army for 23 years as both an enlisted member and a

commissioned officer. He was awarded the Bronze Medal for service in Iraq in 2005, and

currently works as a clinical psychologist in Louisiana.