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# Social Competence Versus Negative Symptoms as Predictors of Real World Social Functioning in Schizophrenia

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## Abstract

Deficits in real world social functioning are common in people with schizophrenia and the treatment of social skills deficits has been a long-time treatment strategy. However, negative (i.e., deficit) symptoms also appear to contribute to real-world social dysfunction. In this study, we combined data from three separate studies of people with schizophrenia (total n=561) who were assessed with identical methods. We examined the prediction of real-world social functioning, rated by high contact clinicians, and compared the influence of negative symptoms and social skills measured with performance-based methods on these outcomes. Negative symptom severity accounted for 20% of the variance in real-world social functioning, with social skills adding an incremental 2%. This 2% variance contribution was the same when social skills were forced into a regression model prior to negative symptom severity. When we examined individual negative symptoms, prediction of real-world social functioning increased to 28%, with active and passive



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Conflict Of Interest Statement.
Dr. Harvey has received consulting fees from Abbvie, Boehringer Ingelheim, Forum Pharmaceuticals, Genentech, Lundbeck, Otsuka America, Roche Parma, Sunovion Pharma, and Takeda Pharma during the past year.

Contributions of the Authors.
Drs. Bowie, Harvey, and Patterson designed the overall studies and obtained funding. Ms. Robertson and Dr. Prestia conceptualized and conducted the current analyses and wrote the first draft of the paper. Dr. Harvey provided scientific oversight throughout the project and edited the manuscript. Drs. Bowie, Patterson, and Twamley provided detailed comments to the paper across several drafts of the manuscript.

social avoidance entering the equation. Adding depression into the predictor model improved the prediction of real-world social functioning significantly, but minimally (4% variance). Social skills contribute to real-world social outcomes, but treating negative symptoms appears to be a possible path for improving real-world social functioning in this population.

**Keywords**

Schizophrenia; Negative Symptoms; Social Competence; Social Functioning

## Introduction

Severe deficits in real-world social functioning are a central feature of schizophrenia. Treatment attempts have focused on social skills deficits, with social skills training being a long-time intervention effort. Social skills training has aimed at increasing the capability to interact with others in a variety of group and individual formats. However, the influences of other aspects of schizophrenia, particularly negative symptoms, on real-world social functioning is likely important. For instance, the “deficit syndrome” is associated with substantial social deficits. This concept is interpreted as being a separate condition within the schizophrenia spectrum (Carpenter et al., 1988) that is not associated factors as medication side effects, depression and psychotic confusion (Carpenter et al., 1999), but is marked by primary negative symptoms. “ These symptoms (anhedonia, amotivation, avolition, alogia, and blunted affect) present as a condition involving reduced motivation to engage in pleasurable activities, such as social and recreational activities, as well as failing to be motivated by traditional incentives. Real-world social functioning has been theorized to be the functional domain most affected by deficit syndrome symptoms, interfering with acquisition of social skills (Kopelowicz et al., 1997) and application of these skills as required for real-world social functioning (Kurtz and Mueser, 2008). Research by Faerden et al. (2009) established that avolition is critical in predicting functional outcomes, and this notion is further substantiated with work by several other research studies (Foussias et al., 2011; Kiang et al., 2003; Konstantakopoulos, et al, 2011).

Similarly, anhedonia, the decreased capacity to experience pleasurable emotions, is another fundamental characteristic feature of schizophrenia that is among the negative symptoms of the disorder (Blanchard et al., 1998; Horan et al., 2006). Anhedonia was placed centrally in etiological models of schizophrenia by theorists such as Meehl and Rado (Blanchard et al., 1998; Horan et al., 2006). In their early models, they posited that anhedonia was not only a genetic marker for schizophrenia, but that it was a critical underlying factor of the incapacitating social isolation and emotional impairments related with this disorder (Horan et al., 2006). Both avolition and anhedonia tend to be persistent, resistant to current treatments, and to contribute significantly to impairments in real world outcomes (Foussias and Remington, 2010; Horan et al., 2008; Kirkpatrick et al., 2006; Bowie et al., 2008; Fervaha et al., 2013). Andeonia has been hypothesized to underlie reduced motivation to engage in social activities.

It is a common finding that negative symptoms are related to real-world social functioning. A number of studies have examined negative symptoms, social competence, amotivation, and cognitive deficits in relationship to global outcomes and real-world functioning (Gard et al., 2009, Konstantakopoulos et al., 2011; Rabinowitz et al., 2012). Research conducted by Voges and Addington (2005) and Nakagami (2008) investigated multiple predictors of real-world functioning (negative symptoms, negative self statements), but did not include measures of social skills.

In a previous study with a subset of this sample we (Leifker et al., 2009) found that social skills and the ability to perform critical everyday living skills (i.e., functional capacity), were related to different aspects of real-world functional outcomes. In that study, we found that performance-based indices of social skills and negative symptoms were correlated with real-world social functioning rated by high-contact clinicians, but were minimally associated with the severity of impairments in everyday activities. Functional capacity, measured with the University of California San Diego Performance-based Skills Assessment Battery (UPSA; Patterson et al., 2001) was associated with the severity of impairments in everyday activities, as rated by these same clinicians, but essentially unassociated with real-world social functioning.

In this paper, we present analyses of a unique set of data: three separately collected datasets with extremely similar methodological strategies that allowed for the evaluation of the relationship between real-world social functioning, performance-based assessments of social skills, and clinical ratings of negative symptoms generated by a rater other than the clinician who rated real-world social functioning. While the same real-world social functioning measure, clinical ratings, and social skills measures were used, these studies were conducted in four separate geographical areas, have no overlap of patients, testers, or clinicians, and reflect a wide range of demographic and ethnic variation in the participants. Though some results regarding correlational aspects between symptoms, social competence, and everyday social outcomes have been published from the three studies (Bowie et al., 2006; 2008; Leifker et al., 2009; Sabbag et al., 2011; Durand et al., in press), the pooled sample size increases our ability to detect correlational relationships between these predictor variables and has not been used previously to address the particular questions of interest in this study.

In this study, we quantified the relationships between performance-based assessments of social skills (Social Skills Performance Assessment [SSPA]; Patterson et al., 2001), clinician ratings of real-world social functioning (Specific Levels of Functioning Scale [SLOF]; Schneider, and Struening, 1983), and clinical ratings of negative symptoms (Positive and Negative Syndrome Scale [PANSS]; Kay et al., 1987). In line with our previous findings, we expected to find that negative symptoms would exert a substantial impact on real-world social functioning and that this influence would be larger than that of social skills. Given the size of our sample, we were able to perform additional analyses regarding the level of real-world social dysfunction in individuals whose social skills were unimpaired. Finally, we wanted to determine whether depression, measured with patient self-reports, augmented the influence of either social competence deficits or negative symptoms on real-world social functioning.

## 2. Methods

### 2.1. Subjects

The data are part of three study cohorts collected in four different geographical areas, aimed at identifying the course and correlates of change in functional status as well as the optimal method for rating real-world social functioning among schizophrenia outpatients. The methods used to collect these samples were described in three separate papers (Bowie et al., 2008; Durand et al., in press; Harvey et al., 2011).

The study participants were outpatients (n=561) with schizophrenia or schizoaffective disorder receiving treatment at one of several different service delivery systems in Atlanta, Miami, San Diego and New York City. Atlanta patients were either recruited at a private psychiatric rehabilitation program (Skyland Trail Atlanta) or from the outpatient population at the Atlanta VA Medical Center. San Diego patients were recruited from the UCSD Outpatient Psychiatric Services clinic, a large public mental health clinic and other local community clinics, or by self-referral. Miami patients were recruited from the outpatient services at the University of Miami Miller School of Medicine. The New York City sample recruitment was conducted at the Bronx VA, an outpatient clinic at the New York State Psychiatric Hospital, and the outpatient departments at Mount Sinai School of Medicine. All research participants, including clinicial informants, provided signed informed consent according to standards approved by the responsible local Institutional Review Boards.

Patients from Atlanta, San Diego, and Miami were participants in one of two phases of the Validation of Everyday Real World Outcomes Study (VALERO), parts 1 or 2. UCSD and Atlanta patients participated in VALERO 1, and UCSD, Atlanta, and Miami patients participated in VALERO 2, which was started 6 months after the conclusion of data analysis of VALERO 1. These data were collected between July 2007 and July 2012. The Mount Sinai Sample was collected between March 2003 and June of 2008.

All subjects completed a structured diagnostic interview, administered by a trained interviewer, for diagnostic verification. The Structured Clinical Interview for the DSM ([SCID]; First et al., 1995) was used at the Atlanta sites, the Mini International Neuropsychiatric Interview, 6$^{th}$ Edition ([MINI]; Sheehan et al., 1998) in San Diego and Miami, and the Comprehensive Assessment of Symptoms and History ([CASH]; Andreasen et al., 1992) in New York. All diagnoses were verified in local consensus procedures. Screening also included global cognitive function and premorbid functioning measured with the Mini-Mental State Examination ([MMSE]; Folstein et al., 1975) and the Wide Range Achievement Test, 3$^{rd}$ Edition ([WRAT-III]; Jastak, 1994) Recognition Reading subtest. Patients were excluded for a history of traumatic brain injury, brain disease such as seizure disorder or neurodegenerative condition, an MMSE score below 18, or the presence of another DSM-IV diagnosis that would exclude the diagnosis of schizophrenia. MSSE scores were not record for use in analyses, because of a concern about ceiling effects. To capture a comprehensive array of participants reflective of real-world realities, comorbid substance use disorders were not an exclusion criterion. Rather, patients who appeared intoxicated were rescheduled. No inpatients were recruited, but patients who resided in a variety of

residential facilities including unsupported, supported, or supervised facilities were eligible. Informants were not screened for psychopathology or substance abuse.

### 2.2. Assessment Strategy

Pursuant to successful screening, the test battery was completed in a fixed order, namely, functional skills assessment followed by a cognitive test battery (reported elsewhere), and a symptom interview. All raters received extensive training in performing all of the assessments, including the PANSS, and every three months their performance was reevaluated. Real-world functioning was rated with the same rating scale at each site and these clinician raters received no training. In the Mt Sinai study, ratings were generated by a high-contact clinician, that is, a case manager, a residential facility manager, or a psychotherapist who stated that they knew patient “very well”. In VALERO 1, high contact clinicians and friends or relatives of the patients provided information to a clinical rater who generated ratings of everyday functioning. In VALERO 2 the data from a high contact clinician was again the source of information.

## 3. Measures

All participants were assessed with measures examining their performance-based social skills, real-world social functioning, self-reported depression, clinically assessed negative symptom severity, and other data not presented in this paper. Data were scored similarly and the databases were combined for analyses.

### 3.1. Performance-based Measures of Social Competence

The SSPA (Patterson et al., 2001) is an abbreviation and adaptation of the role-play components of the Maryland Assessment of Social Competence ([MASC]; Sayers et al., 1995) that was created to measure social skills for patients with schizophrenia. Dimensions of social competence that were scored include fluency, clarity, focus, negotiation ability, persistence, and social appropriateness. After a brief practice, two role-play scenarios (greeting a new neighbor and calling a landlord to request the repair of a leak that remains unrepaired despite a previous request) are administered, and the participants are expected to initiate and maintain a conversation for three minutes per role-play. These sessions were audiotaped and conducted by raters trained in test administration but who were not trained as scorers, thereby reducing potential biases in the administration of the test. All SSPAs were scored by a scorer who was unaware of participant identity, psychiatric ratings, and all other study related data; for VALERO I and II this was the same rater.

### 3.2. Real-World Social Outcomes

As a measure of real world functional performance, the Specific Levels of Functioning (SLOF; Schneider and Streuening, 1983) was used. As we previously found in the initial phase of the VALERO study (Harvey et al., 2011), everyday functioning rated with multiple rating scales was related to performance-based assessments of cognition and functional capacity. Of those examined, the SLOF was shown to be the best measure of real-world functioning due to its optimal individual correlation with the ability measures. For the analyses in this study, we used the interpersonal relationships subscale as an index of real-

world social functioning, with ratings for each site generated as described above. The SLOF interpersonal relationships subscale involves examiner ratings of social competence, social activities, and social engagement, as well as ratings of social motivation and social activities preferences.

### 3.3. Psychopathology Measures

The PANSS (Kay et al., 1987) is widely used for the assessment of psychopathology in schizophrenia. This 30-item interview assessing the severity of positive symptoms, negative symptoms, and general aspects of psychopathology was administered by a trained rater who was unaware of the results of the social competence performance and of the clinician ratings of social functioning. We used the PANSS "Marder Factor" to operationalize negative symptoms (Marder et al., 1997). The factor construct includes blunted affect, emotional withdrawal, poor rapport, passive-apathetic social withdrawal, lack of spontaneity, motor retardation, active social avoidance, and has been validated against other frequently used measures of negative symptoms in schizophrenia (Kirkpatrick et al., 2006; Daniel, 2013). As described in our previous papers, there was a structured reliability assessment for these scores.

The Beck Depression Inventory II (BDI-II; Beck et al., 1996) was developed in response to changes of the diagnostic criteria for Major Depressive Disorder in the DSM-IV. This revision is comprised of a 21-item self-report inventory to assess attitudes and severity of depressive symptoms with higher total scores being indicative of higher severity of depressive symptoms.

### 3.4. Statistical Approach

We used multiple regression analyses to examine the relative importance of social skills and negative symptoms to predict real-world social outcomes. First, we examined whether there was an overall significant relationship between social skills, negative symptoms and real-world social functioning prior to performing stepwise regressions. Then, we examined the order of entry of the predictors into the equation, using a stepwise approach. We next used forced entry analyses, determining whether either negative symptoms or social skills still accounted for variance in real-world social functioning when the other predictor was forced in first in the analysis. We examined the individual negative symptoms as well to see whether a limited subset of these symptoms were the primary determinants of real-world social functioning in this sample. Finally, we performed some exploratory analyses to see if the relationships between social skills, negative symptoms and real-world social functioning were similar in people with higher and lower levels of social skills and negative symptoms, as well as seeing if self-reported depression contributed to the prediction of real-world social functioning

## 4. Results

Table 1 presents demographic information on the patient participants. There were some differences in the demographics between the samples. The VALERO II patients had more Hispanic patients, because one of the sites was in Miami. Also, the Mt. Sinai patients were

older, because only patients over 50 were recruited. Tables 2 and 3 present the means and standard deviations for the real-world social functioning and the potential predictor variables, as well as intercorrelations between the variables respectively. Group differences across the three studies were compared with ANOVA for mean scores and for variance. As far as mean scores, there were statistically significant group differences for mean scores for SLOF interpersonal functioning scores, F=72.02, p<.001, negative symptoms, F=28.8, p<.001, and BDI total scores, F= 56.24, p<.001 (all df=2,559). For all analyses, the Mt. Sinai sample had the least severe impairments and the two VALERO samples did not differ. Most important, there were no differences in mean SSPA scores across the three samples, F=0.83, p=.62. When the variances of the variables were compared with F tests, there were no statistically significant differences among the variances of all of the predictor variables and for real-world social outcomes, all F(168,196)<1.26, all p>.07. Thus, although there were mean differences between the samples, there were no differences in variance which would be expected to impact correlational analyses much more substantially. As can be seen in table 3, the negative symptoms were generally quite strongly intercorrelated with each other and manifested good discriminant validity from depression ratings. Emotional and social withdrawal were correlated with depression severity.

### 4.1. Real-World Social Functioning Outcomes

The relationship between the clinician rated SLOF interpersonal relationship subscale scores, the PANSS negative symptom subscale, and the SSPA mean of scenes scores was significant in a simultaneous entry regression analysis: $F(2,558)= 46.12$, $p<.001$. Both negative symptoms, $t(558)=9.57$, $p<.001$, and SSPA scores, $t(557)=1.95$, $p<.01$, were significant predictors of SLOF social functioning scores, accounting for 21% of the variance in social outcomes.

### 4.2. Stepwise Regression Results

The next analysis examined the stepwise order of entry of the predictor variables and their respective variance accounted for in interpersonal relationships. See Table 4 for these regression results. In this analysis, negative symptoms entered the equation first, $t$ (558)= 9.62, $p<.001$, accounting for 18% of the variance in interpersonal relationships, with SSPA scores accounting for an incremental 2%, $t(558)= 1.95$, $p<.01$. A forced entry regression analysis where the SSPA scores were entered first and negative symptoms were entered second led to essentially the same results, with SSPA scores accounting for 2% of the variance and negative symptoms accounting for 18% of the overall variance, $F(1, 558) = 46.90$, $p = .001$. Entering negative symptoms first and then entered social competence second did not change the results with negative symptoms accounting for 18% of the variance and social competence 2%.

### 4.4. Individual Negative Symptoms as Predictors

This analysis was performed with a stepwise regression, entering the seven individual negative symptoms and social competence as predictors. These analyses are presented in Table 4. The relationship between the SLOF interpersonal relationship subscale scores, the individual negative symptoms derived from the negative symptoms factor from the PANSS,

and the SSPA mean of scenes scores was significant overall, $F(3, 556) = 21.11$, $p = <.001$, accounting for a total of 31% of the variance. Only two of the negative symptoms entered the equation: passive-apathetic social withdrawal entered the equation first, accounting for 25% of the variance, followed by active social avoidance, accounting for 3.5% of the variance, followed by SSPA performance, accounting for an additional 2.5%. All other variables were not statistically significant, all $t<0.81$, all $p>.25$.

### 4.5. Exploratory Analyses

In an additional analysis, we added depression to the previous equation as a predictor of real-world social functioning. Using a stepwise analysis, we entered active and passive social avoidance, SSPA total scores and BDI total scores as predictors of interpersonal social functioning. We found that depression accounted for an additional 3% of the variance in interpersonal functioning.

There were 199 participants who had mean SSPA scores greater than 4 across the two scenes, meaning that they received a perfect score of 5 on one or more of the two scenes. When we compared the SLOF interpersonal functioning scores with a t-test for those with SSPA scores of greater than 4 to those with scores of 4 or less (n=362), there was no statistically significant difference in the interpersonal relationships scores, $t(560)=1.41$, $p=.16$. We then performed regression analyses predicting SLOF interpersonal functioning scores, using the two PANSS negative symptom avoidance items, and depression in the cases whose SSPA scores were 4 or higher across the two scenes. The overall analysis was significant, $F(2, 197)= 44.08$, $p<001$. Passive and active social avoidance accounted for 20% of the variance in interpersonal relationships and depression accounted for an additional 2%, indicating that in individuals with higher levels of social skills, negative symptoms and depression still predict overall real-world social functioning. When we repeated the analysis with the 362 patients whose scores were 4 or less, reflecting impaired social skills, the results were also significant, $F(2, 359)= 78.56$, $p<.001$. Passive and active social avoidance accounted for 19% of the variance in interpersonal relationships and depression did not enter the equation, indicating that in individuals with lower levels of social skills, like individuals with greater skills, negative symptoms still predict overall real-world social functioning.

## 5. Discussion

There were several findings of interest in this study regarding the role of social skills and negative symptoms in the prediction of real-world social functioning. An overall significant relationship was found between the SLOF interpersonal relationship subscale, negative symptoms from the PANSS, and the SSPA. Only a subset of these negative symptoms were primary determinants of real-world social functioning, namely passive-apathetic social withdrawal and active social avoidance, which accounted for 28.5% of the variance in real-world social functioning when examined as individual symptoms. Thus, the potential impact of negative symptom severity as a predictor of real-world social functioning appears to be greater than that of social competence or depression. Further, the impact of negative symptoms directly indexing social motivation appears to be greater than symptoms aimed at experience or expression of emotions.

Highlighting the importance of negative symptoms for real-world social functioning, we found no difference in social outcomes as a function of high vs. low levels social skills performance and, in participants with high and low levels of social skills performance, negative symptoms had a similar relationship to real-world social functioning. Social skills accounted for about 2% of the variance in real world social outcomes regardless of what other variables were considered as predictors.

There are several strengths of these data, beyond large sample size. Social skills were measured with a performance-based procedure that was scored from recordings by an individual other than those who performed the interviews with the patients. PANSS scores were generated by raters other than those who performed or scored the SSPA, and the clinicians who rated real-world social functioning had no knowledge of the scores on social skills or symptom measures. The only self-reported data are depression scores.

There are, however, limitations in this dataset and in these analyses. Negative symptom severity in this sample was generally only mild to moderate; additionally the SSPA scores for the participants were high for 25% of the patients and both therefore pose limits to the generalizability of the findings. That said, the influence of the negative symptoms on outcomes might be even greater in more symptomatic patients, and negative symptoms were significantly correlated with real-world social functioning. There is no evidence of adverse effects of high scores on the SSPA on the overall prediction of real world social outcomes, because high and low scorers had similar correlates of real world social functioning. Additionally, the participants were required to complete detailed assessments, which may be burdensome for some individuals with schizophrenia, and not all people with schizophrenia have a suitable informant to generate ratings of real-world functioning. Depression was examined with a self-report measure, while different results might have been found if a schizophrenia-specific depression rating scale had been utilized. However, the correlation between the BDI scores and the clinician rated PANSS depression item was r=.61, suggesting high overlap between clinician ratings and patient reports of depression and reducing this concern.

Even with the previously stated limitations, these results have implications for future research on interventions for this population. More empirical work on the treatment of the negative symptoms of schizophrenia and the potential to reduce their impact with regards to social competence and real-world functioning is needed (Kirkpatrick et al., 2006). Furthermore, studies need to concurrently examine other factors that impact real-world social functioning, such as social cognition (Fett et al., 2011; Pinkham et al., 2014). There is very little information on the interaction between social competence, social cognition, negative symptoms, and real-world social functioning and in this study the sum total of predictors accounted for less than 1/3 of the variance in social outcomes. For instance, the two negative symptoms most consistently associated with poor social outcomes, active and passive social withdrawal, could be experienced as a consequence of social cognitive limitations leading to a pattern of withdrawal. Deficits in affect perception and processing could lead to uncertainty in social situations, similarly causing social avoidance. Similarly, deficits in the ability to understand others' intentions and mental states could cause similar tendencies to find social situations either anxiety provoking or unsatisfying. It is also

uncertain whether social cognitive deficits would affect social competence or negative symptoms as mediators of impaired real-world social functioning, or whether the influence would be more direct. Ongoing research may have the potential to address these questions.

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**Table 1**

Demographic and Clinical Variables in three Different Patient Samples with Schizophrenia

| | **Mt. Sinai Sample n=197** | | **VALERO I n=195** | | **VALERO II n=169** | | | |
|---|---|---|---|---|---|---|---|---|
| **Characteristic** | **n** | **%** | **n** | **%** | **n** | **%** | **$x^2$** | **p** |
| Male | 148 | 70 | 134 | 69 | 140 | 65 | 1.36 | 0.51 |
| Race | | | | | | | | |
| Caucasian | 120 | 57 | 106 | 54 | 117 | 55 | 2.02 | 0.36 |
| African American | 82 | 38 | 74 | 38 | 77 | 36 | 0.89 | 0.64 |
| Other or more than 1 | 10 | 5 | 14 | 8 | 20 | 9 | 5 | 0.08 |
| Hispanic Ethnicity | 21 | 10 | 23 | 12 | 50 | 23.4 | 19.32 | <0.001 |

| | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **F** | **p** |
|---|---|---|---|---|---|---|---|---|
| Age (Years) | 58.4 | 7.3 | 44.3 | 11.7 | 41.0 | 12.4 | 158.04 | <0.001 |
| Education | 12.5 | 2.4 | 12.8 | 2.7 | 12.3 | 2.2 | 2.86 | 0.115 |
| WRAT Total Score | 44.4 | 9.1 | 46.3 | 6.3 | 44.0 | 6.8 | 3.01 | 0.09 |

**Table 2**

Scores on Clinical Variables

| Variables | M | SD |
|---|---|---|
| Specific Levels of Functioning: Interpersonal Functioning (SLOF) | 25.84 | 6.62 |
| Social Skills Performance Assessment (SSPA) | 3.87 | 0.78 |
| Blunted Affect | 2.33 | 1.39 |
| Emotional Withdrawal | 2.15 | 1.20 |
| Poor Rapport | 1.63 | 1.04 |
| Passive Apathetic Social Withdrawal | 2.49 | 1.44 |
| Lack of Spontaneity | 1.94 | 1.22 |
| Motor Retardation | 1.76 | 1.06 |
| Active Social Avoidance | 2.35 | 1.24 |
| Beck Depression Inventory Total Score (BDI) | 14.21 | 11.24 |

**Table 3**

Intercorrelations of Variables

| **Pearson Correlations** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. SLOF | .17** | −.26** | −.34** | −.22** | −.41** | −.23** | −.12** | −.42** | −.26** | .04 | .06 |
| 2. SSPA | | −.19** | −.13** | −.22** | −.04 | −.22** | −.21** | .03 | .02 | .19** | −.68** |
| 3. Blunted Affect | | | .48** | .50** | .36** | .57** | .49** | .25** | .02 | −.04 | .08* |
| 4. Emotional Withdrawal | | | | .45** | .65** | .45** | .39** | .55** | .18** | −.01 | .05 |
| 5. Poor Rapport | | | | | .39** | .62** | .28** | .30** | .01 | −.05 | .10* |
| 6. Passive Apathetic Social Withdrawal | | | | | | .33** | .25** | .68** | .25** | .02 | −.05 |
| 7. Lack of Spontaneity | | | | | | | .40** | .20** | −.03 | −.03 | .09* |
| 8. Motor Retardation | | | | | | | | .12** | .02 | −.05 | .11** |
| 9. Active Social Avoidance | | | | | | | | | .35** | .02 | −.10* |
| 10. BDI | | | | | | | | | | −.03 | −.04 |

Note.

*Correlation is significant at the 0.05 level.

**Correlation is significant at the 0.01 level.

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**Table 4**

Stepwise Regression Results Predicting SLOF Interpersonal Functioning Scores

| **Results with Total Negative Symptoms as Predictor** | | | | | |
|---|---|---|---|---|---|
| **Step** | **Variable** | **b** | **t** | **p** | **$R^2$** |
| 1 | Negative Symptoms | −.45 | 46.12 | .001 | .20 |
| 2 | SSPA Scores | .09 | 1.95 | .05 | .22 |

| **Results with Individual Negative Symptoms as Predictors** | | | | | |
|---|---|---|---|---|---|
| **Step** | **Variable** | **b** | **t** | **p** | **$R^2$** |
| 1 | Passive Apathetic Social Withdrawal | −.50 | 11.00 | .001 | .25 |
| 2. | Active Social Avoidance | −.24 | 4.04 | .001 | .28 |
| 3. | SSPA Scores | .16 | 3.68 | .001 | .31 |

| **Results with Depression as a Predictor** | | | | | |
|---|---|---|---|---|---|
| **Step** | **Variable** | **b** | **t** | **p** | **$R^2$** |
| 1 | Passive Apathetic Social Withdrawal | −.48 | 10.50 | .001 | .23 |
| 2. | Beck Depression Inventory | −.20 | 8.91 | .001 | .27 |
| 3. | SSPA Scores | .15 | 3.32 | .001 | .29 |
| 4. | Active Social Avoidance | −.21 | 3.48 | .001 | .31 |