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Does Contingent Self-esteem Increase During Higher Education?

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Contingent self-esteem has been identified as a marker of psychological vulnerability. The assumption that contingent self-esteem is influenced by socialization processes was examined in a prospective national cohort study of 1,220 Swedish nursing students during their three-year education. Contingent self-esteem was annually assessed by a measure of performance-based self-esteem. Mean levels of performance-based self-esteem increased from the first to the later years of education, and the increase over one year was greater for the nursing students than for a matched group of work employees. These data suggest that participation in higher education could be associated with increased contingent self-esteem. The findings also introduce questions about whether investment in a professional role may foster vulnerability, thereby raising issues for the social investment principle.

Keywords: Self-worth; Self-esteem; Motivation/goal setting; Adult personality development; Educational psychology.

Contingent self-esteem, a qualitative aspect of self-esteem (Crocker & Luhtanen, 2003; Kernis & Goldman, 2006), refers to how self-esteem is based and construed. Self-esteem is said to be contingent if it is dependent on meeting particular conditions and standards within or across various arenas. Contingent self-esteem is a rather stable orientation, and studies have demonstrated quite negative consequences from having high contingent self-esteem in terms of learning, autonomy and health (Crocker & Park, 2004; Dweck, 1999; Dykman, 1998).

Studies of contingent self-esteem have often been carried out using the contingencies of self-worth (CSW) model (Crocker, 2002; Crocker & Wolfe, 2001), which describes various merits as possible sources of self-esteem (Kwan, Kuang, & Hui, 2009). According to this model, people are assumed to differ in merit domains in which self-esteem is founded. In addition to this intraindividual view of contingent self-esteem, interindividual perspectives have been presented (Deci & Ryan, 1995; Kernis, 2003), postulating rather stable individual differences in general contingent self-esteem. In their self-determination theory, Deci and Ryan describe contingent self-esteem as a sense of perceived worth, based on meeting certain introjected external standards that results in non-autonomous motivation. They presume that contingent self-esteem follows from conditional regard from significant others or
from obstructions of genuine needs for competence, autonomy, and relatedness. Had these genuine needs been satisfied, true or non-contingent self-esteem would have arisen. Kernis (2003) made a similar distinction between what he called contingent and optimal self-esteem.

Scholars have questioned whether true or optimal self-esteem exists and have contended that all self-esteem is contingent on interpersonal processes and feedback (Greenberg, 2008; Leary, 2004), but they do not dispute that individuals differ in contingent self-esteem. Although researchers deviate in their perspectives on contingent self-esteem, they agree that social conditions can influence contingent self-esteem. Nonetheless, whether contingent self-esteem is influenced by natural social settings and activities, such as higher education, has not been examined. This question was explored in the present study of a national cohort of nursing students.

### Performance-based Self-esteem

Even though people differ in the domain-related contingencies they must meet to have self-esteem, these self-esteem contingencies tend to be positively related to each other (Crocker, Luhtanen, Cooper, & Bouvrette, 2003). Contingent self-esteem from an interindividual perspective may then be captured by an overall score or by a single scale for general contingent self-esteem (Burwell & Shirk, 2006; Neighbors, Larimer, Geisner, & Knee, 2004; Patrick, Neighbors, & Knee, 2004). A rather extensively used instrument in Sweden and Scandinavia for assessing general self-esteem contingency is a scale for Performance-Based Self-Esteem (PBSE; Hallsten, Josephson, & Torgén, 2005). The PBSE scale has been used in studies with large and nationally representative samples, jointly involving over 20,000 individuals. PBSE refers to a compelling motive or orientation to gain or maintain self-esteem through good performance in roles or arenas of importance for self-esteem. The PBSE concept was developed to understand burnout processes (Hallsten, 2005; Hallsten et al., 2005) and adaptations to tensions produced by the increasing competition and uncertainty in modern Western organizations and societies (Bauman, 2000).

PBSE has been associated with demographic variables and with work conditions, global self-esteem and mental health (Hallsten et al., 2005). Younger people have shown higher PBSE levels than older ones, and women have tended to have somewhat higher PBSE levels than men. In a national population study of burnout (Hallsten, Bellaagh, & Gustafsson, 2002), students were found to have higher PBSE scores than employees on the labor market, and in two nationally representative occupational samples, PBSE was clearly higher among participants with an academic education than among those with lower education (Hallsten et al., 2005). High levels of PBSE have also been observed among medical students (Dahlin, Joneborg, & Runeson, 2007), for whom PBSE was predictive of later psychiatric ill health (Dahlin, 2007). Similarly, PBSE has been found to be an independent and prospective predictor of various ill-health-related indicators such as cognitive stress symptoms (Albertsen, Rugulies, Garde, & Burr, 2010), work/home conflict (Innstrand, Langballe, Espnes, Aasland, & Falkum, 2010), sickness presenteeism (Löve, Grimby-Ekman, Eklöf, Hagberg, & Dellve, in press) and long-term sickness absence (Hallsten, Voss, Stark, Josephson, & Vingård, in press). Longitudinal data over one year from a national population sample of Swedes aged 18 to 64 years have shown a minor decrease in PBSE, the extent of which was similar among men and women, and among younger and older participants (Hallsten et al., 2005).
The relation between PBSE and a modified CSW scale (Crocker & Wolfe, 2001) has been examined in a sample of 208 Swedish teachers (Lindblad, 2003). Initial interviews had indicated that self-esteem among adult Swedes was not contingent on the CSW dimensions of God’s love, family support and school competence. However, another dimension, autonomy, did seem to be relevant. Accordingly, a modified CSW scale was constructed where the dimension of autonomy was added to the original CSW scale, while God’s love and family support were excluded. Furthermore, school competence was replaced by general competence, which together with competition formed a single competence dimension. For the teacher sample, PBSE correlated positively with the external dimensions of this modified CSW scale (Approval from others $r = .49$; Competence $r = .32$; Physical appearance $r = .19$), while PBSE was uncorrelated with Virtue ($r = .08$) and Autonomy ($r = .02$).

PBSE is supposed to be high when self-esteem is perceived to be at stake. This assumption was supported in a Swedish population sample, as PBSE was found to be negatively related to global self-esteem ($r = -.38$) and positively related to unfavorable environmental conditions and to poor mental health (Hallsten et al., 2005). The rank-order stability for PBSE for the total sample over one year was on a level ($r = .68$) comparable with global self-esteem ($r = .71$) and with what has been found for personality traits from the Big Five model (Casi, Roberts, & Shiner, 2005; Roberts, Caspi, & Moffitt, 2001). This suggests that PBSE is a rather stable individual-difference concept.

Socialization Processes and Contingent Self-esteem

Both Deci and Ryan (Deci & Ryan, 1985; Ryan & Deci, 2005) and Crocker and Park (Crocker & Park, 2003) have suggested that contingent self-esteem evolves as an unintended side effect from socialization processes. While this suggestion appears reasonable, a question of particular interest is whether this socialization assumption also should be valid for the socialization that occurs during higher and professional education. Higher and professional educations usually take place during young adulthood, when quite gainful trends of the Big Five personality traits and global self-esteem have been observed (Roberts, Walton, & Viechtbauer, 2006). As part of their work on social investment (Roberts, Wood, & Smith, 2005), Roberts and colleagues have presumed that investment in social roles, such as work and family roles, is a driving mechanism for personality development towards maturity. In fact, actual investment in such social roles may not actually be necessary; college students have shown positive maturity trends (Roberts et al., 2005), and mere adoption of relevant role expectations seems sufficient. These trends towards maturity during young adulthood might justify an assumption that vulnerable individual-difference concepts, such as contingent self-esteem, would decrease during higher education.

Higher and professional educations offer students opportunities to develop their academic/professional competence, commitment and identity. Ordinarily, however, higher and professional educations are explicit social influence and socialization contexts (Kelman, 2006), where the students are placed in externally controlled roles with limited autonomy, at least compared to ordinary work roles. The students are presented with a number of ideals and standards, which they have to adopt and meet to manage their future academic/professional roles, and their performances and aptitudes are recurrently evaluated. Such controlling environments may promote not only role involvement but also ego involvement (Robins & Pals, 2002). Some students introject these standards as contingencies for their self-worth, probably as
they have become attentive to how students’ achievements and performances tend to entail trait-like feedback and assessment of their personal qualities and worth. Thus, from the perspectives of contingencies of self-worth (Crocker & Wolfe, 2001) and self-determination theory (Deci & Ryan, 2000), higher education can be regarded as a setting that could increase the risk for elevated contingent self-esteem.

**Aims and Hypotheses**

In the present three-wave study we examined patterns of contingent self-esteem (as assessed by PBSE) among a national cohort of Swedish nursing students. These students started their three-year professional training during the spring semester of 2002. The main objective was to examine the mean-level changes in PBSE from the first to the later years of education and to relate the PBSE trajectories to age and gender. Another objective was to compare the mean PBSE change over one year for these students with the corresponding change for a matched group of work employees.

Higher and professional educations are transition periods that entail great socialization pressures, perhaps to a higher degree than work does. Accordingly, we first hypothesized that professional nursing education would be associated with increases in PBSE from: (a) the first to the second year; and (b) from the first to the third year of education for the nursing students. We called this the **mean-level increase hypothesis** or H1. Second, we hypothesized that the PBSE increases over one year would be greater for the students than for the matched reference group of work employees. We called this the **higher education effect hypothesis** or H2.

**Methods**

The present study was conducted as part of the Longitudinal Analyses of Nursing Education (LANE) Study (Rudman, Omne-Pontén, Wallin, & Gustavsson, 2010), which started in 2002. The background for the project was that registered nurses had reported high levels of work-strain and shown an over-risk of long-term sickness absence. A nationwide study was initiated in Sweden in 2002 to examine individual and work-related variables related to mental ill health and well-being among nurses. Three study cohorts were created to be annually surveyed over six years. The present study follows the cohort of students that was expected to graduate in 2004, the Graduate 2004 cohort, which was the only cohort that was monitored throughout the years of education. A matched comparison group of employees was derived from a Swedish population sample (Hallsten et al., 2005). The LANE study has been approved by the Ethics Committee at Karolinska Institutet, Stockholm.

**Study Population and Recruitment of Students**

In Sweden today there are approximately 130,000 registered nurses under 65 years of age. In recent years around 2,000 nursing students per semester have started their three-year full-time education at 26 universities, each of which runs a general nursing program with competitive admission policies. The program contains both theoretical education and clinical practice. When the nursing students graduate, they can apply to become Registered Nurses in Sweden.
The original study population or sampling frame for the Graduate 2004 cohort consisted of all nursing students who started their education during the spring semester of 2002 at the 26 universities. These universities were invited to take part in the study, and nearly all of them agreed to participate and provide home addresses for the students. Two universities, however, did not want to hand out the addresses without personal participation agreements from the students. As this requirement made the sampling frame vague, the actual sampling frame for the Graduate 2004 cohort comprised the 2,281 students at the universities where agreement was given. A majority of the students in this sampling frame were female (88%). The average age was 28.4 years, and 51% were below 27 years.

Baseline questionnaires were sent to the 2,281 nursing students, who were in their second educational semester during 2002. The questionnaire included data on variables such as present stressors, general health, illness symptoms, burnout, performance-based self-esteem, planned nursing specialty and demographic data. Up to two reminders were sent to those students who did not return the questionnaire or did not state that they refused to participate in the study. The response rate was 73%, as the baseline questionnaire was returned by 1,652 students, 1,472 (89%) females and 180 (11%) males. Consequently, males were marginally under-represented in the study sample. Fifty-two percent of this sample were below 27 years. Age was not significantly related to the baseline response rate.

A year later, during the fourth semester, and two years later during the sixth semester, a questionnaire with a similar content was sent to all in the study group, whether they had filled in their baseline questionnaire or not. A total of 1,334 nursing students returned all three questionnaires, and 1,222 of these respondents had complete PBSE data from all three data waves. The study sample then consisted of 1,220 nursing students who met the inclusion criteria of complete data on PBSE, age and gender. This sample amounted to 53% of the study population and to 91% of the students who returned all three questionnaires.

A matched group of employees was created from the Swedish population sample (see Hallsten et al., 2005, for details) for whom PBSE was assessed in 2000 and in 2001. People with a completed secondary education and who were employed at work in these two years were initially selected as a comparison group. This group consisted of 364 persons (182 women and 182 men). To provide an age- and gender-matched work employee group comparable with the nursing students, a bootstrap resampling scheme (Henderson, 2005) was followed. Five hundred samples, each consisting of 115 employees, were drawn from the initial comparison group of 364 persons. For each of these samples it was specified that the median age should be 27 years and that 89% of the sample should be females. The means and standard deviations for PBSE at t1, t2 and of the paired t1–t2 differences were computed for each of the 500 samples. Comparisons with the nursing student group used the means of these 500 sample means and the means of the 500 standard deviations for PBSE at t1, t2 and of the paired t1–t2 differences.

**Variables**

*Performance-based self-esteem.* The PBSE scale includes items on cognitions related to general contingent self-esteem such as contingency and imperative beliefs and ego-oriented motives without references to any specific domains (Hallsten et al., 2005). The PBSE scale consists of the following four items: “I think that I sometimes try to prove my worth by being competent”; “My self-esteem is far too dependent on
my daily achievements”; “At times, I have to be better than others to be good enough myself”; and “Occasionally I feel obsessed with accomplishing something of value”, with a response format from 1 (fully disagree) to 5 (fully agree). The arithmetic mean of the responses to these items formed the PBSE score for each individual. The PBSE scale has good psychometric qualities and has shown convergent validity (Hallsten et al., 2005). The alpha levels were .83, .82 and .84 in the three measurement waves for the present student sample.

Age group and gender were two independent variables in the study. The student age range in 2002 ran from 20 to 52 years. The age distribution was positively skewed, with 10% of the sample being 40 years or older. Age in 2002 was dichotomized in two classes at the median age of 27 years. Students younger than 27 years were categorized into the younger age group (n = 611), while students 27 years or older were categorized into the older one (n = 609). The median age was 23 years (quartile range: 21–24 years) for the younger group and 34 years (quartile range: 30–38 years) for the older age group. Females made up the vast majority of the sample (n = 1,083); only 11% (n = 137) were males. Male and female students did not differ over the age groups, $\chi^2(1) = 2.31, p = .130$.

### Statistical Analyses

A univariate repeated-measures analysis of variance (rANOVA) was first conducted to assess the overall within-group changes in PBSE for the nursing students over the three years of education to test the mean-level increase hypothesis (H1). In this main “time” analysis two specific within-group contrasts were also obtained, which examined the mean PBSE changes between the first and the second year and between the first and the third year of education. A multivariate rANOVA also tested whether the gender and age groups showed different PBSE trends over time. This was indicated by two two-way interaction effects (Time × Age group; Time × Gender) and by one three-way interaction effect (Time × Age group × Gender). In addition, between-subjects effects in terms of Age group and Gender influences on PBSE over the years of education were examined within the multivariate rANOVA. The rank-order stabilities of PBSE over the years of education for the total sample were computed by Pearson test–retest correlations. As a bootstrap procedure was utilized to derive the matched work employee group data, an independent t-test was carried out to test the higher education effect hypothesis (H2). An alpha level of $p < .05$ was generally applied, and eta-squares ($\eta^2$) were calculated as effect-size indices for the within-group changes in PBSE. The statistical analyses were performed with SPSS 17.0.

### Results

#### Descriptive Data for the Students

The mean PBSE scores from the first, second and third years of education for the total student sample and for age and gender groups are presented in Table 1. For all groups the PBSE levels were higher in the second and third year as compared with the baseline levels in the first year. For the older age group and for female students, the mean PBSE score in the third year of education was slightly lower than in the second year. The mean PBSE score for the total group at the first assessment
\(M = 3.14\) can be compared with the corresponding mean from the non-matched Swedish population sample \((N = 3,525)\) in the year 2000, for whom the mean PBSE score was 2.74 \((SD = 1.10; \text{Hallsten et al., 2002})\). The rank-order stability coefficients for PBSE over one year were \(r(12) = .66\) and \(r(23) = .70\) for the students, while the stability over two years was \(r(13) = .63\).

The between-subjects effects in the multivariate rANOVA over the three data waves for the nursing students showed both a significant Age and Gender effect, as shown in Table 2. The gender-adjusted differences between the PBSE scores for the

**TABLE 1**  Mean PBSE Scores and Standard Deviations During the Three Years of Education for the Total Student Sample and for the Age and Gender Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Sample size</th>
<th>First educational year (baseline)</th>
<th>Second educational year</th>
<th>Third educational year</th>
<th>Aggregated scores</th>
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<td></td>
<td></td>
<td>M  SD</td>
<td>M  SD</td>
<td>M  SD</td>
<td>M  SD</td>
</tr>
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<td>Total student sample</td>
<td>1220</td>
<td>3.14 0.91</td>
<td>3.37 0.89</td>
<td>3.32 0.90</td>
<td>3.28 0.79</td>
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<td>Younger students (≤27 years)</td>
<td>611</td>
<td>3.20 0.87</td>
<td>3.48 0.87</td>
<td>3.47 0.85</td>
<td>3.38 0.74</td>
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<td>Older students (≥27 years)</td>
<td>609</td>
<td>3.08 0.94</td>
<td>3.27 0.91</td>
<td>3.18 0.92</td>
<td>3.18 0.83</td>
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<td>Female students</td>
<td>1083</td>
<td>3.16 0.91</td>
<td>3.40 0.89</td>
<td>3.34 0.91</td>
<td>3.30 0.80</td>
</tr>
<tr>
<td>Male students</td>
<td>137</td>
<td>3.01 0.85</td>
<td>3.17 0.87</td>
<td>3.20 0.81</td>
<td>3.13 0.74</td>
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</table>

**TABLE 2**  Outcomes from a Multivariate rANOVA of the PBSE Scores for the Nursing Students at the Three Years of Education with Degrees of Freedom (df), F-ratios (F), Effect Sizes (\(\eta^2\)) and Significance Levels (p).

<table>
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<th>F</th>
<th>(\eta^2)</th>
<th>p</th>
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<td>.001</td>
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<td>Gender</td>
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<td>6.73</td>
<td>.006</td>
<td>.010</td>
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<td>Age group × gender</td>
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<td>0.20</td>
<td>.000</td>
<td>.659</td>
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<td>Error</td>
<td>1216</td>
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<tr>
<td><strong>Within-subjects effects</strong></td>
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<td>Time</td>
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<td>.018</td>
<td>.001</td>
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<tr>
<td>Time × age group</td>
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<td>4.76</td>
<td>.004</td>
<td>.009</td>
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<tr>
<td>Time × gender</td>
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<td>0.91</td>
<td>.001</td>
<td>.403</td>
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<tr>
<td>Time × age group × gender</td>
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<td>0.59</td>
<td>.000</td>
<td>.557</td>
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<tr>
<td>Error</td>
<td>2432</td>
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younger and older student groups were significant in the second and in the third year, $F(1, 1216) = 11.25, p = .001$; $F(1, 1216) = 14.94, p < .001$, respectively, but not in the first year, $F(1, 1216) = 2.00, p = .158$. These age-related differences were not caused by an artificial dichotomization of the age variable, as age showed a significant negative linear relationship to PBSE in each year. The age-adjusted PBSE scores for the female students were marginally higher at baseline than for the male students, $F(1, 1216) = 3.62, p = .057$. In the second and third year, female students had higher age-adjusted mean PBSE scores than male students, $F(1, 1216) = 8.65, p = .003$; $F(1, 1216) = 4.06, p = .044$, respectively. As indicated by the insignificant interaction effect, the gender difference in PBSE was independent of age group.

Mean-level Changes for the Nursing Students

The first hypothesis (H1) from the socialization assumption concerned the within-subjects changes in PBSE scores over the years of education. It was predicted that the nursing students would show a normative increase in the mean level of PBSE from the first to the later years of education. These predictions were tested by univariate and multivariate rANOVAs with Age group and Gender as between-subjects factors.

The univariate rANOVA showed an overall within-subjects main effect of Time, $F(2, 2438) = 67.79, p < .001, \eta^2 = .053$. The within-subjects contrasts revealed that the PBSE scores increased from baseline to the second year, $F(1, 1219) = 120.16, p < .001, \eta^2 = .090$, and from baseline to the third year, $F(1, 1219) = 68.70, p < .001, \eta^2 = .053$, providing support for the mean-level increase hypothesis (H1).

The multivariate rANOVA also demonstrated a significant within-subjects main effect of Time, as shown in Table 2. An interaction effect between Time and Age group was found, meaning that the within-subject changes were different for the younger and older nursing student groups. Subsequent analyses of the PBSE changes between baseline and the second year (t1–t2) and between baseline and the third year (t1–t3) indicated that the gender-adjusted t1–t2, $F(1, 1216) = 5.26, p = .022, \eta^2 = .004$, and t1–t3 changes, $F(1, 1216) = 7.78, p = .005, \eta^2 = .012$, in PBSE were larger for the younger students than for the older ones. However, there were no differential trends for the younger and older group between the second and the third year, $F(1, 1216) = .43, p = .514, \eta^2 = .000$. The other interaction effects with time were not significant, neither for male and female students (Time × Gender) nor for men and women over different age groups (Time × Age group × Gender).

The Higher Education Effect

The second hypothesis from the socialization assumption, the higher education effect hypothesis (H2), stated that the mean PBSE level would increase more from year 1 to year 2 for the nursing students than for the matched group of work employees. The estimated PBSE means for the matched employee group ($n = 115$) showed, in contrast to the students, a slight decrease from 3.04 (95% CI: 2.92–3.16; $SD = 1.05$) at t1 to 3.00 (95% CI: 2.88–3.12; $SD = 1.06$) at t2. There was no difference between the nursing students and the matched employee group at t1, $t(1333) = 0.99, p > .05$. The mean intraindividual increase in PBSE from t1 to t2 was, however, significantly higher for the nursing students than for the matched employee group, $t(1333) = 3.06, p < .001, \eta^2 = .007$, in line with the predicted higher education effect (H2).
Drop-out Analyses

The initial drop-out bias from the nurse population to the nurse sample with regard to age group and gender seemed negligible, as noted in the method section. A further desirable data property to avoid interpretational difficulties from rANOVA is that the attrition of participants should not be related to the initial level of the dependent variable. The study sample and a group of students that dropped out after the first assessment were compared with respect to baseline PBSE levels. The attrition group of 419 students, with complete PBSE and background data from the first wave but lacking PBSE data from the second or third waves, was compared with the study sample of 1,220 students in terms of their mean PBSE levels at baseline, and no differences were observed. This suggests that the study sample was representative for the all students with complete PBSE data at baseline. Gender was not related to the drop out in the later measurement waves, \( t(1637) = 0.82, p = .412 \), which, however, was the case for age group. The attrition was higher for the younger group than for the older group, \( t(1637) = 2.04, p = .041 \), and students in the attrition group were on average one year younger than those in the study sample. This drop-out bias should not be ignored, but it was probably of minor importance. For instance, when this attrition group was added to the total sample, the mean PBSE score at baseline only rose to 3.16 (\( SD = 0.91 \)) from \( M = 3.14 (SD = 0.91) \). A drop-out bias for the matched employee group could not be assessed, as the matching partly relied on data from the second data wave, but people with a completed secondary education who were employed at baseline (\( n = 415 \)) showed a similar attrition pattern to that of the nursing students. The mean PBSE level for the drop-out employees to the second data wave did not differ from that of the non-attrition employees, \( t(413) = 0.80, p = .430 \). Attrition was slightly higher for employees younger than 27 years than for those of 27 years and older, \( t(413) = 2.16, p = .031 \).

Discussion

Contingent self-esteem has been shown to be a vulnerable orientation that often has been used as a predictor of various aversive outcomes such as stress, ill health and learning difficulties. In the present study, however, contingent self-esteem was treated as an outcome variable. We examined how an indicator of general contingent self-esteem, PBSE, shifted during a common life episode, professional nursing education.

First, it can be noted that several outcomes were in agreement with findings from earlier studies of PBSE. The rank-order stabilities of PBSE for the students were on a level similar to the ones found for global self-esteem and for personality constructs from the Big Five family for persons in young adulthood (Trzesniewski, Robins, Roberts, & Caspi, 2003). Moreover, elevated PBSE levels for students were again demonstrated, in that the nursing students had a higher mean level of PBSE than the Swedish population in general (Hallsten et al., 2005). The age and gender differences found in this population study were also observed among the nursing students. Younger students had a higher PBSE level than older students, and female students had a higher PBSE level than male students.

Mean-level changes for PBSE over the three-year higher-education nursing program constituted the main issue in the study. Based on the presumed socialization pressures during higher education, it was hypothesized that participation in nursing education would be associated with an increase in general contingent self-esteem. Results supported this hypothesis. The mean PBSE level increased from the first to
the later years of education for the nursing students, and the increase was greater between the first two assessments one year apart for the nursing students than for the matched group of work employees. How long lasting these increases may be, and whether to expect the normative PBSE trajectory to increase, decrease or plateau during the later years of education are difficult questions to answer because of lacking theoretical guidelines. In the present study, a complementary multivariate rANOVA of the PBSE changes between the second and the third year of education did not reveal any significant main or interactive within-subjects changes, indicating that the normative PBSE trend had reached a more or less temporary plateau during the later years of education. At any rate, the anticipated increase in connection with a common age-related life experience, higher education, in concert with earlier PBSE data showing age-related decreases (Hallsten, 2005), suggests that contingent self-esteem as measured by PBSE may be appropriately conceived as a developmental construct. This would be justified on the same grounds as those used for regarding global self-esteem as a developmental construct: the demonstration of systematic and comprehensible normative changes across the life span (Trzesniewski et al., 2003).

The mean-level increases in PBSE were greater for the younger students, and obviously, not all nursing students showed an increase from the first to the later years of education. To examine the randomness of the changes, reliable change indices were computed (cf. Roberts et al., 2001). If the simple measurement unreliability for the PBSE scale can be assumed to be .10, a substantial minority, 17%, of the students displayed a reliable (95%) increase, whereas 6% showed a reliable decrease between the first two years. These mean-level increases and the higher-education effect lend some credibility to the idea that the high PBSE scores earlier observed for well-educated participants (Hallsten, 2005; Hallsten et al., 2005) were partly consequences of exposure to higher-education contexts. As no other studies have examined how contingent self-esteem develops during higher education, further studies are highly desirable to substantiate the present findings.

A noteworthy outcome was the differential PBSE trends in the younger and older nursing students. Although both groups increased their PBSE scores from the first to the third year, the younger and the older groups became more dissimilar in terms of PBSE in the third year than they had been at the beginning of their education. This appears to be a rare socialization effect, but it illustrates that age may moderate the meaning and impact of events (Roberts & Pomerantz, 2004). The deviating age-related trends may be an expression of the tendency for older persons to perform social duties and roles with greater autonomy than younger persons (Sheldon, Kasser, Houser-Marko, Jones, & Turban, 2005). These differential trends also suggest that the normative increases in PBSE might have been greater if the nursing students had been as young as ordinary college students in Western countries.

Vulnerability, Maturity and Investment in Social Roles

The mean-level increases in general contingent self-esteem during professional nursing training are of particular interest in relation to personality processes. Current findings indicate changes towards psychological maturity over the age span, and this trend seems to be especially discernible during young adulthood, when higher education usually takes place. The present study found that a vulnerable motive, PBSE, increased among a group of nursing students. Questions then arise about whether this means that the nursing students developed an all-encompassing
vulnerability, or if the increase in PBSE was restricted and balanced by a simultaneous growth in maturity.

In general, it can be maintained that a normative increase for a group in vulnerability does not preclude a concurrent normative increase in maturity for the group. Vulnerability and maturity are not contradictory concepts, and each of them may involve different measures. Yet, a more specific reason for not excluding simultaneous increases in contingent self-esteem and in maturity indicators, such as the Big Five personality dimensions, is that deviating developmental trends can be expected for different motivational constructs. The Big Five personality dimensions have been interpreted as different dispositional motives activated by certain classes of environmental stimuli (Denissen & Penke, 2008), and dissimilar normative changes have been found for life goals and the Big Five personality dimensions among young adults (Ludtke, Trautwein, & Husemann, 2009; Roberts, O'Donnell, & Robins, 2004). Thus, it is quite conceivable that contingent self-esteem, with its rather special motivational origin, may display a different normative trend compared with common personality traits, which may not be triggered similarly by the socialization influences during higher education.

Though it is difficult to determine if the normative PBSE trends signify increases in a broad or circumscribed vulnerability among the nursing students, the PBSE outcomes appear to raise an issue for the social investment principle (Roberts et al., 2005): Why would participation in a nursing program be related to an increase in vulnerability among the nursing students? One potential explanation is that a majority of the students became aware of the expectations of the nurse role and developed a commitment to it, especially as they also participated in extensive clinical training. If that were the explanation, then why should an adoption of relevant role expectations and initial investments in the nurse role be associated with increased vulnerability? According to the social investment principle, maturity gains should rather occur as long as commitment is made to a self-definitional work role that has been introjected into one's identity (Lodi-Smith & Roberts, 2007). Such immersed commitment may, however, also be expressive of ego involvement and contingent self-esteem (Deci & Ryan, 1995; Sanchez & Crocker, 2005). The social investment principle seems to need a widened scope, one that can clarify under what circumstances engagement and investment in a social role can shape it into a self-definitional one that produces contingent self-esteem.

Study Limitations

The present study of nursing students had a number of strengths. To the best of our knowledge, it is the first large-scale study to examine shifts in contingent self-esteem during higher education. A large national cohort of all first-year nursing students in Sweden was followed throughout their education with three data waves for PBSE. Furthermore, comparisons could be carried out with data from a matched work employee group.

However, the study also presented several limitations. One such limitation was that no comparative student groups were accessible; another was that data from only two data waves were available for the matched employee group. Individual differences in contingent self-esteem change could also complement the normative change data to provide a more thorough understanding of the evolvement of contingent self-esteem, as has been done for various traits during young adulthood (Vaidya et al., 2008). Another caveat was the lack of longitudinal
data for global self-esteem. The data also could not clarify the exact reasons behind age differences in PBSE; but this is an intricate question that warrants an examination of its own.

Future studies should explore the contributing personal and educational factors to the normative increases in PBSE, comparing these trends with those for domain-specific self-esteem contingencies (Crocker & Wolfe, 2001) during higher education. Over the long term, possible normative changes in PBSE for the nursing students after their entry to the labor market can be examined using data from the LANE study.

References


