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Can Self-Concept Clarity Protect Against a Pandemic?

A Daily Study on Self-Concept Clarity and Negative Affect During the COVID-19 Outbreak

Guido Alessandri[1], Evelina De Longis[1], Francesca Golfieri[2], & Elisabetta Crocetti[2]

[1] *Department of Psychology, Sapienza – University of Rome, Rome, Italy*
[2] *Department of Psychology, Alma Mater Studiorum University of Bologna, Bologna, Italy*

Author Note

Correspondence concerning this paper should be addressed to
Guido Alessandri
Department of Psychology, Sapienza – University of Rome, Rome, Italy
Piazzale Aldo Moro 5, Rome 00185, Italy
E-mail: guido.alessandri@uniroma1.it

Data Availability Statement

The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Abstract

Self-concept clarity reflects how confidently and clearly an individual defines the self-belief, and it is theorized to help individuals to be more resilient in the face of stressors. The present study aimed at investigating how self-concept clarity may be implicated in the stress process related to the COVID-19 outbreak, by examining its association with daily negative affect, as a short-term adaptational outcome. The impact of the total number of positive cases, as an objective index of COVID-19 spreading, on negative affect was also tested. Participants were 287 young Italian adults (52% female; M_{age} = 22.68 years, SD_{age} = 2.62), who completed twelve daily diaries (of which five after the lockdown measure was introduced). Results from multilevel growth modelling showed that individuals low in self-concept clarity reported the highest levels of negative affect across the study period, compared to individuals high in self-concept clarity. Moreover, after the issuing of the lockdown measure, individuals high in self-concept clarity showed a steeper increase in their daily level of negative affect, compared to individuals low in self-concept clarity, indicating their responsiveness to the new situation. The total number of new cases was not related to daily negative affect. These findings attest the protective role of self-concept clarity and its impact on emotional responding to the lockdown measure in Italy.

Keywords: Self-concept clarity, Emotions, Daily study, COVID-19 outbreak

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Introduction

Self-concept clarity indicates the extent to which beliefs about the self are clearly and confidently defined, internally consistent, and stable over time (Campbell et al., 1996). Importantly, a large corpus of evidence highlights its importance for adjustment (e.g., Parise et al., 2019; Suszek et al., 2018; for reviews see Crocetti & Van Dijk, 2016; Lodi-Smith & DeMarree, 2017). High levels of self-concept clarity have been found to be positively related to self-esteem (Campbell et al., 1996; Smith et al., 1996; Wu et al., 2010), perception of meaning in life (Bigler et al., 2001; Blazek & Besta, 2012), relationship satisfaction (Lewandowski et al., 2010) and quality (Becht et al., 2017), prosociality (Crocetti, Moscatelli et al., 2016); while low self-concept clarity is related to interpersonal problems (Constantino et al., 2006), loneliness (Frijns & Finkenauer, 2009), body dissatisfaction (Vartanian & Dey, 2013), eating disturbances (Perry et al., 2008), and internalizing problems (Bigler et al., 2001; Smith et al., 1996), including anxiety and depressive symptomatology (Schwartz et al., 2012; Van Dijk et al., 2014). If self-concept clarity matters so strongly for adjustment, might it protect individuals against severe and unexpected threats? In this study, we sought to address this question by examining how self-concept clarity was related to negative emotions in a daily study conducted for two weeks during the COVID-19 outbreak in Italy.

Self-Concept Clarity and Emotions

It has been theorized that the underlying mechanism explaining the association between self-concept clarity and adjustment might involve self-regulation (Touré-Tillery & Light, 2018). In fact, according to the theorization about self-concept clarity proposed initially by Campbell (1990; Campbell et al., 1996), self-concept clarity is conceived as a resource, enabling the adaptive regulation of affects and behaviors. Thus, individuals with higher self-concept clarity are thought to be more flexible in responding to the social environment (Campbell, 1990) since, especially when they face adverse events, they can draw upon values, goals, and self-regulatory capacities

effectively (Light, 2017). Within this line of thinking, Parise et al. (2019) have shown that higher self-concept clarity is associated with better emotion regulation (i.e., the process through which individuals modulate their emotions and respond in an appropriate way to the environmental demands; Gross, 2014), and emotion regulation mediated the association between self-concept clarity and adjustment.

Linkages between self-concept clarity and affect have been documented in prior empirical research. In fact, high self-concept clarity has been found to be positively related to affect balance (i.e., the balance between positive and negative emotions; Bigler et al., 2001) and negatively associated with daily adverse events and negative affect (Nezlek & Plesko, 2001), as well as to negative emotions and aggression following an ego-threat (Stucke & Sporer, 2002). Of interest, Lee-Flynn and colleagues (2011) investigated the role of self-concept clarity in the stress process by examining its association with both short-term and long-term adaptational outcomes. Findings showed that over seven days, self-concept clarity was found to be associated with low levels of evening negative affect, controlling for morning negative affect and self-esteem. Moreover, at 2-year follow-up, self-concept clarity was negatively related to depressive symptoms, even when controlling for initial levels of depressive symptoms and self-esteem (Lee-Flynn et al., 2011). More recently, Scala and colleagues (2018) found that higher levels of momentary negative affect predicted greater subsequent urges to self-injure, but only when self-concept clarity was low. Ellison and colleagues (2020), using experience sampling method, found substantial variability, both within and between persons, in the dynamic association between momentary self-concept clarity and negative affect. Of interest, changes in such associations correlated with changes in stress levels (Ellison et al., 2020). Finally, a study conducted by Xiang and colleagues (2020) indicated a positive association between self-concept clarity and emotional well-being.

Building upon this literature, it can be expected that in a situation of uncertainty, self-concept clarity could work as a key protective factor, promoting more adaptive responses. In this

study, we tackled this issue in a sort of "natural experiment" conducted during the COVID-19 outbreak in Italy.

Facing an Unexpected Threat: The COVID-19 Outbreak

The current daily study was conducted for two weeks, from March 1st to March 15th, 2020, in Italy. In this period, Italian citizens were forced to a sudden change in their everyday life habits. Because of the spreading of the pandemic of the coronavirus disease 2019 (COVID-19) throughout the country, the Italian Government enforced a progressive restriction of individual freedom. For example, social distancing, namely the oblige to avoiding close interpersonal contact by keeping a safe distance of one meter (three feet) from other people who are not from the same household in both indoor and outdoor spaces, was first introduced. Then, on February 23rd, the Government announced the prohibition of both entering and exiting across the 14 most infectious municipalities, which were in the northern part of Italy (Decreto del Presidente del Consiglio dei Ministri, DPCM of February 23rd, 2020); on March 9th, the whole country was declared as "Protected Area", extending the previous prohibition to the entire Italian territory (DPCM of March 9th, 2020); and on March 22nd, the Government prohibited moving across municipalities by public or private transport, except for non-deferrable and proven work or health reasons (DPCM of March 22nd, 2020). These measures resulted in fundamental limitations of the movement of individuals, such as the cancellation of all sports and cultural events, the closing of stores and restaurants, as well as the shutdown of schools and universities.

Studies investigating the impact of lockdown measures introduced to combat the COVID-19 outbreak on people's psychological adjustment have documented a severe reduction in well-being (Brooks et al., 2020; Mukhtar, 2020), and a sharp increase in symptoms related to anxiety, frustration, boredom, fear of infection, and worry of financial loss (de Medeiros et al., 2020; Wang et al., 2020). More in general, quarantine measures have been extensively associated with increased psychological distress, emotional disturbance, diagnostic symptoms of high anxiety levels and post-traumatic stress disorder (Cava et al., 2005; Robertson et al., 2004; Wang et al., 2011).

The Present Study

In line with the above considerations, the purposes of this daily study were threefold. First, we monitored daily changes in negative emotions in a sample of young adults, starting a week before the lockdown measure and ending five days after its introduction. According to the above considerations, we hypothesized a sharp increase in the daily negative affect average trajectory associated with the introduction of the quarantine measure. Second, we examined if individuals differing in their self-concept clarity level differed in their daily negative affect level. We hypothesized average lower level of negative affect for individuals reporting high self-concept clarity, compared to individuals low on this personal characteristic. Finally, we exploratively investigated if an index of COVID-19 impact, namely the total number of new positive cases reported on a daily basis was associated with the observed daily changes in negative affect. In fact, the more individuals hear about increasing widespread of the pandemic, the more they perceive the situation as threatening, and this can increase their distress, anxiety, and negative affect (e.g., Chao et al., 2020; Zhao et al., 2020).

Method

Participants

Participants were 287 young adults (52% female; M_{age} = 22.68 years, SD_{age} = 2.62). Most participants were university students (42.35%) or workers (38.43%), while 19.22% were both students and workers. All participants were Italian, and the majority of them came from the North-East of Italy (76%), while 12.18% came from the South, 5.73% from the Center, 3.94% from Isles, and 2.15% from the North-West.

Most participants came from a two-parent family (79.36%), while 14.59% have separated or divorced parents, and 6.05% reported other family situations (e.g. one deceased parent). Furthermore, about two-thirds of the participants lived with the family of origin (68.33%), and the rest lived in autonomy/semi-autonomy conditions (e.g. with friends or roommates, with a partner, on their own). Also, the parents' educational levels resulted to be heterogeneous: low (i.e. less than

high school diploma) for 42.35% of the fathers and 34.52% of the mothers; medium (i.e. high school diploma) for 43.42% of the fathers and 49.11% of the mothers; high (i.e. university degree) for 14.23% of the fathers and 16.37% of the mothers.

Missing Data Analyses

A total of 323 people agreed to participate in the study. However, only those who completed at least 8 (out of 15) questionnaires were included in the analyses (N=287; 88.85%). An ANOVA and a series of Chi-square tests indicated no statistical differences on any socio-demographic variable (i.e., age, F [1, 235] = 0.78, p = .378, η^2 = .00; gender, χ^2 [1, 301] = 2.15, p = .143; occupational status, χ^2 [2, 301] = 1.46, p = .481; family status, χ^2 [2, 301] = 1.58, p = .455; living status, χ^2 [1, 301]= 1.51, p = .219), paternal educational background, χ^2 [2, 301] = 4.30, p = .117; maternal educational background, χ^2 [2, 301] = 0.21, p = .899) between the participants who completed at least 8 out of 15 daily assessments and those who filled only a few of them. Furthermore, the results of Little's (1988) Missing Completely at Random (MCAR) test yielded a normed χ^2 (χ^2/df) equal to 1.15, indicating that data were likely missing at random.

Procedure

The study was approved by the Ethics Committee of the [blinded for review]. The sample was recruited with a snowball technique. About eighty university students from Social Sciences and Humanities courses were contacted by one of the researchers, invited to join the study and to indicate other three names of potential participants (one university student of the opposite gender, a female worker, and a male worker within the age of 19 and 30). A consent module was provided to each person, and everyone who agreed was then added to an e-mailing list created ad-hoc for this study.

Through the e-mailing list application, the online questionnaire prepared in Qualtrics was administered daily from March 1st to March 15th 2020. Each day participants received at 4.45 pm an e-mail with the hyperlink of the questionnaire and a reminder to fill it from 5 pm to 8 pm. Each participant generated a unique code with five digits (i.e., the third letter of participant's name; day

of birth of the respondent; the first letter of mother's name; day of birth of participant's mother; the first letter of father's name) to link the responses across the daily assessments while ensuring confidentiality. More specifically, three versions of the questionnaire were provided. On the first day (W1), the complete questionnaire - containing socio-demographic questions and the full version of each scale - was filled. One (W2) and two (W3) weeks after, an identical questionnaire, not containing the socio-demographic questions, was given. W1, W2, and W3 all happened on Sunday. Finally, on the other days (D1 to D12, from Monday to Saturday for two weeks), participants filled a short version of the same questionnaire, consisting of one-item or short versions of the study scales. In this study, shortened daily assessments (D1 to D12) are considered.

Measures

Negative affect

To assess participants' negative emotions, five items drawn from the Positive and Negative Affect Schedule (Watson et al., 1988; for the Italian version see Terracciano et al., 2003) were used. The items were scored on a 0% to 100% slider, referred to the present day. A sample item is "How much have you felt angry today?". The between-persons and within-person reliabilities were calculated by using MIXED methods with SPSS 25.0, following the procedure described by Bonito et al. (2012). The between-persons reliability was .70, and the within-person reliability was .85.

Self-concept clarity

Each day, self-concept clarity was measured by using one item drawn from the Self-Concept Clarity Scale (SCC; Campbell et al., 1996; for the Italian version see Fermani et al., 2016) and selected in a previous daily study (Schwartz et al., 2011). The item ("Today I had a clear picture of who and what I am") was scored on a 5-point Likert-type rating scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The between-persons reliability was .73, and the within-person reliability was .81.

COVID-19 spreading

When participants filled out the questionnaire, they provided information about their geographic location. This information was then used for assigning them to one of the 85 cities involved in the study, and for linking them with the total number of new cases observed for that day in their city, by using data provided by the state agency in charge of the emergency (available at http://opendatadpc.maps.arcgis.com/apps/opsdashboard/index.html#/b0c68bce2cce478eaac82fe38d4138b1). These data were then included in the analyses.

Modelling Strategies

Because of the nested data structure (days nested within individuals), we tested the hypotheses using multilevel modelling (Preacher et al., 2008) in two steps. In the first step, we examined if negative affect showed a significant change over time and if this change was impacted by the lockdown measure. To this aim, we estimated piecewise growth functions, estimating two different temporal regimes for the observed daily negative affect scores. The first regime accounted for the observed trend in negative affect from the first study day until the beginning of the quarantine (i.e., from day 1 to day 8, or phase 1). The second regime explained the (expected) change in negative affect temporal dynamics occurring during the lockdown phase (i.e., from day 8 to day 12, or phase 2). This model can be formally represented as follows:

Level-1

$$(1)\ \textit{daily negative affect}_{ij} = \beta_{0j}+\beta_{1j}*\textit{phase1}_{ij}+ \beta_{2j}*\textit{phase2} + \beta_{3j}*\textit{phase2}^2 + r_{ij}$$

Level-2

$$(2)\ \beta_{0j} = \gamma_{00} + U_{0j},$$

$$(3)\ \beta_{1j} = \gamma_{10} + U_{1j},$$

$$(4)\ \beta_{2j} = \gamma_{20} + U_{1j},$$

$$(5)\ \beta_{3j} = \gamma_{30} + U_{1j}$$

In this model, the term β_{0j} represents the negative affect starting level (or intercept) for the different participants observed on the first day of assessment. The term β_{1j}, or the slope, captures the individual change rates from day 1 to day 8. This term has fixed values, varying from 0 on the first

day, to 7 on the day 8, and then remains constant. Both β_{0j} and β_{1j} are defined by a fixed term γ_{00} and γ_{10}, representing the average intercept and the average growth rate, and by the random terms U_{0j}, U_{1j} representing the individual-level residuals, or average departure by the intercept or the slope. The two additional terms, β_{2j} and β_{3j}, capture the time regime observed from day 8 (the first day of lockdown) until day 12 (the last study day), by using a quadratic function. To this aim, both terms assume a value of 0 until day 7, and then change as 1, 2, 3 and 4 (β_{2j}), or 1, 4, and 9 (β_{3j}). γ_{20} and γ_{30} represent the average linear and quadratic acceleration during this phase, with U_{2j} and U_{3j} representing the individual level departure from these average components. This model can capture, if present, the non-linear deviation from the initial regime determined by the lockdown measure. A simpler version of the model (that we tested, see below) exclude the quadratic slope, and it is sensitive only to linear deviation. All random terms were specified as correlated. Time-specific deviations are represented by the independent and identically standard normally distributed r_{ij}.

We compared this model with a set of alternative models. First, we explored if dropping the quadratic slope (i.e., β_{3j}) from the second regime significantly worsened the model. Second, we compared the liberal dual regime model with a "no growth" model, including only a random intercept, and absolute stability in daily negative affect. Third, we compared the piecewise model with a simple linear model, including a unique linear slope characterizing the observed change across all the 12 study days. Finally, we investigated the fit of a general quadratic model, assuming a rise and then a fall (or vice versa) in negative affect from day 1 to day 12, compared to that of the general piecewise model. After having established the best fitting model, we expanded the resulting equations to include the average level of participants' self-concept clarity observed across the 12-days, and the daily levels of COVID-19 spreading index, as explained below.

All analyses were carried out in the Jamovi (The Jamovi project, 2020, version: 1.1.9.0) statistical software using maximum likelihood as the elective method of estimation. Alternative nested models were compared using their -2 log likelihood, the Akaike Information Criterion (AIC),

and the Bayesian Information Criterion (BIC). Significant reduction in -2LL signals a better fitting model, whereas models with lower AIC and BIC are usually retained as the best fitting ones.

Results

Unconditional Multilevel Growth Modeling

Descriptive statistics are reported in Table 1. Results of model fitting supported the tenability of the liberal dual regime piecewise model compared with other plausible alternative models (see Table 2). This model resulted in a significant intercept, a non-significant first regime slope, but two significant second regime slopes (see Table 3). Importantly, in follow up analyses we found that only the random component associated with the intercept and the linear slope determining the first temporal regime resulted statistically significant as attested by the lower BIC (25581.08) and AIC (25532.57) associated with an alternative model constraining the random effects for the slopes of the second temporal regime to zero. This model is excellent in reproducing the observed trajectory (see Figure 1) and explains a consistent proportion of individuals' negative affect observed scores. Accordingly, the model predicts a significant variability in daily negative affect from Day 1 to Day 7, with some individuals increasing, and others decreasing or remaining stable, but with no overall systematic change. On the contrary, after the lockdown measure, a significant rise in negative affect occurs, then followed by a progressive fall. This subsequent change is assumed to be constant across all individuals, with no within-individual differences. Importantly, the intercept and the linear slope associated with the first temporal regime resulted significantly and negatively and moderately correlated. Accordingly, the lower the initial scores on negative affect reported by a participant, the higher the degree of change before the issuing of the lockdown order.

Conditional Multilevel Modeling: Time-Invariant Predictor

After having established the excellent fit of the liberal piecewise growth function, we included the variable "self-concept clarity", cluster level centered as a Level 2 (1) time-invariant predictor of the starting negative affect levels, and (2) moderator of the second temporal regime.

We did not test the effect of self-concept clarity on the first regime because the temporal trend was not significant. To this aim, we expanded the above model as follows:

Level-2

$$(6)\ \beta_{0j} = \gamma_{00} + \gamma_{01} * \mathrm{SCC_j} + \mathrm{U}_{0j},$$

$$(7)\ \beta_{1j} = \gamma_{10} + \mathrm{U}_{1j},$$

$$(8)\ \beta_{2j} = \gamma_{20} + \gamma_{21} * \mathrm{SCC_j} + \mathrm{U}_{1j},$$

$$(9)\ \beta_{3j} = \gamma_{30} + \gamma_{31} * \mathrm{SCC_j} + \mathrm{U}_{1j}.$$

The Level 1 equation remained unchanged. The above model fit the data better (see Table 3) than the previous best-fitting model without the variable self-concept clarity included as a random predictor. Results showed that self-concept clarity significantly predicted the intercept, meaning that individuals with high scores on self-concept clarity started with a lower level on negative affect. Interestingly, we found a significant interaction between self-concept clarity and the linear slope associated with the second temporal regime, but not with the quadratic slope (Table 3). Accordingly, the relationship between the second linear slope with the daily negative affect scores was stronger (γ_{21}= 3.44) for individuals with high scores on the measure of self-concept clarity than for those reporting low scores (γ_{21} = 1.49). To better understand this relationship, we plotted the expected trajectories of negative affect for individuals high and low in self-concept clarity in Figure 1. As can be seen, individuals low in self-concept clarity reported the highest levels of negative affect throughout the study, whereas individuals high in self-concept clarity reported the lowest levels of negative affect. Of interest, after the issuing of the lockdown order, individuals high in self-concept clarity showed a rapid increase in their daily level of negative affect. The change observed for individuals low in self-concept clarity resulted, instead, clear but less steep. The model explained a significant proportion of variance in daily negative affect (Table 3).

Conditional Multilevel Modeling: Time-Variant Predictors

As a final step in the modelling, we included the Level 1 time random varying predictors of total number of COVID-19 cases in the specific day (i.e., TOT_COVID-19). The model equation at Level 1 was expanded as follows (but remained unchanged at Level 2):

Level-1

$$(10)\ daily\ negative\ affect_{ij} = \beta_{0j}+\beta_{1j}*phase1_{ij}+ \beta_{2j}*phase2 + \beta_{3j}*phase2^2 + \beta_{4j}*\text{TOT_COVID-19}+ r_{ij}.$$

According to the results, we found no significant effect of the total number of cases on that day on the daily level of negative affect (see Table 3).

Discussion

Experiencing a pandemic outbreak is something that may change people's ways of looking at life because this is not something to which they can be psychologically prepared or had even conceived. As such, the COVID-19 outbreak has been most assimilable to a likely traumatic event, one requiring a massive investment of personal resources to cope with (Hobfoll, 2001). The effects of this sort of events become primarily evident through individuals' changes in emotional states and in rapid increases in negative emotions that signal that individuals are distressed. Emotions are indeed highly dynamic phenomena, and by definition, highly variable over time (e.g., moments, days), and highly reactive to external events (Frijda, 2006).

Not surprisingly, in this study with young adults, we reported a sharp increase in daily negative affect occurring concurrently with the introduction of the lockdown measure established to contrast the spreading of the COVID-19 infection all over Italy. Coherently with the Conservation of Resources theory (Hobfoll, 1989), this sharp increase signals the distress engendered by the issuing of the measure, that has likely required a certain amount of psychological resource investment by citizens to cope with it. Interestingly, the observed change took the shape of a "sudden bounce", characterized by a steep increase and a rapid decrease, likely connected the first with the fear of a (potentially) resource losing event (i.e., the lockdown), and with a feeling of relief the second. Indeed, although current data are likely not sufficient to explore this matter in-depth, the

nature of the quadratic function best fitting this change suggests that it is likely assimilable to a bump on a long term trajectory rapidly returning to its average (typical) level for the majority of individuals.

Thus, facing the lockdown measure did carry a cost for people. This cost, however, resulted relatively lower for individuals reporting a high self-concept clarity. Indeed, in accordance with the hypotheses, the average level of self-concept clarity observed all over the study resulted in lower daily negative affect trajectories. This result was fully expected and in line with theoretical perspectives assigning to self-concept clarity a key role in fostering psychological adjustment (for reviews see Lodi-Smith & DeMarree, 2018). Interestingly, individuals lower in self-concept clarity, along with showing the highest average levels of negative affect, also displayed a reduced reactivity to the lockdown measure. This pattern of high and persistent negative affect reminded us of the inertial negative mood that has been shown to be prodromic to the onset of the major depressive disorder (Kuppens et al., 2012).

In contrast, individuals high in self-concept clarity showed the lowest level of daily negative affect, coupled with increased reactivity to the lockdown measure. Indeed, in response to the home isolation order, the observed levels of negative affect for these individuals increased rapidly but then showed a following sharp decline. The ability of these individuals to adapt their mood to changing environmental circumstances is an index of psychological flexibility, and thus of higher psychological resilience (Alessandri, DeLongis, Eisenberg, & Hobfoll, 2020).

Interestingly, changes in daily negative affect were almost unrelated to an objective index of total COVID-19 infection progression, as represented by the total number of cases up to the day. This result likely suggests that citizens emotional state in the early phases of the pandemic development was mostly responsive to the daily new directives issued by the Government, such as the decision to restrict the access to some protected areas, and then to order a lockdown, because these latter were considered the objective indicators of the gravity of COVID-19 spread. It is likely that, after the beginning of the lockdown, when individuals were isolated into their homes, the daily

report of the new COVID-19 cases had a higher and threatening impact (see Alessandri, Filosa, Tisak, Crocetti, Crea, & Avanzi, 2020).

Theoretical and Practical Implications

From a theoretical point of view, the present results offer several significant contributions. First of all, the adaptive value of self-concept clarity was confirmed: notably, this study contributes to the literature showing how self-concept clarity is not only important in normal conditions but also in unpredictable ones, like a pandemic outbreak is. Second, we clarified two crucial mechanisms through which self-concept clarity relates to emotional adjustment. One mechanism is obviously linked to the low level of daily negative affect experienced by individuals. The second, more interesting mechanism, is instead captured by the ability of individuals with a clear self-concept to fine-tune their internal emotional state on external contingencies, and then swiftly get back to their usual level. Absolute level and changeability are two key components of the adaptive "emotional dynamics", describing the volatile, but predictable, nature of emotions across time characterizing healthy subjects (Frijda, 2006).

From a practical point of view, this study points to the psychological impact of the lockdown measure issued by the Italian Government in response to the COVID-19 outbreak. Given that increased negative emotions have been linked to depression and major emotional dysfunctions (Gross & Jazaieri, 2014; Joormann & Vanderlind, 2014), reducing the impact of such major life events, such as the lockdown, may seem a worthwhile enterprise. In this regard, our results indicate the value of efforts finalized to improve self-concept clarity. For instance, Levey et al. (2019) suggest that "strategies such as asking individuals to write about their past while encouraging them to perceive negative events as learning opportunities might help them form a clearer self-concept" (p. 1077).

Limitations

This study should be considered in light of some limitations. A first limitation was the use of short and exclusively self-report measures of negative affect. However, reducing the time necessary

to fill out the questionnaire appeared necessary not only to increase participation but also for reducing the burden on participants that were already distressed by the unusual circumstances. Furthermore, the study captured the reactions of Italian young people to a very specific situation. We believe that the exceptionality of the situation makes current results specific to a particular social context and historical period. Finally, it has to be taken into account that participants reflect a specific age category, that is, young adults. Thus, results could differ if other age groups are considered. Specifically, self-concept clarity is known to increase with age, becoming a more valuable resource with time (e.g., Crocetti, Rubini et al., 2016; for a review see, Lodi-Smith & Crocetti, 2018). Hence, it can be expected that older age groups (i.e., adults) would exhibit even more differences in how they react to the pandemic, based on their individual level of self-concept clarity, than younger age groups (i.e., adolescents).

Conclusions

The present study, akin to a natural experiment, investigated the role of self-concept clarity as a valuable resource that may have helped individuals to be more resilient and produce adaptive emotional responses to the COVID-19 outbreak. In line with the predictions and with previous literature (e.g., Campbell et al., 1996), findings from the present study suggest that self-concept clarity has a beneficial effect on psychological adjustment, as it plays a protective role against a stressful event as the beginning of the lockdown. The COVID-19 pandemic has been a unique, unprecedented event. We do not doubt that, if considered with the necessary qualifications, the results have the potential to contribute to the understanding of the capacity to cope with COVID-19 outbreak in Italy. Having a sense of self that is clear and stable, being related to a short term gain in lower negative affect during the lockdown, may likely make a difference in terms of behaviour and attitudes towards the pandemic. At the same time, these results point to self-concept clarity as a potential focus area for interventions to enhance emotional well-being under stressful circumstances.

References

Alessandri, G., De Longis, E., Eisenberg, N., & Hobfoll, S. E. (2020). A multilevel moderated mediational model of the daily relationships between hassles, exhaustion, ego-resiliency and resulting emotional inertia. *Journal of Research in Personality*, *85*, 103913. https://doi.org/10.1016/j.jrp.2020.103913

Alessandri, G., Filosa, L., Tisak, M. S., Crocetti, E., Crea, G., & Avanzi, L. (2020). Moral disengagement and generalized social trust as mediators and moderators of rule-respecting behaviors during the COVID-19 outbreak. *Frontiers in Psychology, 11*, 2102 https://doi.org/10.3389/fpsyg.2020.02102

Becht, A. I., Nelemans, S. A., Van Dijk, M. P., Branje, S. J., Van Lier, P. A., Denissen, J. J., & Meeus, W. H. (2017). Clear self, better relationships: Adolescents' self-concept clarity and relationship quality with parents and peers across 5 years. *Child development*, *88*(6), 1823-1833. https://doi.org/10.1111/cdev.12921

Bigler, M., Neimeyer, G. J., & Brown, E. (2001). The divided self revisited: Effects of self-concept clarity and self-concept differentiation on psychological adjustment. *Journal of Social and Clinical Psychology, 20*(3), 396-415. https://doi.org/10.1521/jscp.20.3.396.22302

Blazek, M., & Besta, T. (2012). Self-concept clarity and religious orientations: Prediction of purpose in life and self-esteem. *Journal of Religion and Health*, *51*, 947–960. https://doi.org/10.1007/s10943-010-9407-y

Bonito, J. A., Ruppel, E. K., & Keyton, J. (2012). Reliability estimates for multilevel designs in group research. *Small Group Research*, *43*(4), 443-467. https://doi.org/10.1177/1046496412437614

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, *395*, 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8

Campbell, J. D. (1990). Self-esteem and clarity of the self-concept. *Journal of Personality and Social Psychology*, *59*(3), 538-549. https://psycnet.apa.org/doi/10.1037/0022-3514.59.3.538

Campbell, J. D., Trapnell, P. D., Heine, S. J., Katz, I. M., Lavallee, L. F., & Lehman, D. R. (1996). Self-concept clarity: Measurement, personality correlates, and cultural boundaries. *Journal of Personality and Social Psychology, 70*(1), 141-156. https://doi.org/10.1037/0022-3514.70.1.141

Cava, M. A., Fay, K. E., Beanlands, H. J., McCay, E. A., & Wignall, R. (2005). Risk perception and compliance with quarantine during the SARS outbreak. *Journal of Nursing Scholarship*, *37*(4), 343-347. https://doi.org/10.1111/j.1547-5069.2005.00059.x

Chao, M., Xue, D., Liu, T., Yang, H., & Hall, B.J. (2020). Media use and acute psychological outcomes during COVID-19 outbreak in China. *Journal of Anxiety Disorders*, *74*, 102248. https://doi.org/10.1016/j.janxdis.2020.102248

Constantino, M. J., Wilson, K. R., Horowitz, L. M., & Pinel, E. C. (2006). Measures of self-organization and their association with psychological adjustment. *Journal of Social and Clinical Psychology*, *25*, 333–360. https://doi.org/10.1521/jscp.2006.25.3.333

Crocetti, E., Moscatelli, S., Van der Graaff, J., Rubini, M., Meeus, W., & Branje, S. (2016). The interplay of self-certainty and prosocial development in the transition from late adolescence to emerging adulthood. *European Journal of Personality*, *30*(6), 594-607. https://doi.org/10.1002/per.2084

Crocetti, E., Rubini, M., Branje, S., Koot, H. M., & Meeus, W. (2016). Self-concept clarity in adolescents and parents: A six-wave longitudinal and multi-informant study on development and intergenerational transmission. *Journal of Personality, 84*(5), 580-593. https://doi.org/10.1111/jopy.12181

Crocetti, E., & Van Dijk, M. P. A. (2016). Self-concept clarity. In R. J. R. Levesque (Ed.), *Encyclopedia of adolescence*. Springer International Publishing. https://doi.org/10.1007/978-3-319-32132-5_808-2

de Medeiros Carvalho, P. M., Moreira, M. M., de Oliveira, M. N. A., Landim, J. M. M., & Neto, M. L. R. (2020). The psychiatric impact of the novel coronavirus outbreak. *Psychiatry research*, *286*, 112902. https://doi.org/10.1016/j.psychres.2020.112902

Ellison, W. D., Gillespie, M. E., & Trahan, A. C. (2020). Individual differences and stability of dynamics among self-concept clarity, impatience, and negative affect. *Self and Identity*, *19*(3), 324-345. https://doi.org/10.1080/15298868.2019.1580217

Fermani, A., Muzi, M., Crocetti, E., & Meeus, W. (2016). Are parents vital for the self-concept clarity? A comparison of students and workers [I genitori sono importanti per la chiarezza del concetto di sé? Studenti e lavoratori a confronto]. *Psicologia Clinica Dello Sviluppo, 20*(1), 55-81. https://doi.org//10.1449/83130

Frijda, N. H. (2006). *The laws of emotions*. Lawrence Erlbaum.

Frijns, T., & Finkenauer, C. (2009). Longitudinal associations between keeping a secret and psychosocial adjustment in adolescence. *International Journal of Behavioral Development*, *33*, 145–154. https://doi.org/10.1177/0165025408098020

Gross, J. J. (2014). Emotion regulation: Conceptual and empirical foundations. In J. J. Gross (Ed.). *Handbook of emotion regulation* (2nd ed., pp. 3–20). Guilford Press.

Gross, J. J., & Jazaieri, H. (2014). Emotion, emotion regulation, and psychopathology: An affective science perspective. *Clinical Psychological Science*, *2*(4), 387-401. https://doi.org/10.1177/2167702614536164

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*(3), 513-524. https://doi.org/10.1037/0003-066X.44.3.513

Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology: An International Review, 50,* 337–421. https://doi.org/10.1111/1464-0597.00062

The Jamovi project (2020). *Jamovi. (Version 1.2) [Computer Software].* Available online at: https://www.jamovi.org

Joormann, J., & Vanderlind, W. M. (2014). Emotion regulation in depression: The role of biased cognition and reduced cognitive control. *Clinical Psychological Science*, *2*(4), 402-421. https://doi.org/10.1177/2167702614536163

Kuppens, P., Sheeber, L. B., Yap, M. B. H., Whittle, S., Simmons, J. G., & Allen, N. B. (2012). Emotional inertia prospectively predicts the onset of depressive disorder in adolescence. *Emotion, 12*(2), 283-289. https://doi.org//10.1037/a0025046

Lee-Flynn, S. C., Pomaki, G., DeLongis, A., Biesanz, J. C., & Puterman, E. (2011). Daily cognitive appraisals, daily affect, and long-term depressive symptoms: The role of self-esteem and self-concept clarity in the stress process. *Personality and Social Psychology Bulletin*, *37*(2), 255-268. https://doi.org/10.1177/0146167210394204

Levey, E. K., Garandeau, C. F., Meeus, W., & Branje, S. (2019). The longitudinal role of self-concept clarity and best friend delinquency in adolescent delinquent behavior. *Journal of Youth and Adolescence*, *48*(6), 1068-1081. https://doi.org/10.1007/s10964-019-00997-1

Lewandowski Jr, G. W., Nardone, N., & Raines, A. J. (2010). The role of self-concept clarity in relationship quality. *Self and Identity*, *9*, 416–433. https://doi.org/10.1080/15298860903332191

Light, A. E. (2017). Self-concept clarity, self-regulation, and psychological well-being. In J. Lodi-Smith & K. G. DeMarree (Eds.), *Self-concept clarity: Perspectives on assessment, research, and applications* (pp. 177-193). Springer.

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*(404), 1198-1202. https://doi.org/10.1080/01621459.1988.10478722

Lodi-Smith J. & Crocetti E. (2018). Self-concept clarity development across the lifespan. In: J. Lodi-Smith & K. G. DeMarree (Eds.), *Self-concept clarity: Perspectives on assessment, research, and application* (pp. 67-84). Springer. https://doi.org/10.1007/978-3-319-71547-6_4

Lodi-Smith, J., & DeMarree, K. G. (Eds.). (2017). *Self-concept clarity: Perspectives on assessment, research, and application*. Springer. https://doi.org//10.1007/978-3-319-71547-6

Mukhtar, S. (2020). Pakistanis' mental health during the COVID-19. *Asian Journal of Psychiatry, 51*, 102127. https://doi.org/10.1016/j.ajp.2020.102127.

Nezlek, J. B., & Plesko, R. M. (2001). Day-to-day relationships among self-concept clarity, self-esteem, daily events, and mood. *Personality and Social Psychology Bulletin*, *27*(2), 201-211. https://doi.org/10.1177/0146167201272006

Parise, M., Canzi, E., Olivari, M. G., & Ferrari, L. (2019). Self-concept clarity and psychological adjustment in adolescence: The mediating role of emotion regulation. *Personality and Individual Differences*, *138*, 363-365.https://doi.org/10.1016/j.paid.2018.10.023

Perry, J. A., Silvera, D. H., Neilands, T. B., Rosenvinge, J. H., & Hanssen, T. (2008). A study of the relationship between parental bonding, self-concept and eating disturbances in Norwegian and American college populations. *Eating Behaviors*, *9*(1), 13-24. https://doi.org/10.1016/j.eatbeh.2007.01.007

Preacher, K. J., Wichman, A. L., MacCallum, R. C., & Briggs, N. E. (2008). *Latent growth curve modeling.* Sage.

Robertson, E., Hershenfield, K., Grace, S. L., & Stewart, D. E. (2004). The psychosocial effects of being quarantined following exposure to SARS: A qualitative study of Toronto health care workers. *The Canadian Journal of Psychiatry*, *49*(6), 403-407. https://doi.org/10.1177/070674370404900612

Scala, J. W., Levy, K. N., Johnson, B. N., Kivity, Y., Ellison, W. D., Pincus, A. L., ... & Newman, M. G. (2018). The role of negative affect and self-concept clarity in predicting self-injurious

urges in borderline personality disorder using ecological momentary assessment. *Journal of Personality Disorders*, *32*(Supplement), 36-57. https://doi.org/10.1521/pedi.2018.32.supp.36

Schwartz, S. J., Klimstra, T. A., Luyckx, K., Hale, W. W., Frijns, T., Oosterwegel, A., . . . Meeus, W. H. J. (2011). Daily dynamics of personal identity and self-concept clarity. *European Journal of Personality, 25*(5), 373-385. https://doi.org//10.1002/per.798

Schwartz, S. J., Klimstra, T. A., Luyckx, K., Hale III, W. W., & Meeus, W. H. J. (2012). Characterizing the self-system over time in adolescence: Internal structure and associations with internalizing symptoms. *Journal of Youth and Adolescence*, *41*, 1208–1225. https://doi.org/10.1007/s10964-012-9751-1

Smith, M., Wethington, E., & Zhan, G. (1996). Self-concept clarity and preferred coping styles. *Journal of Personality*, *64*, 407–434. https://doi.org/10.1111/j.1467-6494.1996.tb00516.x

Stucke, T. S., & Sporer, S. L. (2002). When a grandiose self-image is threatened: Narcissism and self-concept clarity as predictors of negative emotions and aggression following ego-threat. *Journal of Personality*, *70*(4), 509-532. https://doi.org/10.1111/1467-6494.05015

Suszek, H., Fronczyk, K., Kopera, M., & Maliszewski, N. (2018). Implicit and explicit self-concept clarity and psychological adjustment. *Personality and Individual Differences*, *123*, 253-256. https://doi.org/10.1016/j.paid.2017.11.038

Terraciano, A., McCrae, R. R., & Costa Jr, P. T. (2003). Factorial and construct validity of the Italian Positive and Negative Affect Schedule (PANAS). *European Journal of Psychological Assessment*, *19*(2), 131-141. https://doi.org/10.1027/1015-5759.19.2.131

Touré-Tillery, M., & Light, A. E. (2018). No self to spare: How the cognitive structure of the self influences moral behavior. *Organizational Behavior and Human Decision Processes*, *147*, 48-64. https://doi.org/10.1016/j.obhdp.2018.05.002

Van Dijk, M. P. A., Branje, S., Keijsers, L., Hawk, S. T., Hale III, W. W., & Meeus, W. (2014). Self-concept clarity across adolescence: Longitudinal associations with open communication

with parents and internalizing symptoms. *Journal of Youth and Adolescence*, *43*, 1861–1876. https://doi.org/10.1007/s10964-013-0055-x

Vartanian, L. R., & Dey, S. (2013). Self-concept clarity, thin-ideal internalization, and appearance-related social comparison as predictors of body dissatisfaction. *Body Image*, *10*, 495–500. https://doi.org/10.1016/j.bodyim.2013.05.004

Wang, Y., Xu, B., Zhao, G., Cao, R., He, X., & Fu, S. (2011). Is quarantine related to immediate negative psychological consequences during the 2009 H1N1 epidemic? *General hospital psychiatry*, *33*(1), 75-77. https://doi.org/10.1016/j.genhosppsych.2010.11.001

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health*, *17*(5), 1729. https://doi.org/10.3390/ijerph17051729

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063-1070. https://doi.org/10.1037/0022-3514.54.6.1063

Wu, J., Watkins, D., & Hattie, J. (2010). Self-concept clarity: A longitudinal study of Hong Kong adolescents. *Personality and Individual Differences*, *48*, 277–282. https://doi.org/10.1016/j.paid.2009.10.011

Xiang, G., Li, Q., Du, X., Liu, X., Xiao, M., & Chen, H. (2020). Links between family cohesion and subjective well-being in adolescents and early adults: The mediating role of self-concept clarity and hope. *Current Psychology*. https://doi.org/10.1007/s12144-020-00685-5

Zhao, H., He, X., Fan, G., Li, L., Huang, Q., Qiu, Q., Kang, Z., Du, T., Han, L., Ding, L., & Xu, H. (2020). COVID-19 infection outbreak increases anxiety level of general public in China: involved mechanisms and influencing factors. *Journal of Affective Disorders*, *276*, 446-452. https://doi.org/10.1016/j.jad.2020.07.085

Table 1

Means (M) and Standard Deviations (SD) of the Study Constructs

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Self-concept clarity	3.43 (0.85)	3.50 (0.82)	3.48 (0.85)	3.49 (0.85)	3.45 (0.88)	3.44 (0.92)	3.50 (0.90)	3.43 (0.89)	3.43 (0.86)	3.42 (0.82)	3.41 (0.89)	3.49 (0.83)
Negative affect	20.68 (20.37)	19.58 (19.18)	18.39 (18.90)	18.45 (18.27)	17.70 (18.57)	16.79 (18.90)	20.29 (18.81)	22.43 (21.27)	21.19 (20.23)	21.34 (19.49)	21.04 (21.05)	19.71 (19.58)

Note. D = Day

Table 2

Fit Indices for the Alternative Unconditional Models

	No growth	Linear	Quadratic	Piecewise Linear	Piecewise Quadratic
Loglikelihood	-12880.6	-12798.18	-12786.4	-12778.83	**-12752.22**
N-parameters	3	6	10	10	**15**
AIC	25767.2	25608.36	25592.81	25577.66	**25534.43**
BIC	25785.39	25644.76	25653.47	25638.32	**25625.43**
R^2	0.60	0.66	0.67	0.67	**0.70**

Note. N-Parameters = Number of estimated parameters; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; R^2 = Percentage of explained variance.

The best fitting model is noted in bold.

Table 3

Parameter Estimates

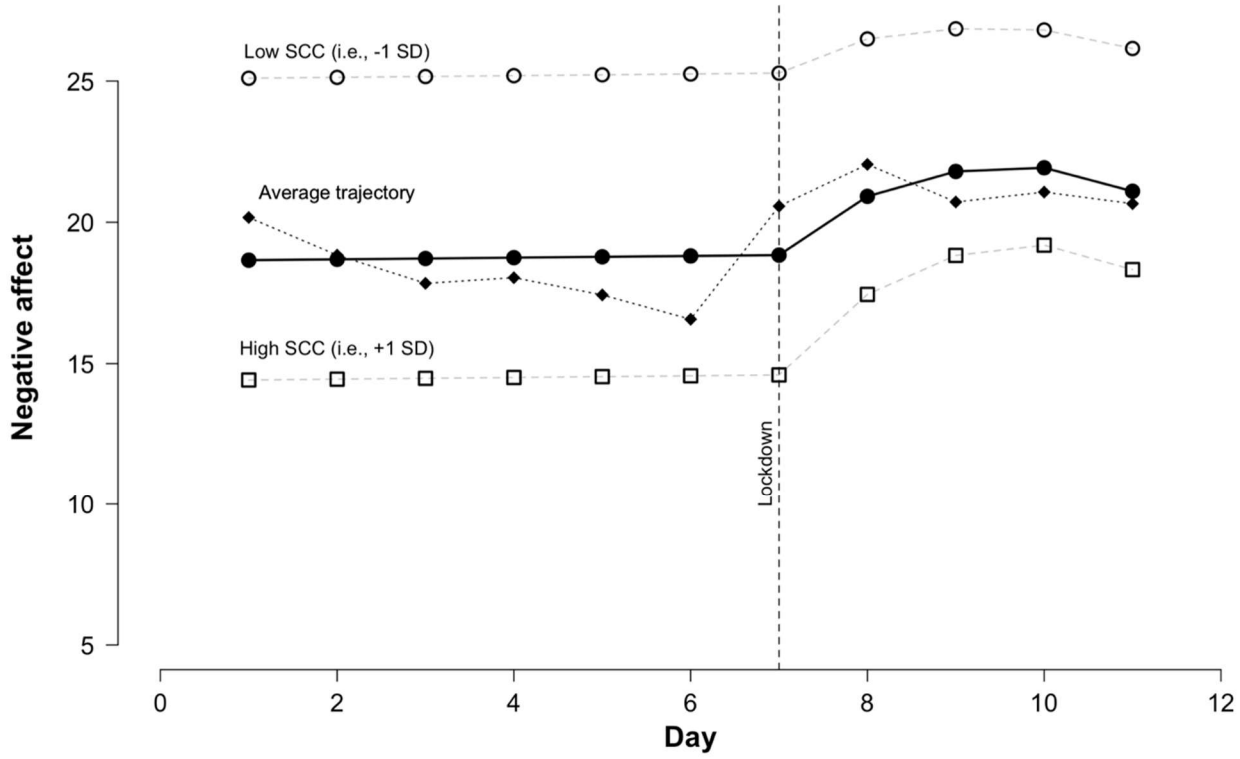
	Model 1: Piecewise Quadratic				Model 2: Including SCC				Model 3: Including SCC and Total COVID Cases			
	Estimate	*SE*	95% C.I.	*p*	Estimate	*SE*	C.I.	*p*	Estimate	*SE*	C.I.	*p*
Level 2												
γ_{00}	19.74	0.91	17.95, 21.53	< .001	19.76	0.86	18.07,21.44	< .001	18.65	0.9	16.89, 20.41	< .001
γ_{01}	-	-	-	-	-7.63	1.21	-10.01,-5.25	< .001	-9.15	1.48	-12.06, -6.24	< .001
γ_{10}	0.03	0.15	-0.26, 0.32	0.843	0.03	0.15	-0.26,0.32	0.84	-0.05	0.18	-0.4, 0.3	0.798
γ_{20}	2.46	0.6	1.29,3.62	< .001	2.46	0.6	1.29,3.63	< .001	2.48	0.59	1.32, 3.64	< .001
γ_{21}	-	-	-	-	1.39	0.71	0,2.78	0.05	1.38	0.73	-0.04,2.8	0.057
γ_{30}	-0.46	0.11	-0.69-0.24	< .001	-0.46	0.11	-0.69,-0.24	< .001	-0.49	0.12	-0.72,-0.26	< .001
γ_{31}	-	-	-	-	-0.22	0.15	-0.51,0.07	0.137	-0.22	0.15	-0.51,0.08	0.156
Level 1					Level 1				Level 1			
β_{4j}	-	-	-	-	-	-	-	-	0.01	< 0.01	-.001,.001	0.434
r_{ij}	124.62				124.54				124.53			
Random terms												
τ_{00}	227.73				200.21				177.04			

τ_{11}	2.22	2.17	2.17
τ_{22}	-	-	39.26
τ_{01}	-0.28	-0.24	-
Fit indices			
Log Likelihood	-12777.65	-12754.13	-12739.91
N-Parameters	8	11	12
AIC	25571.3	25530.25	25509.83
BIC	25619.83	25596.98	25600.82
R-*squared Marginal*	0.00	0.08	0.08
R-*squared Conditional*	0.67	0.67	0.67
ICC	0.65	0.62	0.59

Note. 95% C. I. = 95 % Confidence Interval; SCC = self-concept clarity; Total Cases = Total number of COVID-19 new cases until the day; *N-Parameters* = Number of estimated parameters; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; ICC = Intraclass correlation coefficient.

Figure 1

Observed and Reproduced Daily Negative Affect Trajectories at Different Levels of Self-concept Clarity



Note. The bolded black line (●) represents the *reproduced* trajectory for daily negative affect. The dotted black line (♦) represents the *observed* trajectory for daily negative affect. Dashed black lines represent: one (○) the estimated trajectory for individuals scoring below 1 standard deviation in self-concept clarity, and the other (□) the estimated trajectory for individuals scoring above 1 standard deviation in self-concept clarity. SCC = Self-concept clarity. SD = Standard deviation.