Assessment of Elite Operational Personnel

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As operational and military psychologists, our work has focused primarily on the assessment and selection of high-risk operational personnel (Picano, Williams, & Roland, 2012). We define high-risk operational personnel as those individuals who engage in physically and psychologically demanding missions under conditions of extreme threat, isolation, and complexity. Such individuals acquire and possess special technical skills and abilities beyond those of their peers. They often confront unknown and uncontrollable situations in environments in which there is little logistical support or back-up, and in which standard "textbook" solutions are insufficient. Missions performed by high-risk operational personnel are typically critical and sensitive, often involving national security, and carry dire consequences for failure. We differentiate high-risk operational personnel from other military and operational personnel by the specific mission profiles and demands they ordinarily encounter in their jobs (see Table 17.1; Picano et al., 2012). According to our conceptualization, high-risk operational personnel include, but are not limited to, astronauts, Special Operations Forces (SOF), clandestine intelligence operatives, and certain tactical law enforcement personnel.

Key Competencies of High-Risk Operatives

Identifying the competencies required to perform the job effectively is an important first step in the development of Assessment and Selection (A&S) programs for high-risk operational personnel. Desired competencies drive the choices of assessment methods and measures. Ideally, such competencies are derived a priori from job analyses and/or subject matter expert (SME) descriptions.

Previous reports from selection efforts with personnel having similar job requirements can serve as a useful starting point for identifying competencies in a new assessment program, and can also serve as a check to ensure comprehensiveness of competencies in established programs. The characteristics identified by the Office of Strategic Services (OSS) staff and reported in the monograph, The Assessment of Men, represented the first comprehensive effort in the United States to

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Table 17.1 Some characteristics of high-risk operational jobs

Critical and sensitive national security missions
Nonroutine, nonstandard, or unconventional occupational and tactical demands
Extreme, hostile, and/or denied operating environments
Frequent and/or extended deployments
Various cultural settings
Independent operations with no or very limited logistical and/or tactical support
Unknown and often uncontrollable factors demanding ingenuity, expertise, initiative, and a high degree of common sense in order to avoid mission failure

describe the competencies required for successful performance of high-risk military missions, and more specifically, clandestine intelligence operations (OSS staff, 1948). The OSS staff identified seven broad categories which they believed were required to function effectively in the field, whether in support or operational roles: Motivation, Effective Intelligence, Emotional Stability, Social Relations, Leadership, Energy and Initiative, and Security. Three others, Physical Ability, Propaganda Skills, and Observing and Reporting, were also measured in those assessed for direct operations missions in the OSS. These competency areas are a good starting point in looking at competencies required for all operational personnel and are presented in Table 17.2.

Recently, Lenzenweger (2015) applied modern factor analytic techniques to identify latent factors in the ratings of the competencies used by the OSS. He identified three factors: emotional and interpersonal (emotional stability, social relations, security), intelligence processing (effective IQ, propaganda skills, observing and reporting), and agency/surgency (motivation for assignment, energy and initiative, leadership, physical ability). Though these underlying dimensions are specific to clandestine intelligence operatives, we previously found that they reasonably extended to other high-risk operatives as well, perhaps with the exception of some intelligence processing competencies that might be more specific to intelligence missions (e.g., Observing and Reporting, Propaganda Skills; Picano et al., 2012). We organized the OSS competency areas in Table 17.2 according to their loading on these latent dimensions. In Table 17.2, we also present the competencies that were most commonly listed among diverse groups of high-risk operational personnel (Picano et al., 2012).

As Table 17.2 illustrates, key competencies identified from descriptors of those required for success across many different kinds of high-risk operations correspond well with the broad dimensions identified by Lenzenweger (2015) in the OSS data. Competency areas shared by high-risk operational personnel include cognitive skills, interpersonal and emotional factors, and agency/surgency. It should be emphasized that these competencies are probably not sufficient for characterizing any one particular group, since differences among specific mission sets and operational communities likely require unique and additional competencies. Note, for example, that highly specific competencies thought necessary for success in clandestine intelligence operatives (e.g., observing and reporting, propaganda skills) are not included among the key competencies identified. We also expanded the descriptors used by the OSS staff for Effective Intelligence and grouped the more cognitively oriented competencies Adaptability and Judgment in this domain.

The latter point raises an important issue from the previous review: competency dimensions often have similar names, although the actual descriptors can vary. Also, similarly named dimensions sometimes comprise different subcompetencies and descriptors. In practical application, careful description of the competencies and sub-competencies captured in a particular dimension is important as these drive the development of assessment procedures and measurements and scales, as well as specific behavioral rating anchors (Saucier, 1997).

It is worth mentioning again that the key competencies identified in Table 17.2 are likely not sufficient for the assessment and selection of any one particular type of high-risk operative. Additional specific and unique competencies will emerge from job or competency analyses. The final competency list to inform assessment efforts should be representative, but manageable and not overly burdensome or unwieldy. Campion, Fink, Ruggeberg, Carr, Phillips, and Odman (2011) suggest keeping competency areas to about 10–12.

Table 17.2 Key competency areas for high-risk operational personnel

OSS clandestine operative			High-risk operative	
Factor	Attribute area	Descriptors	Attribute area	Descriptors
Emotional and social	Emotional stability	Ability to govern disturbing emotions Steadiness and endurance under pressure Snafu tolerance Freedom from neurotic tendencies	Emotional stability	Composed, unflappable Emotionally controlled Maintains focus, and able to function effectively when under stress or when pressed
	Social relations	Ability to get along well with other people Good will Team play Tact Freedom from disturbing prejudices Freedom from annoying traits	Cooperation with others	Puts group goals ahead of individual goals Supports team efforts Contributes to group effectiveness
	Security	Ability to keep secrets Caution Discretion Ability to bluff and mislead		
Intelligence processing	Effective intelligence	Ability to select strategic goals and the most efficient means of attaining them Quick practical thought-resourcefulness, originality, good judgment in dealing with things, people, ideas.	Adaptability	Acts promptly in response to changing demands Modifies plans in response to changing demands Generates novel solutions to problems
			Judgment	Accurately and quickly assesses risks, outcomes, and repercussions in problem-solving situations Demonstrates sound judgment under pressure Assess risks, likely outcomes, and possible repercussions in problem-solving situations
	Propaganda skills	Ability to apperceive the psychological vulnerabilities of the enemy Ability to devise subversive techniques To speak, write, or draw persuasively		
	Observing and reporting	Ability to observe and remember accurately significant facts and their relations Ability to evaluate information Ability to report succinctly		
Agency/ surgency	Motivation for assignment	War morale Interest in proposed job	Motivation	Self-motivated and directed Motivated by challenges (intrinsic) Mission (specific) orientation and interest
	Physical ability	Agility Daring Ruggedness Stamina	Physical ability and stamina	Possess stamina and endurance Physically fit Rugged, able to tolerate harsh environments and conditions
	Energy and initiative	Activity level, zest Effort Initiative	Initiative	Display initiative Ambitious Motivated to advance, achieve
	Leadership	Social initiative Ability to evoke cooperation Organizing and administering ability Acceptance of responsibility		

Assessment and Selection Program Components

Assessment and selection (A&S) courses for high-risk operational personnel are physically and psychologically rigorous events designed to both "select out" those who are unqualified or unsuited for the work, and "select in" those with the most potential to perform effectively in the job. In A&S programs for military and national security operatives, candidates are recruited based upon technical skills and abilities, and then thoroughly screened for medical, psychological, and security risks. Candidates who pass these initial gates are then subjected to extended assessment and selection procedures comprising detailed psychological evaluations (cognitive ability and personality tests, and psychological interviews), situational tests (team and individual, usually under high stress conditions), and physical performance/fitness events. The use of simulation tasks (or situational tests) and other performance events closely follows the assessment center model, with tasks typically designed specifically to assess the unique job demands and competencies required for the specific position. Scores for the various competencies across tasks are aggregated, and compared across individuals. These tasks tend to be unique to the various programs and designed to mimic the operational requirements.

We have described typical assessment and selection components in greater detail elsewhere (Christian, Picano, Roland, & Williams 2010; Picano & Roland, 2012). We highlight physical performance events here as one area of high-risk operational A&S programs that differentiates them from most other occupational assessment centers.

Physical Performance Events

High-risk operational personnel engage in high-intensity operations in challenging physical environments with tactical and logistical autonomy often requiring them to carry heavy loads. Not surprisingly, physical fitness (or stamina) emerges as a core competency dimension for most high-risk operational personnel (Picano et al., 2012). Consequently, A&S programs have high physical health and fitness standards for entry. Standards for scores on military physical fitness tests for entry into such programs usually exceed those required to meet standards for basic military service. A&S courses for high-risk operational personnel are also structured to mimic harsh operational environments with demanding physical events (such as obstacle courses, ruck marches, swims) as situational tests. In addition to these physical challenges, sleep and food deprivation are oftentimes used to test performance under extreme physiological depletion. In addition to assessing physical fitness, the rigors of A&S programs for high-risk operational personnel test tolerance for hardship, perseverance, sustained performance under physical stress, and recovery after stress. It comes as no surprise that baseline physical fitness, as measured by performance on standard military physical fitness tests completed prior to participating in these rigorous assessment programs consistently emerges as one of the strongest, if not the strongest, predictor of successful completion of A&S programs for military SOF personnel (Beal, 2010; Taylor, Miller, Mills, Potterat, Padilla, & Hoffman, 2006; Teplitzky, 1991; Zazanis, Hazlet, Kilcullen, & Sanders, 1999).

Psychological Evaluations

Assessment and selection programs for high-risk operational personnel comprise an interesting blend of clinical (individual) and assessment center methods. In an assessment center model, all components and procedures are typically indexed to the competencies under consideration. In contrast, psychological evaluations, including interviews and psychological testing (both cognitive and personality), often focus more heavily on broader clinical constructs than on the specific competencies identified, and yield more general or global assessments of candidates' suitability for high-risk operational work.

Suitability Interviews Given that many modern-day A&S programs for high-risk operational personnel in the United States trace their

methodological roots back to the OSS program, it is not too surprising that psychological interviews follow a more holistic, clinical method (see Highhouse, 2002, for a more detailed discussion of this approach). Our experience is that interviews used in contemporary A&S programs are more structured and attentive to job-relevant competencies (e.g., Girodo, 1997; Picano & Roland, 2012) than those following individual assessment techniques in other settings (i.e., executive selection), having incorporated important lessons from research on the use of interviews in personnel psychology (Campion, Palmer, & Campion, 1997).

An earlier report describes our interview components and the suitability ratings derived from them (Picano & Roland, 2012). We would classify our interview approach as a competency-informed, but clinically based assessment. The interview informs the overall assessment of suitability focused specifically on the candidate's psychological and emotional stability, training and performance potential, and behavioral and security risks. There is empirical evidence of validity in the use of interviews in this way in A&S programs for military personnel (Picano & Roland, 2012; van der Linden, Nijenhuis, Cremers, van de Ven, & van der Heijden-Lek, 2014) and other high-risk operational personnel (e.g., undercover police officers; Girodo, 1997).

Although not originally designed to assess the core competencies of high-risk operational personnel we identified from the literature, our interview is comprehensive and addresses these competencies as they are manifested by certain life-history indicators. Table 17.3 shows how the identified core competencies identified by us map onto the psychological suitability interview dimensions and sub-competencies used in our work over the years in one particular assessment program for high-risk operational personnel (Picano & Roland, 2012).

Table 17.3 Sample life-history indicators of key competencies.

Core competency areas	Relevant sub-competency areas	Sample interview content areas/life history indicators
Physical ability and stamina	Fitness and stamina	Fitness routines Physical fitness test scores Rugged or challenging hobbies/activities Military/civilian technical skills/licenses "extreme" or "high-risk" recreational activities/hobbies Competitive athletics Current and health and injuries
Motivation/ Initiative	Motivation (extrinsic v. Intrinsic)	Interest in assignment Career trajectory and fitness Alternative career plans Current job satisfaction Understanding of implied job requirement/mission History of successful occupational striving Military deployments/combat and field experiences Previous military assignments Training schools attended
Adaptability	Written and oral communication Academic achievement Novel thinking ability Mental agility	Oral and written communication-verbal fluency Foreign languages and fluency Previous level of academic achievement (degrees, GPA) Educational progression Academic honors (including in military training) Past successes/failures in military training courses Demonstrated complexity of thought in verbal expression Writing samples Information-processing difficulties (including TBI or other acquired problems) Developmental learning/attention problems Observed mental processing speed and agility

(continued)

Table 17.3 (continued)

Core competency areas	Relevant sub-competency areas	Sample interview content areas/life history indicators
Judgment	Impulse control/ Normative orientation Responsibility Trustworthiness/integrity	Childhood conduct history (including school suspensions Legal entanglements (including juvenile offenses) Problematic aggression/physical fights Domestic conflict Substance use/abuse Military judicial/nonjudicial punishments Financial management/stability Personal financial savings/debt Marital and or relationship infidelity Security issues/violations
Cooperation with others	Interpersonal-social skills	Marital/relationship history Work relationships/conflicts Team experience Social organizations and leadership positions
Emotional stability	Stress tolerance Resilience	Past/current mental health issues Stress-coping skills Completion of demanding training courses Response to life challenges

Family stability, although not an individual competency, emerges as an important area of consideration for high-risk military operational personnel selection for a number of programs that we reviewed (Picano et al., 2012); this includes the one from which we developed our structured interview and ratings. Consequently, we also assess and rate family stability as an important dimension of suitability for assignment looking at indicators such as current marital satisfaction and past relationship stability, spousal support for assignment, family tolerance of multiple or extended deployments, spousal self-sufficiency, and family medical (or other) limiting conditions/special needs.

Compared to situational tests, our interview assessment of adaptability and judgment focuses on different facets of these competencies. Our approach emphasizes the cognitive competencies undergirding adaptability and judgment (e.g., flexibility, self-regulation), as opposed to problem-solving and decision-making. These other facets of adaptability and judgment tend to be better indexed by situational tests.

Cognitive Testing Intelligence testing is a central component of the psychological evaluations in A&S programs for high-risk operational personnel. Strong cognitive abilities consistently emerge as attributes identified as essential to mission success in high-risk operational personnel (Picano et al., 2012). Cognitive ability has consistently proven to be one of the strongest predictors of future job performance and training success with average validity coefficients above 0.50 across many different types of occupations (Schmitt, 2014; Schmidt & Hunter, 1998). In A&S programs for high-risk operational personnel, cognitive ability has repeatedly been shown to predict selection in US Army Special Forces assessment (Beal, 2010; Hazlett & Sanders, 1999). Most commonly, assessment of cognitive ability is accomplished using group-administered and usually brief, well-validated measures such as the Wonderlic Personnel Test (WPT) and General Ability Measure for Adults (GAMA). Typically, these measures are not linked to a specific cognitive competency, and provide an overall estimate of intellectual and cognitive ability relative to the general population (and perhaps the specific population if such norms exist).

We are aware of programs using more extended assessments of cognitive ability with measures linked to a clinical model of intelligence (e.g., Multidimensional Aptitude Test, or MAB). However, we are not aware of any published accounts of success in predicting selection in Special Operations Forces or other high-risk

operational personnel. It would be important to know whether the additional investment of time required for a measure like the MAB yields improvements in prediction (selection, training, operational performance) over briefer measures of *g*, or whether specific cognitive abilities measured by MAB have utility for understanding or measuring other important cognitive operations identified as essential competencies in high-risk operational personnel (e.g., judgment, adaptability). For instance, the MAB has shown utility in research in military (US Air Force) pilots with specific scales contributing to prediction of pilot performance (Chappelle, Heerema, & Thompson, 2012).

Personality Assessment The assessment of personality in A&S programs for high-risk operational personnel often follows the clinical method, similar to the manner used by OSS staff. Personality tests are used in two rather separate lines of assessment: detection of psychopathology to screen out unsuited individuals, and assessment of general personality traits, especially those thought to be important in the world of work (e.g., conscientiousness). Given that emotional stability is a major competency that emerges across descriptions of those required for success in high-risk operational personnel, it is not surprising that assessment programs routinely incorporate clinical personality instruments. Clinical instruments (such as the Multiphasic Personality Inventory (MMPI)) assist in the detection of psychopathology and maladjustment, and are generally used to screen out individuals who are unsuitable for assignment.

Regardless of the intended objectives of personality assessment, the results of personality testing are generally used by operational psychologists in A&S programs to yield broad or global assessments of suitability or personality effectiveness, and to develop personality "sketches" of candidates being assessed. Nowadays, these sketches or profiles are often organized under the rubric of the Five Factor Model (FFM) of personality. There is less tendency to link or map specific personality measures or scales to the specific personality competencies (e.g., perseverance) required for successful performance. Nevertheless, there is compelling evidence that personality measures add validity to selection decisions (Ones, Dilchert, Viswesvaran, & Judge, 2007). Specific personality competencies are more typically rated in simulation exercises in A&S programs for high-risk operational personnel.

Part of the reason for more global assessments of personality in A&S programs may be that operational psychologists tend to employ omnibus personality instruments. Omnibus personality measures provide a convenient way of assessing a broad range of personality constructs, though not with the specificity in any one instrument to cover all of the personality competencies of interest.

A number of well-validated personality instruments are commercially available. Prewett, Tett, & Christiansen (2013) review the psychometric properties of 12 commonly used inventories in occupational settings. In our experience, only relatively few with research evidence for their validity are commonly used in assessment programs for high reliability (e.g., police officers, airline pilots) and high-risk operational personnel in the United States. Table 17.4 lists the measures commonly encountered in our experience.

Other well-established measures used in selection for high-reliability personnel such as the Hogan Personality Inventory (HPI) have not been widely used in more specialized military selection programs. However, the HPI was used to predict success of US Navy personnel during a winter tour in Antarctica (Biersner & Hogan, 1984). Also, a measure of personality hardiness or resilience known as the DRS – Dispositional Resilience Scale has predicted success in US Army Special Forces candidates (Bartone, Roland, Picano, & Williams, 2008), and in Norwegian Arctic border rangers (Johnsen, Bartone, Sandvik, Gjeldnes, Morken, Hystad, & Stornæs, 2013).

It is likely that no single measure of personality is likely to be superior to any other for use in the assessment and selection of high-risk military personnel. Therefore, the choice of specific personality tests should be guided by several factors: the attributes (and personality constructs) deemed

Table 17.4 Major personality inventories used in assessment and selection programs for high-risk operational personnel.

	Items	Scales	Keying	Scale development	Theoretical model/approach
California Psychological Inventory (CPI)	434	3 vectors and 20 scales, numerous supplementary and research scales	True/false	Mixed-criterion-referenced and rational/empirical (internal consistency)	Gough's "folk" concepts
NEO-PI-R	240	5 factors and 30 facets	5-point likert	Rational/empirical (internal consistency)	Five factor model (FFM)
16PF	185	16 primary and 5 secondary factors	Multiple choice	Empirical (factor analysis)	Cattell's structural taxonomy of fundamental personality traits/FFM
MMPI-2	567	3 validity, 10 clinical, and numerous content, supplementary and research scales	True/false	Criterion-referenced	None. Psychopathology assessment
Personality Assessment Inventory (PAI)	344	22 nonoverlapping scales	4-point graduated scale	Rational/empirical (internal consistency)	None. Psychopathology assessment/two personality circumplex scales included

important in the job analysis; the evidence for the test's validity as a selection measure (see Prewett et al., 2013 for more detail); and the logistical considerations involved in using the test (e.g., cost, time involved to administer/score/interpret, automation requirements, test length and fatigue effects, vulnerability to response bias) .

The way in which personality data are utilized is probably more important than the choice of the particular measure itself. In meta-analyses of studies predicting overall job performance, actuarial use of the data generated by personality (and other) measures leads to higher validities than does combining personality results into holistic judgments (Kuncel, Kleiger, Connelly, & Ones, 2013),which is the more common practice that we encounter in A&S programs for high-risk operational personnel.

Relevant Theory and Research

The structure and components of A&S programs for high-risk operational personnel appear to be guided more by the exigencies of selection requirements rather than theoretical considerations. However, modern-day A&S programs evolved from the design of earlier programs, in particular, those used by the OSS during WWII. Most still adhere closely to that methodology (Banks, 2006; see also Girodo, 1997). For a host of reasons, many pragmatic, the OSS staff adopted the holistic approach favored by Henry Murray, which involved inferring general tendencies and traits from multiple observations (Highhouse, 2002). The OSS assessment strategy was characterized as "multiform organismic" because it involved using variety of procedures to arrive at a description of the person as a whole (OSS Assessment Staff, 1948). The OSS staff generated a final consensus job fitness rating for each candidate derived from the integration and synthesis of all information gleaned from the assessment events. In keeping with an organismic approach, this rating represented the "total potentialities of the candidate for meeting the challenges of life" (OSS Assessment Staff, 1948, p. 217). OSS staff assumed that trained assessors were better able to predict outcomes than was the mechanical (statistical) combination of test scores (OSS Assessment Staff, 1948). This assertion was as contentious then (Meehl, 1954; see also Grove & Lloyd, 2006) as it is now (Highhouse, 2002).

The holistic approach (sometimes referred to as the clinical approach) espoused by the OSS

Staff made its way into industrial psychology in England and the United States very quickly after the war, gaining prominence particularly in executive assessment (Highhouse, 2002). The term, *individual assessment,* now describes an employment selection procedure that uses multiple assessment methods for individual candidates that are integrated into an overall evaluation of a candidate's suitability for a particular job based upon the judgment of the assessor (Morris, Daisley, Wheeler, & Boyer, 2015). Individual assessment continues to be widely used in employee selection (Kuncel et al., 2013), particularly for executive advancement and suitability for specialized assignments in which successful performance is difficult to define and relatively few individuals occupy the roles (Highhouse, 2002). The latter use accurately describes the conditions in high-risk operational personnel selection.

In contrast to the individual assessment method is the mechanistic or statistical (actuarial) approach. The primary difference between these two approaches is not so much in the method for acquiring the data (clinical methods can be used), but in how the data is integrated or combined once collected. In the individual assessment approach, an overall impression or composite score is made by an individual assessor (or panel) using judgment, insight, and intuition, as opposed to the use of statistical algorithms or formulas typified by the mechanistic approach (Kuncel et al., 2013). A recent meta-analysis shows that the individual assessment approach demonstrates evidence of validity in predicting job performance, especially for higher-level, managerial jobs. However, the validity coefficient does not exceed that which is usually obtained using cognitive ability tests or structured interviews alone (Morris et al., 2015). Moreover, mechanistic approaches substantially outperform individual assessment in predicting job performance, though (and perhaps more relevant to the assessment and selection of high-risk operational personnel) the differences in predictive validity for advancement criteria between the two methods are less substantial compared to those for job performance (Kuncel et al., 2013). Individual assessments may still be useful in situations in which mechanistic approaches might not be feasible such as those in which it is difficult or impractical to conduct criterion-related research (Morris et al. 2015); a common situation for many psychologists who work in specialized A&S programs for high-risk military operational personnel.

What is it that "multiform organismic" A&S programs for high-risk operational personnel actually assess? The OSS account – the "total potentialities of the candidate for meeting the challenges of life" – extends far beyond the determination of the individual's suitability to perform that particular high-risk job. It suggests that A&S measures of physical and psychological health, cognitive ability, and personality effectiveness may tap into a broader, latent construct. Evolutionary psychologists (Miller, 2000; see also Sefcek & Figueredo, 2010) have proposed a general fitness factor (*F-factor*) to account for the shared variance indicated by positive correlations among measures of physical health, mental health, general intelligence (*g*), and personality (General Factor of Personality or GFP). *F-factor* is hypothesized to tap into the individual's underlying genetic quality (or "mutation load"; Sefcek & Figueredo, 2010). Genetic quality is signaled in fitness indicators reflecting morpho-developmental quality (e.g., fluctuating asymmetry), neuro-developmental quality (e.g., intelligence, psychopathology), and immuno-competence (i.e., ability to fend off disease). Figure 17.1 shows this model. According to this model, fitness sits atop of subordinate factors, each representing general areas of fitness (e.g., neurodevelopment stability), comprising higher-order factors of subordinate constructs, such as the GFP (Figueredo & Rushton, 2009), *g*, and a general factor of psychopathology (*p*-factor; Caspi, Houts, Belsky, Goldman-Mellor, Harrington, Ramrakha, Poulton, & Moffitt, 2014), which serve as "fitness indicators" (Miller, 2000). It is likely that the multiform processes and procedures used in the A&S of high-risk operational personnel, with their focus on identifying the brightest, healthiest, and most resilient and adaptive, are essentially tapping into the latent genetic fitness of the individual.

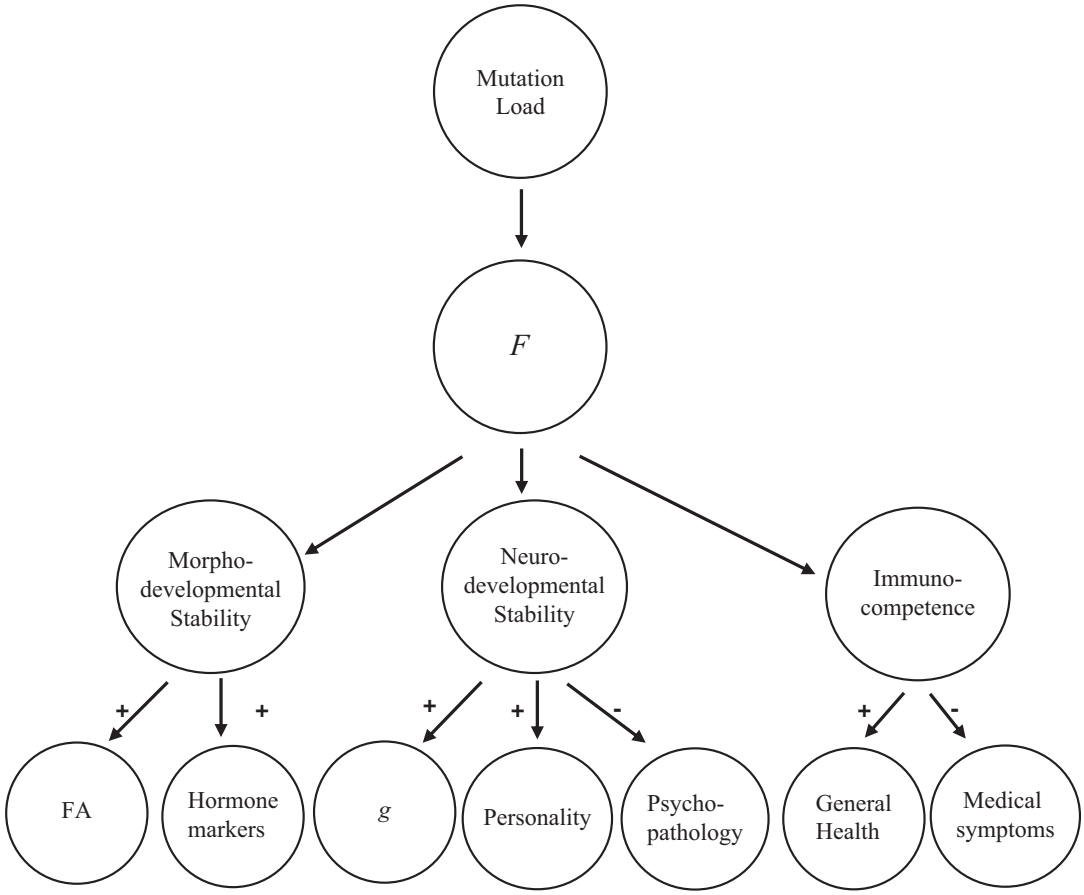

Fig. 17.1 Hypothetical fitness factor model. *FA* fluctuating asymmetry, indexed as the deviation from perfect symmetry in bilateral traits that are symmetrical at the population level (e.g., facial asymmetry). *g* general cognitive ability (Adapted from Sefcek & Figueredo, 2010)

Current Military Applications and Future Directions

Smaller and more "boutique" A&S programs for high-risk military operational personnel sprouted up in the United States (and elsewhere) after 9/11 in an effort to meet the increased demands to bring new and specialized capabilities to the War on Terror. Most operate in the "shadows," and security concerns preclude sharing of specific information about their practices. However, here is a common scenario in specialized A&S of high-risk military operational personnel: a candidate is recruited to attend because of interest, technical skills, and experience that suggests potential as an operative; the candidate undergoes a screening of occupational, medical, psychological, and security concerns; qualified candidates, comprising a small group from those screened, are invited to attend an extended (weeks long) "assessment course" designed to evaluate suitability for training and assignment; candidates complete psychological evaluations, high-fidelity situational tests (likely both individual and team), and physical performance events; performance data are gathered using a variety of methods including observer ratings; some candidates are eliminated during the extended assessment course due to medical reasons (illness and injury), failure to meet performance standards, self-elimination (quit), or integrity violations;

and finally, performance of the candidates that remain at the end (usually fewer than half of those who started) is reviewed by a panel who will select those that show the greatest potential to complete specialized training and perform the mission successfully. Those selected are then assigned to the organization and go on to specialized training to prepare them for the job. Upon successful completion of training, they are assigned to operational elements in the organization for deployment.

There may be some differences in the format of specialized military selection programs from one to another. However, in our experience, the integration of the performance data for use in decision-making tends to favor judgment rather than statistical prediction. In our opinion, this reflects a bias against the use of statistical prediction models owing in part to adherence to the methods of the OSS approach, the unavailability of validated models in many programs because of operational resource constraints on psychologists, and practical considerations impacting specialized A&S programs (e.g., small N, lack of job performance criteria). We would add that the practical concern of small Ns in building statistical prediction models for decision-making in specialized A&S programs is compounded by measurement problems, including range restriction on psychological measures due to preselection effects (especially on cognitive ability measures), and social desirability response bias (on personality measures) typical in high-stakes selection testing. These represent challenges to the development of statistical prediction models, but in and of themselves, such difficulties should not preclude efforts to doing that.

We are aware of considerable efforts in specialized assessment programs to build elaborate statistical models and to present those to the selection panel when reviewing candidate performance. However, even in those situations, decision-makers will sometimes choose to use their professional judgment to override those recommendations when a candidate has a unique capability, or the panel members' experience or intuition contradicts the findings. Research in employment selection suggests that "adjusting" statistical predictions based upon expert judgment typically results in lower validity coefficients (Kuncel et al., 2013; Morris et al., 2015).

The development of statistical prediction models should be the goal for decision-making in specialized A&S programs. However, we acknowledge that the literature findings favoring statistical over clinical data integration methods may not hold in such approaches, may not be preferred or acceptable to leaders in such programs, or may be impractical to implement for one reason or another. Kuncel et al. (2013) offer some useful practice suggestions for those who are solely using expert judgment in arriving at decisions in specialized A&S programs: statistically derived data can be used as an anchor and limited adjustments could be made based upon judgment; expert-combined and mechanistically combined recommendations could both be presented to decision-makers; and particularly relevant to current practice in small N programs, experts could provide testable predictions about the future behavior of candidates that can allow for the accumulation of data and analysis over time.

We are not necessarily advocating for "throwing out the baby with the bathwater" when it comes to the individual assessment methods used by the OSS that have informed the design of many specialized A&S programs for high-risk operational personnel. Rather we are hopeful that "hybrid methods" of data combination (Kuncel et al., 2013) can be developed that fit the unique measurement challenges and constraints of specialized A&S programs, and improve our ability to predict success. Operational psychologists can help set the condition for more effective predictions when those predictions are informed by the statistical probabilities and context that are used to yield more quantified judgments.

A&S programs for high-risk operational personnel should attend as much as possible to multiple criteria in predictive validation efforts. Our own work has been more narrowly focused on predicting successful completion of rigorous selection programs. This seems appropriate given that attrition form these selection courses is often quite high (upwards of 50%) and identifying important predictors can help inform efforts to

target and recruit candidates who are more likely to be successful. We have yet to see published accounts focused on incremental validity of various assessment methods or models (e.g., individual assessment versus statistical) in predicting selection outcome. Also important are validation studies on criteria such as training success, and ultimately, job performance in high-risk operational personnel. Our experience suggests that these tend to get far less attention than they deserve largely due to difficulty tracking these outcomes because of inadequate feedback channels for that information, and to some extent, difficulty in arriving at adequate measures of job performance for the relatively rare and highly complex jobs performed by specialized operational personnel (see Girodo, 1997, for an exception). Ultimately, these analyses are crucial for a full understanding of the validity of assessment methods and data integration models, and to identify best practices for the assessment and selection of high-risk operational personnel.

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