

# PROJECT FIRST TERM: A LONGITUDINAL INVESTIGATION OF ATTRITION AND RETENTION OF FIRST-TERM SOLDIERS IN THE U.S. ARMY<sup>1</sup>

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## Background

More than one-third of the soldiers who enter the U.S. Army fail to complete the full term of their initial obligation. We refer to this failure as “attrition” by first-term soldiers. The attrition of first-term soldiers creates losses for the Army and its operation. From a management perspective, these losses include the costs of recruiting and training soldiers for duty performance.

Attrition and its management have been the object of a considerable amount of study. As a whole, these studies have not produced a comprehensive, empirical basis for understanding and reducing attrition. Past empirical studies, for example, have largely singled out pieces of the problem, such as new recruit characteristics and subsequent attrition. More comprehensive studies of attrition across the enlistment term have been conducted, but those studies have typically compared different groups of soldiers at different periods in their careers. Such comparisons fail to isolate causal factors associated with group differences from the causal factors that arise from experience during a career.

This project seeks to offset some of the problems of past attrition research. Its objectives are to identify, model, and test (1) causes of attrition by first-term soldiers and (2) methods for reducing attrition and keeping soldiers in active service.

## Approach

Central to the research is development of a comprehensive database on first-term soldiers. By research plans (Strickland, 2000), the database will include both longitudinal and cross-sectional data. Figure 1 summarizes the approach.

The longitudinal sample consists of all soldiers in the FY99 Cohort, that is, the soldiers who entered the active Army for the first enlistment term from October 1998 through September 1999. By the approach, the FY 99 soldiers fill out questionnaires at

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<sup>1</sup> The opinions expressed here are those of the author and do not constitute an official statement or position of the Department of Defense or any element thereof.

selected times over the period of a four-year enlistment term. The administration times include at service entry; after completion of new recruit training; and after each year of service in an operational unit. The personal characteristics and career histories of these soldiers are further described by data extracted from Army administrative files.

For cross-sectional comparison, the research is taking advantage of a semi-annual survey of U.S. Army soldiers. While the semi-annual survey is anonymous, the survey instrument will (for certain of its administrations) include a small number of items constructed for this project. We form a comparison sample by extracting, from all respondents, those soldiers that, at the time of the survey, had been on active duty for one, two, three, or four years. Thus, across the number of years of service completed by the soldiers, the comparison sample covers a four-year term.

Use of both self-report and record data provides certain advantages. The Army's administrative data files are readily accessible and contain data on personnel characteristics, career histories, and retention. When prospectively assembled and integrated, these record data provide the structure for a longitudinal database. The variables in this structure (e.g., civilian education, military job) are also the types of variables that the Army typically studies in its effort to manage attrition. With this structure in place, the time soldiers spend in responding to questionnaires can be used for measuring the variables which are measured best (if not only) through self-reports.

The variables measured by questionnaire have and will continue to vary by the time of survey administration. The variables generally include the attitudes, expectations, and experiences in one's personal life, organizational pursuits (unit and Army), and larger social environment that influence continuance in an activity (or toward a goal). For this project, continuance is construed as a combination of behavioral propensity (intention) and actual behavior in terms of remaining in service. Continuance is regarded as a continuum that, over the period of an initial term, varies from "failure to complete the initial enlistment contract" (attrition), through "successful contract completion", to "reenlistment" with intentions for remaining in service for some subsequent period.

Model development will largely involve the data collected on the FY99 Cohort and will take into account the full continuum of continuance. The model's foundation will be the combination of variables that best predict continuance. Data from the comparison samples will have several roles in model development. The comparison data, for example, will provide direction. Because the comparison data cover a four-year enlistment term, they may identify trends for longitudinal verification. In return, cross-sectional analyses are useful for replication of longitudinal findings and, thereby, for overcoming the limitations of a longitudinal sample composed of only a single cohort. As the longitudinal database progresses, it will also be used to identify and to test/replicate the effectiveness of interventions for managing attrition.

## Progress

While seed efforts were conducted earlier, assembly of the longitudinal database on the FY99 Cohort began in January 1999. Figure 2 displays the methods used and the returns obtained from soldiers at entry into service and after having completed the entry training.

Especially noteworthy from Figure 2 is that about 70% of all soldiers entering active duty during the survey period responded to a questionnaire at entry and/or at the end of training. Also, several other methods were used to collect data on attrition by soldiers during training. For example, soldiers who dropped out of the Army while in training completed a short exit questionnaire to report the factors contributing to (or the reasons for) their attrition. Figure 2 shows that along with surveys, data were extracted from Army administrative files.

Data collection on the FY99 soldiers in operational units began in early 2001. Based on personnel files, the nearly 46,400 FY99 soldiers were grouped according to unit of assignment. In March, about 3,500 unit commanders were mailed packets with guidance for distribution of questionnaires to the individual soldiers in their units. Returns are expected by middle to late April 2001.

The first wave of comparison data was collected in the fall of 2000. For this wave, the comparison sample consists of the soldiers who completed the semi-annual questionnaire and who entered the Army in the following years: 2000, 1999, 1998, and 1997. Across these entry years, these soldiers will have completed about one, two, three, or four years of service. The questionnaire items sought to produce comparative data on service commitment and social influences favoring term completion.

## Findings

Analyses of data on the FY99 Cohort have concentrated on attrition of soldiers as they undergo the training given at service entry (Sipes, Strickland, Laurence, Difazio, & Wetzel, in preparation). Soldiers typically undergo such training for 14 or more weeks. Other analyses (Sipes, Strickland, & Laurence, 2000) have sought to predict changes in propensity for service continuance over the training period.

Findings confirm the importance of medical, physical, and adaptation problems to attrition during entry training. Figure 3, for example, displays results of a content analysis of the responses of soldiers when asked to write in their own words the reason for leaving service. As Figure 3 shows, 48% of the attriting soldiers gave a reason indicating a medical or physical problem. The next most frequent category of reasons captured problems in adjusting to Army life. The data in Figure 4 add that soldiers who dropped out may not have fully realized the importance of medical/physical conditions to success. More specifically, Figure 4 describes the responses of the same soldiers at entry and then again at exit from service. It ranks (in descending order) the proportions

of soldiers who projected at entry that a factor might contribute to their attrition and who indicated at exit that the factor had actually been a contributing factor.<sup>2</sup> At service entry from the Army, "illness/medical condition" ranked seventh in frequency of selection as a contributing factor. In contrast, this factor rose to the most frequently selected factor when the soldiers were actually leaving service. Figure 4 shows the opposite pattern for such external social factors as family problems and homesickness.

Figure 5 describes the same soldiers at entry and then again at the end of entry training. It describes their propensity to stay in the Army beyond the first obligation.<sup>3</sup> Based on Figure 5, these soldiers showed a decline in propensity for service continuance despite their success in training. The decline was associated with both an increase in the risk of attrition and a reduction in intention to stay in the Army after the term of service (TOS). This shift fits with the literature on the adjustment of new members to work organizations.

Multivariate analyses have identified variables that predict attrition and continuance propensity. Figure 6 lists the predictors that added to the prediction of attrition after having accounted for the effects of the types of demographic variables (e.g., education level) used administratively to track attrition and retention rates. Figure 7 displays the factors found to predict continuance propensity. Both figures suggest that a broad array of factors contributes, with this array including but going beyond the types of factors (adaptation and medical/physical) most frequently cited by soldiers for attrition during training.

### Future Directions

Assembly of the database and model development will continue into 2004. As part of data analyses, attention will be given to criterion problems. These problems include the multi-dimensionality of attrition and its frequency of occurrence. Two investigations, conducted within the context of this project, may produce implications for attrition reduction. One effort seeks to capitalize on the peer relationships that develop during entry training. It evaluates the effects on subsequent attrition of assigning soldiers, who trained together, to the same first duty unit. The second investigation may have implications for soldier selection or assignment. It focuses on orientation for teamwork, its measurement and relationship with work group adaptation.

### References

Strickland, W. J. (2000). Designing and planning a comprehensive investigation of enlisted attrition across the first-term life cycle (HumRRO Report FR-WATSD-99-52). Alexandria, VA: Human Resources Research Organization.

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<sup>2</sup> Note that, at both entry and exit, soldiers could have designated more than one factor as a contributing factor.

<sup>3</sup> The data displayed in Figure 5 were formed by combining reported confidence in completing the first term of service and reported career intentions.

Sipes, D.E., Strickland, W.J., Laurence, J.H., Difazio, A.S., & Wetzel E.S. (In preparation). Training base attrition: Analyses and Findings (ARI Research Note). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Sipes, D.E., Strickland, W.J., & Laurence, J.H. (2000). Factors influencing the continuance propensity of IET graduates (HumRRO Report FR-00-38). Alexandria, VA: Human Resources Research Organization.

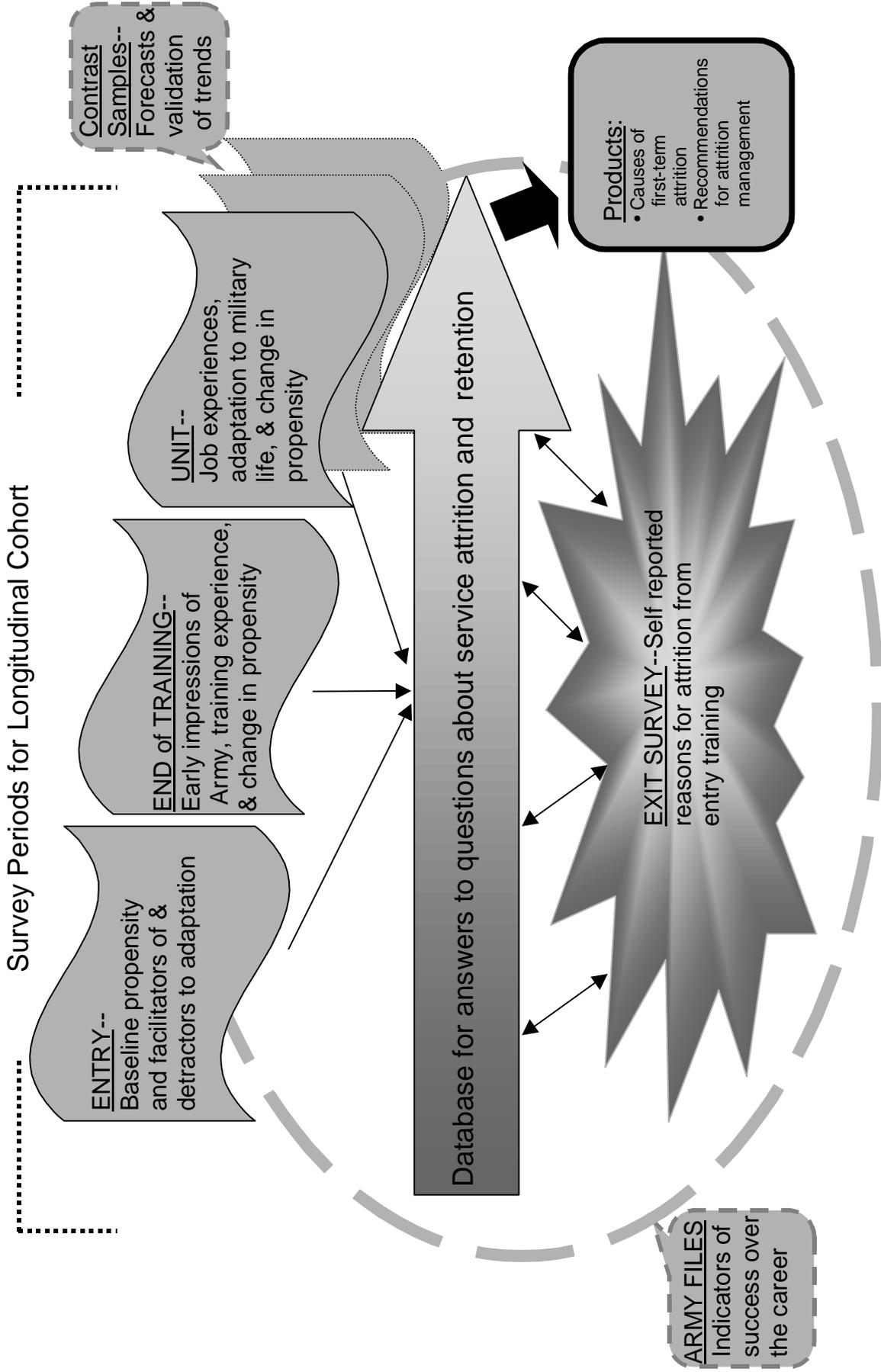
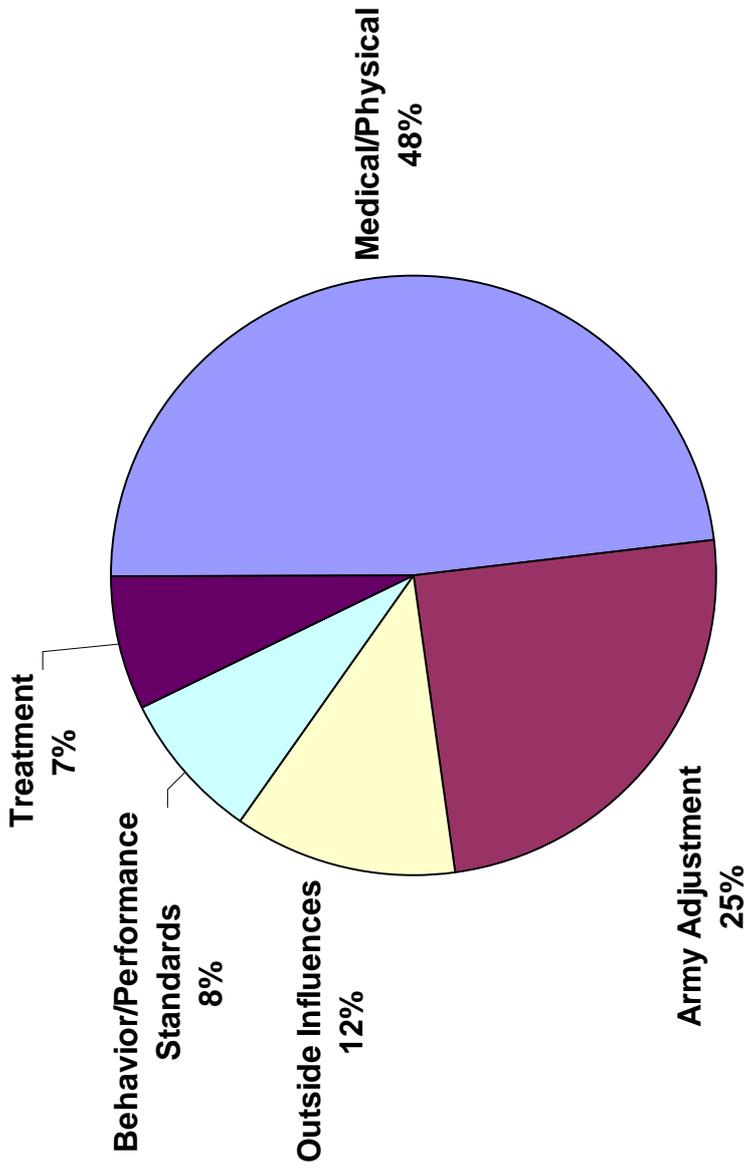


Figure 1. Summary of Project Approach

| Data Collection Method                  | Oct 98 | Nov 98 | Dec 98 | Jan 99 | Feb 99 | Mar 99 | Apr 99 | May 99 | Jun 99 | Jul 99      | Aug 99 | Sep 99 | Oct 99 | Nov 99 | Dec 99                 |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------------|--------|--------|--------|--------|------------------------|
| Administrative Files (DMDC, EMF, ATRRS) |        |        |        |        |        |        |        |        |        |             |        | 63,938 |        |        |                        |
| Drill Sgt. Ratings                      |        |        |        |        |        |        |        |        |        |             | 2,188  |        |        |        |                        |
| Separation Folders                      |        |        |        |        |        |        |        |        |        |             |        |        |        |        | 6,092                  |
| Entry Survey                            |        |        |        |        |        |        |        |        |        |             | 29,004 |        |        |        |                        |
| End Training Survey                     |        |        |        |        |        |        |        |        |        | BCT 22,015; |        |        |        |        | AIT 10,382; OSUT 6,868 |
| Exit Survey                             |        |        |        |        |        |        |        |        |        |             |        |        |        |        | 4,360                  |

Note--Shaded areas indicate months during which data collection occurred. Numbers are the numbers of soldiers sampled by each method and with SSNs matched in the DMDC FY99 Cohort File. **From mid-January through August 1999, 70% of all incoming accessions were surveyed. During the period of overlap of the exit survey and administrative data (April-December), 64% of all departing cohort members were surveyed.**

Figure 2. Data Collection Methods & Timeline for FY99 Cohort at Entry and at End of Training



Note--Percents, by reason category, of soldiers exiting the training-base and giving a reason in each category.

Figure 3. Reasons for Training-Base Attrition by FY99 Soldiers

| <u>Reason</u>                        | <u>Projection at Entry</u> | <u>Endorsement at Exit</u> |
|--------------------------------------|----------------------------|----------------------------|
| <b>Family problems</b>               | <b>1</b>                   | <b>6</b>                   |
| Adjusting to Army life               | 2                          | 2                          |
| <b>Injuries in training</b>          | <b>3</b>                   | <b>5</b>                   |
| <b>Homesickness</b>                  | <b>4</b>                   | <b>9</b>                   |
| <b>Meeting physical requirements</b> | <b>5</b>                   | <b>4</b>                   |
| Getting desired military job         | 6                          | 11                         |
| <b>Illness/Medical condition</b>     | <b>7</b>                   | <b>1</b>                   |
| <b>Outside job opportunities</b>     | <b>8</b>                   | <b>3</b>                   |
| Motivation; boredom                  | 9                          | 7                          |
| Problems with supervisors            | 10                         | 12                         |

Figure 4. Rank Order (Descending) of Percents of Soldiers Selecting Factors as Reasons for Attrition

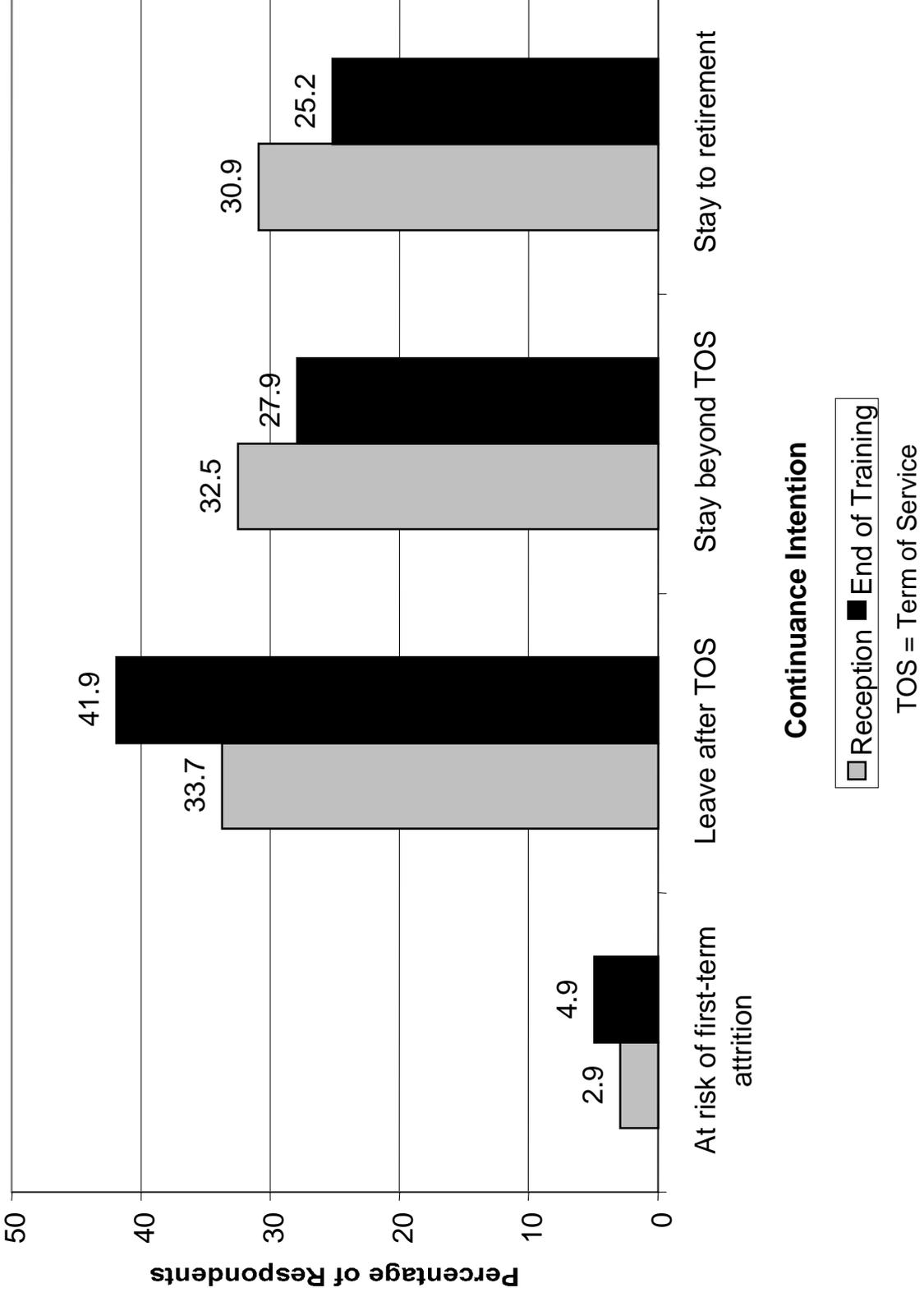


Figure 5. Change in Propensity between Service Entry and End of Initial Training

### Background Characteristics

- Got into trouble in high school
- Pre-enlistment physical injuries
- Married, divorced vs. single
- Thoughts about quitting high school
- Medical advice to avoid exercise
- No dependent children

### Beliefs/Opinions

- Low self confidence
- High stress & low morale
- Felt enlistment was a mistake

Figure 6. Significant Predictors of Training-Base Attrition (in addition to the demographic characteristics often tracked for administrative purposes)

**Soldiers with stronger continuance propensity were:**

**Demographic Characteristics**

Older

Less highly educated

Higher entry pay grade

Required medical waiver at entry

**Pre-enlistment History**

Fewer physical injuries before joining Army

Higher fitness before joining Army

Had a military parent

Participated in high school clubs

Not planning to attend college

**Experiences in Initial Entry Training**

Realistic expectations of Army life

Improvement in self-rated health

Satisfaction with training

Expectations of Army life exceeded

Figure 7. Significant Predictors of Change in Continuance Propensity