Determinants of Subjective Social Status in Unemployment

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ABSTRACT

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Subjective social status (SSS) measures where a person places themselves in a social hierarchy and has emerged as a predictor of health outcomes beyond traditional socioeconomic status (SES) indicators. Interestingly, SES indicators such as income have been identified as the strongest predictors of SSS. The current study aimed at examining how SSS is associated with stress-related measures in a situation where SES indicators change rapidly and furthermore, whether social support may be an alternative determinant of SSS.

To answer these questions, we assessed SSS, perceived social support, and perceived stress in 18 unemployed German citizens as well as in 18 employed controls. Saliva samples were collected on two consecutive days to assess cortisol awakening responses (recovery: +60 minus +30min).
We found that unemployed individuals reported significantly lower SSS among their neighborhood, less social support (overall and social integration), higher perceived stress, and showed a lack of CAR recovery (all \( p > .045 \)). Interestingly, unemployed individuals did not report lower SSS among friends (\( t(34)=-1.26, p=.22 \)). While for both groups, low instrumental support was related to higher perceived stress (\( \beta=-.29, p=.057 \)), the negative relationship between emotional support and perceived stress was specific to unemployed individuals (\( \beta=-0.375, p=.06 \)). With regard to SSS, we found that independent of employment status, lower SSS was related to higher perceived stress (friends: \( \beta=-0.33, p=.03 \); neighborhood: \( \beta=-0.35, p=.02 \)) and low SSS among friends predicted a lack of CAR recovery (\( \beta=-.30, p=.08 \)). Finally, social support predicted SSS in specific ways: instrumental support predicted SSS among neighborhood for both groups (\( \beta=.345, p=.04 \)) and overall social support and social integration predicted SSS among friends for employed individuals only (\( \beta=0.40, p=.088; \beta=0.47, p=.086 \), respectively). Subjective social status did not mediate the relationship between social support and stress-related measures (\( c=-1.59, p=.11 \)).

We concluded that for unemployed individuals, the ability to decouple low social support from their assessment of status among friends was a healthy mechanism whereas the use of instrumental support for determining status among neighbors could be associated with increased perceived stress providing a basis for development of health-improving interventions for unemployment.
# Table of Contents

Title Page ................................................................................................................................. i
Abstract...................................................................................................................................... ii
Table of Contents ....................................................................................................................... iv
List of Figures ............................................................................................................................. vi
Introduction ................................................................................................................................ 1
Methods ..................................................................................................................................... 6
Participants ............................................................................................................................... 6
  Procedure ............................................................................................................................... 7
  Measures ................................................................................................................................. 7
  Subjective social status ......................................................................................................... 8
  Social support ......................................................................................................................... 8
  Perceived chronic stress ........................................................................................................ 9
Biological Analysis .................................................................................................................... 9
Statistical Analysis ................................................................................................................... 10
  Group differences in SSS, social support, and stress. ......................................................... 10
  Group differences in associations between SSS, social support, and stress. .............. 10
  Mediation analysis ................................................................................................................ 11
Results ....................................................................................................................................... 11
  Group differences in SSS, social support, and stress-related measures .................... 11
  SSS ....................................................................................................................................... 11
  Social support ....................................................................................................................... 12
  Stress-related measures ....................................................................................................... 12
Group differences in associations between SSS, social support, and health ........... 13
Social support and stress-related measures ........................................... 13
SSS and stress-related measures ....................................................... 14
SSS and social support ................................................................. 15
Discussion ....................................................................................... 16
Characteristics of Unemployment .................................................... 17
Determinants of Stress-Related Outcome Measures in Unemployment ....... 21
Social support and stress-related measures in unemployment ............... 21
Subjective Social Status and stress-related measures in unemployment .... 23
Determinants and Relevance of Subjective Social Status in Unemployment 26
References ....................................................................................... 33
List of Figures

*Figure 1:* Subjective social status ratings among neighborhood and friends for employed and unemployed individuals. (page 12)

*Figure 2:* A. Cortisol awakening response based on employment status. B. CAR increase and CAR recovery based on employment status. (page 13)

*Figure 3:* Subjective social status compared to neighborhood and perceived stress in employed and unemployed individuals. (page 15)
Determinants of Subjective Social Status in Unemployment

Past research has consistently shown that socioeconomic status (SES) is one of the major predictors of health outcomes (Adler et al., 1994; Haan, Kaplan, & Syme, 1989; House & Williams, 2000; Kitagawa & Hauser, 1973; Link & Phelan, 1995; Marmot, Shipley, & Rose, 1984). However more recently, a related measure known as subjective social status (SSS) has emerged (Adler, Epel, Castellazzo, & Ickovics, 2000; Ghaed & Gallo, 2007; Operario, Adler, & Williams, 2004; Singh-Manou, Adler, & Marmot, 2003; Singh-Manou, Marmot, & Adler, 2005). SSS captures information beyond a person’s SES by assessing an individual’s perceived position relative to others in the social hierarchy (Adler et al., 2000). Prior research has consistently demonstrated that lower SSS is associated with negative health outcomes as well. These outcomes range from poorer functional status in older populations to depression and obesity among youth (Goodman, Slap, & Huang, 2003; Hu, Adler, Goldman, Weinstein, & Seeman, 2005; Operario et al., 2004; Ostrove, Adler, Kuppermann, & Washington 2000; and Singh-Manou et al., 2003). Lower SSS has also been associated with various biological risk factors including increased heart rate (Adler et al., 2000; Ghaed & Gallo, 2007), susceptibility to upper respiratory infection (Cohen, Alper, Doyle, Adler, Treanor, & Turner, 2008), greater abdominal fat deposition (Adler et al., 2000), and increased cortisol awakening response (Wright & Steptoe, 2005) as well as increases in psychological distress (Adler et al., 2000; Sakurai, Kawakami, Yamaoka, Ishikawa, & Hashimoto, 2010). Subjective social status thereby appears to affect health by either increasing stress directly or by acting as a risk factor for vulnerability to the effects of stress (Adler et al., 2000).
Importantly, compared to SES, SSS may reflect cumulative influences of social position by accounting for earlier experiences and perceptions of future accomplishments (Wilkinson, 1996 as cited in Operario et al., 2004; Wilkinson, 1999). Furthermore, SSS may be a more useful measure in circumstances where a population may not have a clear SES of their own, such as college students or adolescents (Goodman, Adler, Kawachi, Frazier, Huang, & Colditz, 2001). Additionally, many SES indicators such as income or employment grade can be lost or change dramatically in situations such as retirement or unemployment.

Nevertheless, SES and SSS are usually highly correlated (Operario et al., 2004; Singh-Manoux et al., 2003). This raises an interesting question: Do changes in an individual’s SES necessarily result in changes in SSS as well? It could be argued that given that SSS incorporates one’s perceptions of status, SSS could function as a buffer against potential sudden changes in SES – and thus negative health consequences – in an individual’s life. Additionally, helping an individual raise his/her SSS instead of trying to find ways to improve SES could be interesting from a health intervention point-of-view. Because of the highly robust relationship between SSS and health, understanding how individuals determine their social status becomes crucial for developing interventions aiming at improving or maintaining health. Interestingly, however, objective socioeconomic factors such as income and occupational position seem to be the most powerful predictors of a person’s SSS (Ostrove et al, 2000; Singh-Manoux et al., 2003). For example, one study examining subjective social class found education, income, and occupation to be factors used by an individual for evaluating him/herself in relation to others (Jackman, 1979). In another study, the top five out of 16 strongest predictors of
SSS were employment grade, satisfaction with standard of living, household income, feeling of financial security, and education. These five predictors accounted for 48% of the variance in SSS with employment grade being the strongest predictor among them. It has been suggested that SSS might be determined by cognitively averaging standard socioeconomic indicators (Adler et al., 2000; Singh-Manoux et al., 2003). If this were true, there would be not much added value to SSS and also no intervention benefits to be expected.

However, it is important to note that to determine SSS, most studies use the so-called MacArthur ladders, which ask participants to think about where they stand compared to others in the US and provides descriptors for individuals at the top of the ladder as being people with the most money, best jobs, and most education. Hence, the way the question is presented may actually directly cause this effect. The majority of the studies cited above (Adler et al., 2000; Ostrove et al., 2000; Singh-Manoux et al., 2003) measured subjective social status in this way. Furthermore, besides US citizens, the second reference group used is one’s community. Which specific reference group is used when assessing SSS, however, has been shown to affect where people place themselves in the hierarchy (Wolff, Subramanian, Acevedo-Garcia, Weber, & Kawachi, 2010). It is unclear to date what indicators people use when the reference points of a ladder do not use SES indicators.

Furthermore, it is unclear whether subjective social status other than compared to US citizens, i.e., with a reference to SES indicators, would still show strong health links and thus have the potential to counter-balance sudden negative changes in SES. The current study set out to answer these questions by looking at subjective social status, its
determinants, and its links to health-related outcome measures specifically in unemployment.

The reason unemployment is particularly interesting in this context is that, as mentioned above, the general consensus regarding the determinants of SSS is that people seem to be using SES factors to decide where they fall in a given social hierarchy (Lundberg & Kristenson, 2008; Singh-Manoux et al., 2003). Hence, if a person does not have many of the normal SES indicators accessible to them, their SSS should drop significantly and they should suffer from poorer health outcomes. In unemployment, not only does income decrease, but also one’s occupational position is lost and feelings toward the future and satisfaction with standard of living very likely change as well. The earlier studies that found SES indicators to be the strongest predictors of subjective social status (Ostrove et al., 2000; Singh-Manoux et al., 2003) suggest that unemployed individuals’ subjective social status should indeed drop significantly. Alternatively however, unemployment may result in individuals using other factors to determine their status. If SSS does not drop in unemployed individuals, it may then have the potential to act as a protective factor against health consequences. Thus, an important question arises: What indicators beyond SES are unemployed individuals using to keep up their SSS?

One alternative indicator unemployed individuals may use to determine their SSS is social support. Not only is social support positively associated with health (e.g. Cohen & Hoberman, 1983), we also know that support plays an important role in coping with unemployment. While some studies have shown that unemployed individuals report lower levels of social support, it seems that maintaining high social support in
unemployment is beneficial (Creed & Moore, 2006; Jackson, 1999). For example, a study by Gore (1978) found that in a sample of unemployed men, low social support was associated with negative psychological and health-related responses to unemployment. Similar findings have been reported by multiple other studies in both men and women (Atkinson, Liem, & Liem, 1986; Axelsson & Ejlertsson, 2002; Feather & O’Brien, 1987; Pearlin, Menaghan, Lieberman, & Mullen, 1981). The positive health effects of social support are thought to be due to social support aiding in coping with unemployment by providing predictability and reassurance as well as tangible aid in solving instrumental problems (Wills & Langer, 1980 as cited in Axelsson & Ejlertsson, 2002). Importantly, a small number of studies have already demonstrated an association between perceived social support and SSS (Ghaed & Gallo, 2007; Reitzel et al., 2007). Reitzel et al. (2007) found that lower SSS was associated with lower perceived overall social support as well as specifically instrumental support, emotional support, and social integration in a sample of young pregnant women. Another study found social support to be a predictor of SSS but only when analyses were not controlled for age and ethnicity (Ghaed & Gallo, 2007). This suggests that one factor used by unemployed individuals to determine their social status may be social support.

The purpose of this study is to understand how social support and SSS work together in unemployed individuals. Based on previous research, it is unclear whether situations that change SES, such as unemployment, also results in changes in SSS. This study aimed to examine whether unemployed individuals report lower SSS than employed individuals. Further, because it would be detrimental for unemployed individuals to use SES indicators to determine SSS, we examined social support as a
potential alternative. Finally, without reference to SES in the measurement of SSS, we sought to determine whether there is still a connection between SSS and stress-related health outcomes.

To answer these questions, we measured SSS compared to friends and neighborhood. Our measure of perceived social support also evaluated three specific domains of support: emotional support, instrumental support, and social integration. Health was operationalized with two stress-related measures: self-reported perceived stress and the cortisol awakening response (CAR). Based on the literature, we expected unemployed individuals to report lower SSS. Also in line with past research, we expected lower SSS and less perceived social support to be associated with poorer outcomes on the stress-related measures for both groups. However we expected that levels of perceived social support would have differential effects for employed and unemployed individuals. For the unemployed group, we expected lower perceived social support in general but those who maintain social support would have better outcomes on the stress-related measures. Finally, we expected social support to be positively associated with SSS, as a small number of past studies have reported. Thus we proposed that SSS would mediate the relationship between social support and health for unemployed individuals.

**Methods**

**Participants**

Participants were 36 German individuals (n=24 women) with a mean age of 33.3 years (SD=9.1). Eighteen of the participants were employed and 18 unemployed with
duration of unemployment ranging from three to 26 months (mean=16.2 months, SD=6.8 months).

**Procedure**

The study was advertised in local newspapers and online with instructions for potential participants to respond via phone or email. Interested participants completed a brief phone interview and if able to participate, schedule a time for the experimenter to come to their home for a 30-45 minute visit. No exclusion criteria existed, however, employed participants were age and gender-matched to unemployed participants. During the home visit, the experimenter provided informed consent information and described the study. If they agreed to participate, participants were provided with a package of questionnaires as well as instructions and materials for collecting saliva samples. Participants were instructed to collect four samples per day during two consecutive weekdays using the Salivette collection device, which consists of a small cotton roll inside a plastic tube. Samples were collected immediately at awakening and then at 30, 45, and 60 minutes following wake-up. The experimenter later returned to participants’ homes for a second visit to collect the questionnaire package and the saliva samples. Participants were paid 20 Euros for completion of the study.

**Measures**

Basic demographic information was collected from participants including age, sex, employment status, and duration of unemployment. Furthermore, variables of interest were assessed using standardized questionnaires described in more detail in the following.
**Subjective social status.**

Subjective social status was measured using a 10-rung ladder measure adapted from the MacArthur sociodemographic questionnaire (Adler & Stewart, 2007). More specifically, participants rated where they felt they stood on the ladder compared to their friends as well as compared to their neighbors, with higher rungs indicating higher status and lower rungs of the ladder indicating lower status. We chose neighbors as reference instead of community, as it more closely captures the US definition compared to a more direct German translation of community. Scores on each ladder were assigned according to the ladder rung from one to ten the participated indicated.

**Social support.**

Social support was measured via self-report using the 14-item short form of the Social Support Questionnaire (Fragebogen zur Sozialen Unterstuetzung) (Fydrich, Sommer, Tydecks, & Brähler, 2009). Based on the items used in calculation of validated sub-scales for the long version of this scale (Fragebogen zur Sozialen Unterstuetzung – 54 item), we calculated sub-scales for instrumental support, emotional support, and social integration as well as a sum overall support score. Scores were calculated by summing all items for an overall support score. Scores for the 3 subscales were calculated by summing three items for instrumental support (#1: “I have no problems finding somebody to take care of my apartment/house when I am gone,” 5, 9), eight of the items for emotional support (3, 4: “I have a close other whose help I can count on anytime”, 6, 8, 10, 11, 12, 13) and three items for social integration (2, 7, 14: “I am part of a group of friends with whom I meet often”). Ratings are given on a 5-point scale from not true (1) to totally true.
(5) with higher scores indicating more perceived support. The questionnaire has high reliability (Cronbach’s $\alpha = 0.94$) in a German sample.

**Perceived chronic stress.**

Perceived chronic stress was measured using a 14-item German translation of the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983). This scale asks participants to rate how unpredictable, uncontrollable, and overloading they found their lives during the last month. An example item: “In the last month, how often have you been upset because of something that happened unexpectedly?” There are seven positively worded items for example, “In the last month, how often have you felt that things were going your way?” Ratings are given on a 5-point scale from never (0) to very often (4). Perceived stress is calculated by reverse coding the seven positively worded items, and then adding all 14 items into a sum score. Higher sum scores indicate more perceived stress. The original version has demonstrated adequate reliability and validity (Cohen et al., 1983).

**Biological Analysis**

Saliva samples were stored at -30C until completion of the study. Samples were then thawed, centrifuged, and cortisol measured in duplicates using a commercially available LIA kit. Inter and intra-assay correlations were below 8%. The values from the two corresponding samples (day 1, day 2) were averaged and an index of cortisol awakening response (CAR) increase (+30 minute minutes wake-up value) and CAR recovery (+60 minutes minus +30 minutes) were computed.
**Statistical Analysis**

*Group differences in SSS, social support, and stress.*

To test for group differences between the employed and unemployed, we computed t-tests to detect differences in SSS compared to friends and neighbors, overall social support as well as the subscales for instrumental support, emotional support, and social integration. We also ran a t-test to test for employment status-dependent differences in perceived stress. We used repeated measures ANOVA to detect group and time effects for CAR across the four averaged time points.

*Group differences in associations between SSS, social support, and stress.*

To test our hypotheses, we used three sets of hierarchical regression analyses using the procedures recommended by Aiken and West (1991) for testing main and interaction effects. More specifically:

To test the associations between social support and stress, we computed a first set of regression analyses entering employment status, social support, and employment status-by-support as predictors and PSS scores as well as CAR increase and CAR recovery as outcome variables each in separate analyses. We ran separate regression analyses for each social support subscale.

Next, to test our hypothesis that the relationship between SSS and stress is employment status-dependent, we computed a second set of regression analyses for which we entered employment status, SSS (friends or neighbors) as well as the interaction between employment status and SSS as predictors and in separate analyses, PSS scores as well as CAR increase and CAR recovery as outcome variables.
Finally, to test whether employed and unemployed individuals would use social support differentially to determine their SSS, we entered employment status, social support, and employment status-by-social support as predictors and SSS as outcome variable. For each of the social support subscales as well as SSS references (friends or neighbors), we ran a separate regression analysis.

**Mediation analysis.**

We proceeded with mediation testing according to the requirements described by Baron and Kenny (1986) that there must be significant correlations between the predictor variable, assumed mediator, and outcome variable. In case of three significant associations, Sobel tests were used to determine whether SSS measures mediated the relationship between social support measures and health measures.

**Results**

**Group differences in SSS, social support, and stress-related measures**

We first tested whether employed and unemployed individuals would show differences with regard to SSS, social support, or stress-related measures.

**SSS.**

Unemployment was associated with significantly lower status ratings when individuals compared themselves to neighbors \((t(34) = -2.08, p = .045)\). However, interestingly, unemployed individuals did not perceive their status to be lower when comparing themselves to their friends \((t(34) = -1.26, p = .22)\). See Figure 1 for more details.
Figure 1. No significant difference was found in ratings of SSS among friends based on employment status. Unemployed individuals rated SSS among neighborhood significantly lower than employed individuals.

Social support.

As expected, unemployed individuals further reported significantly less social support overall ($t(34) = -2.39, p = .023$). When differentiating this effect by testing for group differences in the three social support subtypes, we found that unemployed reported a drop specifically in social integration ($t(34) = -3.42, p = .002$), while only trends were observed for unemployed individuals to report less perceived instrumental support ($t(34) = -1.97, p = .057$) and less perceived emotional support ($t(34) = -1.93, p = .06$) compared to employed individuals.

Stress-related measures.

Lastly, unemployed individuals reported more perceived stress than employed individuals ($t(34) = 3.64, p = .001$). While both groups furthermore demonstrated a robust cortisol awakening response (time $F(1,34) = 13.67, p < .001$), unemployed individuals
showed lower awakening values as well as elevated values one hour after awakening (group: $F(1,34) = 0.01, p = .94$; group-by-time: $F(1,34) = 1.86, p = .17$; see Fig. 2a). Closer examination, however, revealed that while no employment status-dependent differences were found for CAR increase ($t(34) = 1.24, p = .23$), unemployment was associated with a lack of CAR recovery ($t(34) = 2.23, p = .03$; see Fig. 2b).

![Figure 2](image.png)

*Figure 2.* Cortisol awakening response (CAR) based on employment status (A). No significant difference was found in CAR increases between employed and unemployed, while unemployed individuals showed significantly less recovery (B).

**Group differences in associations between SSS, social support, and health**

Next, we tested for employment status-dependent differences in associations between the three variables of interest: subjective social status, social support, and stress-related measures.

**Social support and stress-related measures.**

With regard to perceived stress, we found that for employed as well as unemployed individuals, high perceived instrumental support was associated with low perceived stress ($\beta = -0.29, p = .057$). Additionally, high emotional support was
associated with low perceived stress for unemployed individuals only ($\beta = -0.38, p = .06$; main effect of emotional support: $\beta = -0.20, p = .30$; other main effects of social support and interaction effects: all $p > .12$).

When testing for association between social support and cortisol indices, no effects were found with regard to social support and CAR increase (main effects of social support domains: all $p = .75$, interaction effects: all $p > .12$) or with regard to any of the social support measures and CAR decrease (main effects of social support: all $p > .57$, interaction effects: all $p > .16$).

**SSS and stress-related measures.**

Independent of employment status, we found a trend that higher SSS among friends predicted stronger CAR recovery ($\beta = -0.30, p = .08$) more specifically, both employed and unemployed individuals who rated their status among friends as being high showed a steeper decline in cortisol levels subsequent to the morning rise compared to those who rated their status among friends as low (main effect of employment status: $p = .18$, interaction effect: $p = .46$). The morning rise (CAR increase) itself was thereby not associated with SSS among friends, nor was it associated with status ratings when referencing neighbors (main effects of SSS and interaction effects: all $p > .26$).

Furthermore, SSS among neighbors was also not significantly associated with CAR recovery (main effect of employment status: $\beta = -0.23, p = .18$, main effect of SSS: $\beta = -0.08, p = .67$, and interaction effect: $\beta = -0.02, p = .72$). Perceived stress ratings were, on the other hand, negatively associated with SSS ratings, such that both lower SSS relative to friends and relative to neighbors predicted higher perceived stress (see Figure 3), irrespective of employment status ($\beta = -0.33, p = .03; \beta = -0.35, p = .02$ respectively;
SSS-friends interaction: $\beta = 0.13, p = .47$; SSS-neighborhood interaction: $\beta = -0.19, p = .31$.

Figure 3. Subjective social status compared to neighbors was significantly associated with perceived stress in both employed and unemployed individuals.

**SSS and social support.**

When looking at status ratings relative to friends, regression analyses revealed trends for employed individuals to report higher SSS relative to friends when they also perceived social support in general and social integration in particular as high ($\beta = 0.40, p = .088; \beta = 0.47, p = .086$, respectively). Unemployed individuals did not show any association between social support (overall and subtypes) and status ratings among friends (main effects of social support: all $p > .17$; interaction effects: all $p > .22$).

With regard to status ratings relative to their neighbors, instrumental support predicted status for both employed and unemployed individuals ($\beta = 0.35, p = .04$), however this effect may have been driven by the employed individuals (interaction effect: $\beta = 0.31, p = .086$). No other social support domains predicted SSS ratings relative to
neighborhood for either group (main effects of social support: all \( p > .10 \), interaction effects: all \( p > .10 \)).

**Mediation analysis**

Only for perceived stress but not for any of the CAR indices did we find associations with both, social support and subjective social status as well as associations among the latter, allowing us to test for mediation. More specifically, independent of employment status, instrumental support was linked to SSS among neighbors and both were linked to perceived stress.

A Sobel mediation test, however, was not significant \( (c = -1.59, p = .11) \), suggesting that in the current sample, subjective social status relative to neighborhood did not mediate the association between instrumental social support and perceived stress.

**Discussion**

In summary, we found that independent of employment status, lower perceived social support as well as lower subjective social status was linked to higher perceived stress. However, as expected, unemployed individuals reported lower subjective social status among their neighborhood, less perceived social support, as well as higher perceived stress and lack of CAR recovery compared to employed individuals. Low emotional social support was linked to higher perceived stress specifically for unemployed individuals while low instrumental support was linked to higher perceived stress regardless of employment status. Interestingly, unemployed individuals did not report lower status among their friends compared to employed individuals, although status among friends itself was linked to CAR recovery such that both unemployed and employed individuals who reported lower status among friends showed a lack of CAR
recovery. Furthermore, social support was differentially linked to subjective social status, with instrumental support linked to SSS among neighborhood for both unemployed and employed individuals and social integration as well as overall support predicting SSS among friends for employed individuals only. Each finding will be discussed in more detail below.

Characteristics of Unemployment

Unemployment is consistently associated with poor health outcomes (Hammarstrom & Janlert, 2002; McKee-Ryan, Song, Wanberg, & Kinicki, 2005). For example, one previous study found a significant association between higher perceived stress and unemployment (Mantler, Matejicek, Matheson, & Anisman, 2005). As expected, the present study found that unemployed individuals reported higher perceived stress compared to employed individuals. This finding replicates previous associations between unemployment and self-reported perceived stress.

With regard to biological measures, we found that unemployed individuals demonstrated a lack of CAR recovery. CAR recovery reflects the ability to return to a normal cortisol level following the sharp cortisol rise in the morning. Although CAR recovery is not often studied, it captures an important part of the feedback mechanism responsible for regulating cortisol secretion. The literature on cortisol responses to acute stress has pointed to the importance of examining cortisol recovery following the stress response (Dickerson & Kemeny, 2004; Linden, Earle, Gerin, & Christenfeld, 1997). Importantly, Dickerson and Kemeny (2004) suggested that failure to recover following stress could lead to increased exposure to cortisol and lead to greater health risks associated with elevated cortisol (e.g., Linden et al., 1997; McEwen, 1998; Sapolsky,
Romero, & Munck, 2000). It seems logical to suggest that a lack of CAR recovery would also be related to elevated cortisol exposure and the related negative health effects emphasizing the importance of our finding that unemployed individuals had poorer CAR recovery than employed individuals.

On the other hand, CAR increase, the maximum increase in cortisol upon awakening, was not significantly affected by employment status. This finding is in contrast to a previous study on CAR in unemployed individuals that found unemployment was associated with higher morning cortisol levels (Ockenfels, Porter, Smyth, & Kirschbaum, 1995). However, our finding is in line with literature on fatigue, burnout, and exhaustion, which are all associated with a blunted CAR (see Chida and Steptoe, 2009 for review). Furthermore, it has been suggested that the duration of a stressor plays a role in CAR alterations, such that initial exposure to a chronic stressor is met with increased CAR while with longer exposure, chronic stress could result in hypoactivity of the HPA axis thus leading to a lack of CAR increase (Fries, Dettenborn, & Kirschbaum, 2009). Our unemployed sample had a wide range of unemployment durations, ranging from three to 26 months. Hence, it could be proposed that individuals who had been unemployed for a relatively short time demonstrated an increased CAR but were balanced out by those unemployed long-term, who may have demonstrated a blunted CAR characteristic of chronic stress. Unfortunately, the sample size of this study is not large enough to meaningfully test this possibility. It would be an interesting direction for future studies with larger sample sizes to explore the effects of different lengths of unemployment on CAR.
The relationship between unemployment and social support is complex, since on one hand, social support is known to aid in coping with unemployment, but on the other hand, unemployment also is often associated with loss of social contacts (Atkinson et al., 1986; Axelsson & Ejlertsson, 2002; Feather & O’Brien, 1987; Gore, 1978; Pearlin, Menaghan, Lieberman, & Mullen, 1981) as well as loss of perceived social support (e.g. Axelsson & Ejlertsson, 2002; Kroll, Lampert, & Devitt, 2011). In line with the latter literature, unemployed individuals in the current study also reported lower overall perceived social support compared to employed individuals. However, we sought to further investigate how different domains of social support are affected by unemployment and thus broke down the overall social support measure to examine three subtypes of social support: social integration, emotional support, and instrumental support. This approach revealed that it was predominantly a lack of social integration that unemployed individuals reported. This replicates previous findings by Blom and colleagues (2007) showing less social integration in unemployed women with coronary artery disease (Blom, Georgiades, Laszlo, Alinaghizadeh, Janszky, & Ahnve, 2007). Our findings, along with those of Blom and colleagues (2007), support the idea that unemployment is associated with decrease in contact with one’s social group (Axelsson & Ejlertsson, 2002; Hultman & Hemlin, 2008).

Although others have found associations between other social support subtypes and unemployment (Roberts, Pearson, Madeley, Hanford, & Magowan, 1997), we only found trends for emotional and instrumental social support to be lower in unemployed individuals. However, it is unclear at this point how length of unemployment may affect different types of social support. In the present study, unemployed individuals reported
less overall support and social integration with trends for less emotional and instrumental support. One could speculate that participants in the current study may have not been unemployed long enough for the two latter subtypes of social support to fully decline. It may be important for future studies to not only examine social support subtypes but also to explore how they may be differentially affected by the duration of unemployment. A longitudinal study would help to clarify these relationships and would provide further evidence of the important role of specific types of social support in unemployment.

With regard to our measures of subjective social status, we expected that compared to employed individuals, unemployed individuals would report lower SSS based on previous evidence suggesting that SES factors such as income and occupational position are the main determinants of subjective social status (Ostrove et al., 2000; Singh-Manoux et al., 2003). Unemployed individuals did in fact report significantly lower SSS relative to neighbors. Interestingly however, there was no difference between unemployed and employed individuals in status ratings compared to friends. Regarding SSS compared to neighbors, it could be suggested that when comparing yourself to a group of people about whom you may only know basic information, for example their job or the type of car they drive, being unemployed is a particularly salient factor upon which one’s own status would be based. On the other hand, comparing your status to your friends may allow you to use more personally relevant factors beyond income and other SES indicators. Thus, the comparison to friends introduces more subjectivity into the SSS measure further distancing it from SES measures and from other SSS measures referencing more distal groups such as US citizens. Essentially, compared to measuring SSS relative to a distal group such as US citizens or community, the present study
supports the idea that assessing status among more proximal groups such as friends may be a particularly fruitful direction for future studies.

In summary, our findings on stress-related measures provide evidence of the negative health effects of unemployment, particularly for the less well-studied index CAR recovery. Our study also points to the importance of examining specific domains of social support in unemployment, which lead us to speculate whether each of the domains may be more important at different time-points over the course of unemployment. Specifically, our findings suggest social integration may be the first domain to be affected by unemployment. Finally, by measuring subjective social status in an unemployed sample, we found differential effects of unemployment on status among friends and neighbors suggesting that unemployed individuals may not use SES indicators to determine their status among friends.

Determinants of Stress-Related Outcome Measures in Unemployment

Social support and stress-related measures in unemployment.

Next, we examined the relationships between social support and self-reported stress and the impact of employment status on that relationship. Emotional social support was associated with perceived stress only for unemployed individuals. The specific domain of emotional social support has been previously found to be negatively associated with perceived stress in a sample of women with breast cancer (Von Ah & Kang, 2008) and negatively associated with perceived job stress in a sample of social workers (Jayaratne & Chess, 1984). Hence, our findings not only replicate previous research on the positive effects of social support during unemployment (e.g. Atkinson et al., 1986; Gore, 1978), they furthermore point to a specific support domain, emotional support as
being particularly relevant. It has been suggested that the availability of emotional support is particularly important because it allows individuals to express negative emotions and have someone to share feelings and concerns with (Chronister, Chan, Sasson-Gelman, & Chiu, 2010; Von Ah & Kang, 2008). Thus, our findings suggest that the availability of emotional social support providers – as opposed to social integration or general overall support – is a key component to managing perceived stress in unemployment.

Consistent with the literature on the stress-buffering effects of social support (Cohen & Hoberman, 1983), higher perceived instrumental support was associated with lower perceived stress for both employed and unemployed individuals. Instrumental support captures the availability of someone to help with problems such as getting a ride to the airport; thus it seems logical that the availability of instrumental support is associated with less perceived stress regardless of employment status.

Besides effects on self-reported perceived chronic stress, we were also interested in whether social support would affect stress-related biological measures, more specifically, cortisol awakening responses. One previous study found that high social support was related to higher cortisol awakening values (Sjogren, Leanderson, & Kristenson, 2006). Contrary to expectations, CAR recovery and CAR increase in the current study were not significantly related to social support in either group. In the case of unemployed individuals, it is possible that unemployment duration has an effect here as well such that the stress-related consequences of unemployment are evident first in self-report measures, but biological processes are not affected unless unemployment persists. Looking at the lack of an association between social support and CAR from an
employed individuals’ perspective, previous studies indicate that in healthy individuals, perceived stress (measured using the same Perceived Stress Scale as in our study) and CAR are not always associated (Ebrecht, Hextall, Kirtley, Taylor, Dyson, & Weinman, 2004; Pruessner, Hellhammer, & Kirschbaum, 1999). It has been suggested that because the Perceived Stress Scale only asks about stress during the past month, it may not capture long-term chronic stress to the degree necessary to be reflected in biological processes (Ebrecht et al., 2004). This interpretation is supported by the fact that links between CAR and PSS are often found when comparing perceived stress scores of healthy participants to those of extreme groups, such as chronically stressed caregivers (e.g. de Vugt, Nicolson, Aalten, Lousberg, Jolle, & Verhey, 2005). Thus it is possible that the perceived stress measure in healthy participants does not characterize a level of stress that would have an impact on CAR.

In summary, our findings on the impact of social support on stress-related measures suggest that the availability of emotional support may be particularly important for unemployed individuals’ perceived stress levels whereas instrumental support is relevant for both groups. Additionally, our findings suggest that unemployment duration may play a role in how effects of social support are reflected in self-reported vs. biological stress-related measures.

Subjective Social Status and stress-related measures in unemployment.

Another goal of the current study was to examine the impact of subjective social status on stress-related measures in both employed and unemployed individuals. As mentioned before, low SSS has been consistently linked with self-reported stress (e.g. Adler et al., 2000; Ghaed & Gallo, 2007; Wolff et al., 2010) and is thought to affect
health by directly increasing stress or by making individuals more vulnerable to the effects of stress (Adler et al., 2000). As previously reported, unemployed individuals rated status among neighbors significantly lower than employed individuals while status among friends was not significantly different based on employment status. In line with previous studies, we found that lower SSS was associated with higher self-reported perceived stress. Importantly, we found this for both of our status measures: SSS compared to neighborhood and SSS compared to friends. Status among neighbors has previously been linked to self-reported health (Wolff et al., 2010) but the association has not been tested without reference to SES indicators in the measurement SSS. The study presented here not only found an association between status among neighbors and self-reported perceived stress, but measured SSS without reference to SES indicators. Further, we measured status compared to an apparently untested group, friends, and found a link between status relative to friends and perceived stress. These findings suggest that having low subjective social status among one’s neighborhood and friends is a stress-inducing experience for both employed and unemployed individuals, i.e., independently of one’s actual SES.

With regard to biological stress-related measures, we found that a lack of CAR recovery was linked to low SSS relative to friends, again for both employed and unemployed individuals. Most importantly, this finding highlights the usefulness of assessing subjective social status with friends as the reference group. This idea is not unprecedented, as previous research has identified the importance of reference groups when measuring SSS (Wolff et al., 2010). However, Wolff and colleagues (2010) found that SSS compared to US citizens, which references SES factors, still had the strongest
link to self-rated health. However, all reference groups measured in this study used SES indicators in their assessment and further, they did not measure status relative to friends. Hence, the findings of the present study on the association between status among friends and CAR recovery are particularly important as they represent one of the few examples of measuring SSS compared to a very proximal group (i.e. friends as opposed to US citizens, a distal reference group) without referencing SES factors while also finding a link to a biological measure, in this case CAR recovery. Most importantly, however, status among friends appeared to be particularly important for unemployed individuals such that keeping status high is related to better stress-related health outcomes.

We did not find a link between CAR increase or CAR recovery and SSS relative to neighborhood. It is important to point out that it was for status compared to neighborhood that unemployed individuals rated themselves lower than employed individuals. It appears that while status among neighbors is more vulnerable to employment status, it is linked only to perceived stress and not biological measures. Thus, status among neighbors may not be as health-relevant for unemployed individuals to maintain as status among their friends.

To sum up the findings on SSS and stress-related measures, we presented data on SSS among a relatively untested group, friends, and found links to both perceived stress and CAR recovery for both employed and unemployed individuals. Unemployed individuals did not perceived lower status among their friends thus the ability to maintain status in one’s friend group appears to be beneficial for stress in unemployment. On the other hand, status among neighborhood, which unemployed individuals perceived to be significantly lower than employed individuals, was also linked to perceived stress.
suggesting that there could be stress-related benefits to improving status among neighborhood in unemployment.

In summary, the findings presented provide evidence of the impact of social support and subjective social status on stress-related measures in unemployed individuals. Specific domains of social support, emotional and instrumental support, emerged as being particularly important for unemployed individuals in self-reported stress-related measures suggesting that keeping these types of social support high may have health-related benefits for the unemployed. Furthermore, our findings may be some of the first to study the impact of status among one’s friends on stress and to link this status to both self-reported stress and CAR recovery in unemployed individuals. These findings on SSS demonstrate how in unemployment, a situation known to be associated with stress, maintaining status among one’s friends and neighbors is related to lower scores on stress-related measures. This is particularly interesting considering we did not reference SES in our measures of subjective social status.

**Determinants and Relevance of Subjective Social Status in Unemployment**

We hypothesized that unemployed individuals might be able to use social support as a determinant of their SSS instead of SES indicators. We did find some evidence to support this idea. More specifically, we found that for both employed and unemployed individuals, higher instrumental support was associated with higher SSS relative to neighbors but the employed individuals may have driven this effect. Also, for employed individuals, there was a trend for higher social integration, as well as overall social support, predicting higher SSS relative to friends. As previously mentioned, several studies have found evidence for social support being a determinant of SSS (Ghaed &
However, the present study not only replicates these findings, it also extends them by linking distinct domains of social support to specific SSS reference groups. Most importantly, those specific pairings appear conceptually meaningful. When determining SSS relative to friends, the amount of activities and contact with one’s friend group (i.e. social integration) would be particularly relevant whereas the availability of instrumental support, such as finding someone to water your garden, is relevant when determining SSS among neighbors. Essentially, the findings presented here suggest that specific domains of social support may indeed be useful in the determination of SSS compared to proximal reference groups such as friends and neighborhood.

It is particularly interesting that we found a link between social support, specifically instrumental support, and subjective social status relative to neighbors for both groups. Although this association was stronger for employed individuals, this interaction effect was only a trend. Even though they reported less instrumental support, the unemployed individuals used this in determination of their status relative to their neighborhood and consequently reported lower status. As previously reported, unemployed individuals in our study reported significantly less overall social support and social integration, with trends toward less emotional and instrumental support. It could be argued that it would be detrimental for unemployed individuals to use this low level of social support for determining their SSS. Or in other words, not using social support in assessing status among friends may actually be a beneficial strategy for dealing with a loss in social support related to unemployment. The fact that unemployed individuals seem to decouple social support from SSS among friends is particularly important when
considering the health-relevant links we found between SSS among friends and perceived stress as well as CAR recovery. On the other hand, instrumental support and status among neighborhood were linked for both employed and unemployed individuals. Since both low instrumental support and low SSS relative to neighborhood were related to higher perceived stress, the use of instrumental support for determining SSS seems to be particularly detrimental in unemployment, which is already a chronic stressor.

Lastly, we were interested in whether SSS would act as a mediator between social support and stress-related outcome measures. We did not find evidence supporting this hypothesis for neither unemployed nor employed individuals. However, for mediation analysis, the small sample size of the current study is a particularly relevant obstacle and we cannot exclude that mediation could exist and be revealed when studying a larger sample. Looking at the proposed relationship in a larger sample would be an interesting and fruitful direction for future studies, as it would help to expand our knowledge on the health-relevance of different SSS measures and on what people use to determine status, especially unemployed individuals.

Several limitations apply to the current study. Most importantly, all interpretations have to be seen in light of our small sample size of 18 employed and 18 unemployed individuals. Additionally, our sample consisted of more women (n=24) then men. Importantly, however, we did not find gender effects on any of the variables of interest and controlling for gender did not significantly alter any of our findings. Furthermore, a previous study on gender differences in unemployment’s impact on psychological distress suggested that in general, when these gender differences are found, it is due to gender role issues as opposed to inherently different experiences with unemployment.
(Ensminger & Celentano, 1990) suggesting that our findings on stress-related measures likely hold true for men as well. Nevertheless, some caution should be taken with the generalizability of our findings to men.

Next, our findings have to be interpreted on the given cultural background. All participants in the current study were German and compared to the US, Germany offers more governmental support to its unemployed citizens. It is possible that while the initial financial stress of unemployment would be lessened by governmental aid, it would not lessen the social stress associated with unemployment. This claim is evidenced by our finding that unemployed individuals still perceived less social support and lower status in their neighborhood compared to employed individuals. However, our findings may actually be stronger in countries where less government aid is given, making the experience of unemployment potentially more stressful. It would be interesting to replicate our findings in different countries where there are varying levels of governmental support for unemployed citizens.

Another consideration concerns our lack of data on SES indicators other than employment status itself. Including indicators such as, for example, education would have helped us to strengthen our interpretations and position about the health-relevance of (not) using SES indicators to determine SSS in unemployment.

Lastly, the social support questionnaire used in this study exists in multiple versions with longer versions including subscales for specific domains of social support. We used the validated 14-item version of this questionnaire which does not have validated subscales but only a validated general social support score. For the current study, we calculated the subscales based on the breakdown of items described for the
longer version in order to use the related preliminary findings to generate hypotheses with regard to sub-domains of social support. However, since we found meaningful pairings between two of the subscales and specific SSS measures (instrumental support - SSS among neighbors, social integration - SSS among friends) we propose that the subscales we computed – though not validated – nevertheless appear to capture the respective conceptual variables.

In essence, the present study provides evidence on the complex and interesting relationship between social support, subjective social status, and stress-related measures in unemployment. We have expanded the literature on a rarely studied stress-related biological measure with the findings on CAR recovery and found first evidence for this measure to be an interesting and valuable one for future use. Additionally, our findings highlight the potential health-relevance of reference groups in measuring subjective social status, particularly the use of friends, as status among friends was associated with both CAR recovery and perceived stress. Furthermore, this association between CAR recovery and status among friends is a significant finding that emphasizes the health-relevance of maintaining SSS during unemployment. This finding takes a step toward disentangling SES from SSS by measuring SSS without reference to SES indicators in a sample for whom using SES to determine social status could be detrimental. Finally, we have potentially identified the importance of specific domains of social support, specifically emotional support and instrumental support, relevant to unemployed individuals. More specifically, this study provided evidence that specific social support domains may be used to determine SSS with social integration linked to status among friends in employed individuals and instrumental support linked to status among
neighborhood for both groups. Importantly, these findings on the use of social support as a determinant of subjective social status provide evidence of a health-beneficial mechanism of decoupling social support from one’s status among friends in unemployment and point to status among one’s neighborhood and a lack of instrumental support as potentially vulnerable areas during unemployment. In conclusion, unemployment is a chronic stressor and the findings presented here suggest that both the use of specific types of social support, emotional and instrumental support, as well as subjective social status, have the ability to beneficially impact stress in unemployment.

The findings presented here may provide a basis for the development of new interventions for improving stress-related negative health outcomes in unemployed individuals. More specifically, it seems that unemployed individuals are already able to decouple perceptions of low social support from their assessment of their status among friends and this has stress-related benefits. However, it seems that unemployed individuals’ perceptions of instrumental support and status among their neighborhood are closely tied to each other as well as to perceived stress. Our findings suggest that, as opposed to trying to manipulate socioeconomic status, improving subjective social status among neighborhood and increasing the perception of instrumental support may be a way to reduce the negative impact of stress-related health outcomes. Interventions could be designed to help unemployed individuals get out of the detrimental cycle of perceiving low status and instrumental support in their neighborhood by encouraging them to find ways to contribute to their neighborhood and derive status from that. Additionally, our findings emphasize the importance of emotional support for levels of perceived stress in unemployment. Emotional support could potentially be improved by interventions
focusing on increasing the availability of family and close friends to confide in as well as finding outlets for negative emotions for unemployed individuals.

It will be important for future studies to further investigate a few of the findings presented here. Specifically, future studies should determine why instrumental support is lacking for unemployed individuals and why this decrease occurs. Further, future research should develop and test interventions, possibly using instrumental support, for unemployed individuals to improve subjective social status in their neighborhoods. Next, we have suggested that unemployment duration may play a role in how social support and subjective social status are perceived by unemployed individuals. It may be beneficial to examine these variables in a longitudinal design to determine when unemployed individuals lose specific types of social support and status. Additionally, as previously suggested, this study provides evidence of the importance of assessing SSS relative to more proximal reference groups such as friends and neighborhood as opposed to the more often used US citizens reference group. Measuring subjective social status compared to these groups may prove to be a more useful measure that is health-relevant even without being connected to SES. Finally, this study has contributed to a small but accumulating body of evidence on social support as a determinant of subjective social status. This seems to be a promising direction for the study of SSS and a health-relevant one given the consistent associations between SSS and a wide range of health measures. Examining social support as a determinant of SSS will also help to disentangle the measure from SES and potentially clarify the mechanisms linking subjective social status to health.
References


