**Research Articles // Artículos de investigación**



**Notes and Editorial Information // Avisos e información editorial**



**ISSN 1577-7057**





Volume 22, number 1 March 1, 2022
Volumen 22, número 1 1 Marzo, 2022 ISSN: 1577-7057

# IJP&PT

## International Journal of Psychology & Psychological Therapy



https://www.ijpsy.com

# IJP&PT

## International Journal of Psychology & Psyhological Therapy





***International Journal of Psychology & Psychological Therapy*** is a four-monthly interdisciplinary publication open to publish original articles, reviews of one or more area(s), theoretical reviews, or methodological issues, and series of interest to some of the Psychology areas. The journal is published for the *Asociación de Análisis del Comportamiento* (AAC) and MICPSY, and indexed and/or abstracted in:

- **Academic Search Complete** (*EBSCO Publishing Inc.*)
- **Cabell's Directory** (*Cabell Scholarly Analytics*)
- **CLARIVATE-WEB of SCIENCE** (*Emerging Sources Citation Index*)
- **ClinPSYC** (*American Psychological Association*)
- **DIALNET** (*Fundación Dialnet, Universidad de La Rioja*)
- **DICE-CSIC** (*Difusión y Calidad de las Revistas Españolas*)
- **Directory of Open Accest Journals** (DOAJ)
- **EBSCO Information Service**
- **GOOGLE Scholar Metrics**
- **IBECS** (*Índice Bibliográfico Español en Ciencias de la Salud*)
- **IN-RECS** (*Index of Impact of the Social Sciences Spanish Journals*)
- **ISOC** (CINDOC, CSIC)

***International Journal of Psychology & Psychological Therapy*** es una publicación interdisciplinar cuatrimestral, publicada por la Asociación de Análisis del Comportamiento (AAC), abierta a colaboraciones de carácter empírico y teórico, revisiones, artículos metodológicos y series temáticas de interés en cualquiera de los campos de la Psicología. Es publicada por la *Asociación de Análisis del Comportamiento* (AAC) y MICPSY y está incluida en las bases y plataformas bibliográficas:

- **Journal Scholar Metrics**
- **LATINDEX** (*Sistema Regional de Información en Línea para Revistas Científicas de América Latina, el Caribe, España y Portugal*)
- **MIAR** (*Matriz de Información para el Análisis de Revistas*)
- **ProQuest Prisma Database**
- **Psychological Abstracts**(*American Psychological Association*)
- **PsycINFO** (*American Psychological Association*)
- **REBIUN** (*Red de Bibliotecas Universitarias Españolas*)
- **RESH** (*Revistas Españolas deCiencias Sociales y Humanidades*)
- **SCIMAGO** (*SCImago Journal & Country Rank -SCOPUS*)
- **SCOPUS** (*Scopus Database Elsevier*)

*International Journal of Psychology & Psychological Therapy*, 2022, 22, 1, 5-19


# Psychological Processes in the Social Interaction and Communication Anxiety of University Students: The Role of Self-Compassion and Psychological Flexibility

**Simone Gorinelli*, Ana Gallego, Päivi Lappalainen, Raimo Lappalainen**

*University of Jyväskylä, Finland*

## Abstract

University students often experience difficulties in social interactions. The current study examined the role of self-compassion and psychological flexibility among university students (*N*= 76) reporting high levels of social interaction and communication anxiety. We observed that high social interaction (SIAS) and communication anxiety (PRCA-24) were associated with low levels of self-compassion and psychological flexibility. Upon further investigating the specific predictors for social interaction and communication anxiety, we found that self-judgment, over-identification and openness to experiences were the key components in self-compassion and psychological flexibility, respectively. However, after examining these components together, only self-judgment and over-identification remained crucial predictors. This suggests that, when training students to manage their anxiety in social situations, attention should be given to promoting skills of self-compassion and psychological flexibility in general. Special attention should be devoted to facilitating a non-critical, accepting and open attitude towards one's thoughts, emotions and negative interpretations.

*Key words*: social interaction anxiety, communication anxiety, psychological processes, self-compassion, psychological flexibility.

**How to cite this paper**: Gorinelli S, Gallego A, Lappalainen P, & Lappalainen R (2022). Psychological Processes in the Social Interaction and Communication Anxiety of University Students: The Role of Self-Compassion and Psychological Flexibility. *International Journal of Psychology & Psychological Therapy, 22, 1,* 5-19.

### *Novelty and Significance*

*What is already known about the topic?*

- Social interaction and communication anxiety are common among university students.
- Anxiety correlates with psychological flexibility and self-compassion.

*What this paper adds?*

- What subcomponents of psychological flexibility and self-compassion were associated with and predictors for social interaction and communication anxiety.
- Openness to experiences, self-judgment and over-identification were significant predictors.
- Self-judgment and over-identification were stronger predictor compared to openness to experiences.
- Openness to experiences, especially tackling self-judgment and fixating thoughts, seem to be critical when developing interventions for university students reporting high levels of social anxiety.

Anxiety disorders are considered among the most prevalent and earliest forms of mental disorders, with a wide prevalence ranging from 15% to 20% (Mohr & Schneider, 2013). The most common anxiety disorder is social anxiety disorder (SAD), with a lifetime prevalence of 12% (Ebrahimi, Pallesen, Kenter, & Nordgreen, 2019). SAD is often described as an acute fear of social situations in which a person worries about

* Correspondence: Simone Gorinelli, PO Box 35, Mattilaniemi, FI-40014, University of Jyvaskyla, Jyvaskyla, Finland. Email address: simone.s.gorinelli@jyu.fi. *Acknowledgements*: This work was supported by the Eino Jutikkala Fund (Suomalainen Tiedeakatemia [Finnish Academy of Science and Letters]) for conducting research during 2020. The funding source had no role in the study design, data collection and analysis, writing the article or in the submission of the article. The authors are grateful to Joanna Palén, Katja Mankinen, Jonna Ahvenkoski, Arimo Kerkelä, Marianne Vihervuori and Suvi-Tuulikki Udd for their help in data collection. Technical assistance provided by Petri Kinnunen and statistical assistance provided by Joona Muotka was also appreciated.

being negatively evaluated by others (Leichsenring & Leweke, 2017). SAD is extremely impairing; it can reduce quality of life and influence occupational, scholastic, and social situations (Ebrahimi *et alia*, 2019). Moreover, research found that in a large sample of young people (14-24 years old), those diagnosed with SAD had frequent comorbidities of substance misuse (41.3%), mood disorders (31.1%), and a secondary anxiety disorder (49.9%; Pilling, Mayo-Wilson, Mavranezouli, Kew, Taylor, & David, 2013). Among social anxiety, speech anxiety or, more commonly, public speaking anxiety is the most prevalent subtype (Furmark, Tillfors, Stattin, Ekselius & Fredrikson, 2000), and it commonly refers to the fear of speaking in front of others, which might cause distress or impairment in social, occupational, or other critical areas of functioning (Pull, 2012). These fears might be associated with tremors, blushing, sweating, or the avoidance of social situations (Leichsenring & Leweke, 2017). Public speaking anxiety is a disabling fear, with early onset occurring during adolescence and a prevalence ranging from 21% to 33% (Ebrahimi, Pallesen, Kenter, & Nordgreen, 2019). Social interaction skill difficulties seem relatively frequent among the general adolescent population (e.g., Ranta, Kaltiala-Heino, Rantanen, & Marttunen, 2009), but if left unprocessed, they may have substantial long-term, negative consequences. Even though numerous people with phobias do not seek proper intervention, these situations can impair normal life conditions (Ipser, Singh, & Stein, 2013). According to a recent national survey among Finnish university students (Kunttu, Pesonen, & Saari, 2017), one third of students experience substantial stress and perceive performing in public as the most frequent cause. While this is a considerable problem, university students are aware of the issue, and around 15% of them hope for support in matters related to social anxiety.

An increasing number of studies show how anxiety disorders are negatively associated with psychological flexibility (Kashdan & Rottenberg, 2010; Webb, Beard, Kertz, Hsu, & Björgvinsson, 2016) and self-compassion (Harwood & Kocovski, 2017; Werner, Jazaieri, Goldin, Ziv, Heimberg, & Gross, 2012). Self-compassion is a construct that Neff (2003) describes as being kind and understanding toward oneself when pain or failure arise rather than being self-critical; perceiving one's experiences as part of the larger human experience rather than isolating; and holding painful thoughts and feelings in mindful awareness rather than over-identifying with them. The self-compassion construct can be extensively described as a combination of positive and negative facets (self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification) that bundle together into six factors (Neff, 2003). These dualistic factors are not mutually exclusive, so a higher level in one aspect does not necessarily indicate a lower level in the opposite factor. This means that rather than focusing on negative thoughts, it is important to observe how someone chooses to react to them. Self-compassion, therefore, influences how people respond to diverse negative situations and performs as a defense mechanism against negative emotions and experiences (Marshall, Parker, Ciarrochi, Sahdra, Jackson, & Heaven, 2015). If self-kindness, common humanity, and mindfulness entail the definition of self-compassion, in contrast, self-judgment can be defined as a negative evaluation and criticism toward personal aspects and experiences, isolation occurs when a person feels alone in their struggle and separated from others, and over-identification can be observed when a tendency to fixate on negativity and failure occurs. In this context, a fear of both negative and positive evaluations from others is typically associated with social anxiety (Werner *et alia*, 2012). Nevertheless, little is known about the implications of self-judgment and negative evaluations toward individual experiences in social situations.

Psychological flexibility, on the other hand, can be described as fully contacting and mindfully opening up to thoughts and emotional experiences without trying to

avoid or control them (Hayes, Pistorello, & Levin, 2012), and adapting one's behavior to personal valued directions (Ruiz & Perete, 2015; Ruiz, Beltrán, Cifuentes, & Falcón, 2019). Being able to be open to personal experiences regardless of their positive or negative features has also been called acceptance. Acceptance and commitment to value-based actions are central features of Acceptance and commitment therapy (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Acceptance and commitment therapy (ACT) is a process-based approach founded on relational frame theory (RFT) that aims to increase psychological flexibility skills (Hayes, 2004; Hayes, Strosahl, & Wilson, 2012). ACT provides skills to handle painful events and to facilitate effective actions. ACT promotes psychological flexibility through six core processes: 1) acceptance of difficult experiences and thoughts that might appear when choosing one's values and goals, 2) contact with the present moment, that is, being here and now in the current situation and developing awareness of thoughts and emotional reactions, 3) defusion, or taking distance from one's thoughts, images, or memories, and being able to take action independent of what their mind is saying 4) self-as-context, or taking an observer perspective toward the aware part of the mind that can see emotions, sensations, and feelings taking place in one's mind, 5) description of values or ongoing actions toward what matters in life, and 6) committed actions, or doing what it takes to create a rich, full, and meaningful life in line with one's values (Hayes, 2004; Hayes, Pistorello, & Levin, 2012). Hayes, Villatte, Levin, and Hildebrandt (2011) suggested that psychological flexibility could also be described in terms of three "dyadic" processes or clusters: 1) psychological openness to experience (acceptance and defusion); 2) flexible attention to the now and perspective taking" (present moment awareness and self as context); and 3) motivation to change and meaningful actions (values and committed action) (Francis, Dawson & Golijani-Moghaddam, 2016). Additionally, in recent years, RFT-oriented researchers have reduced the six core processes of psychological flexibility to three key therapeutic strategies (Luciano, 2016; Törneke, Luciano, Barnes-Holmes, & Bond, 2015). The first strategy is to help the client discriminate the relationship between current functional classes of responding and problematic consequences. This refers to the importance in discriminating which behavior cause problematic consequences, or in RFT terms, causal framing where we link specific behaviors to specific consequences (Törneke *et alia*, 2015). The second strategy is to help the client frame their own responses in hierarchy with the deictic I, and to train this repertoire as an alternative functional class. This refers to the idea helping the client reduce the behavioral control functions of verbal responding (e.g. thoughts), and increasing the probability that alternative responses will be produced (Ruiz & Perete, 2015). Lastly, help the client develop alternative repertoires in a way that will specify desirable consequences (appetitive augmental functions) for further behavior. This refers to motivating a behavioral change by clarifying what really matters to the client and linking it to a new behavior (Luciano *et alia*, 2011; Törneke *et alia*, 2015).

One component with large importance in anxiety disorders and especially in social and public speaking anxiety is experiential avoidance (Kashdan & Rottenberg, 2010; Levin, Haeger, & Smith, 2017), which is the opposite of acceptance and refers to psychological inflexibility. Experiential avoidance is an important concept in ACT, and it is defined as an attempt to escape or avoid private events (unpleasant thoughts, emotions, memories) or features of an experience (Hayes, Strosahl, & Wilson, 1999). When this occurs, in clinical practice exposure can be used as a behavioral process to weaken easy access to avoidance (Hayes, Hofmann, & Wilson, 2020).

Among the student population and university context, psychological flexibility shows associations with mental health and academic success (Levin, Krafft, Pistorello, & Seeley, 2019), academic emotions (Asikainen, Hailikari, & Mattsson, 2018), self-efficacy (Jeffords, Bayly, Bumpus, & Hill, 2020), depression, and anxiety (Masuda & Tully, 2012). In accordance with previous studies on the student population, self-compassion shows associations with well-being (Fong & Loi, 2016; Neely, Schallert, Mohammed, Roberts, & Chen, 2009), resilience (Smeets, Neff, Alberts, & Peters, 2014), depression, and distress (Fong & Loi, 2016). Generally, studies demonstrate that psychological flexibility and self-compassion are relevant components for social and public speaking anxiety (Webb, Beard, Kertz, Hsu, & Björgvinsson, 2016; Werner *et alia*, 2012). Social anxiety, described as the fear of one or more social situations, is associated with isolation (Teo, Lerrigo, & Rogers, 2013) and negative impacts on general well-being. Further, the literature suggests how psychological flexibility, self-compassion, and well-being are positively associated and that self-compassion might be a greater significant predictor of well-being compared to psychological flexibility (Marshall & Brockman, 2016).

Given that psychological processes are relevant to anxiety disorders, the current study investigated which psychological processes were associated with anxiety experienced while socially interacting with others among university students. As both psychological flexibility and self-compassion have shown to be associated with wellbeing and psychological symptoms, we were especially interested in sub-components of psychological flexibility and self-compassion and their role in communication anxiety among young adults. Increased knowledge of the key psychological processes associated with social and communication anxiety can be decisive in developing more effective interventions. Psychological processes could also be a key factor toward a treatment goal and guide us toward evidence-based mechanisms of change (Hofmann & Hayes, 2019).

We were especially interested in increasing our understanding of what psychological processes were associated with social anxiety among students who experience high levels of social and interaction anxiety. We expected to observe low levels of psychological flexibility and self-compassion correspond to high levels of social interaction and communication anxiety. According to our previous knowledge regarding public speaking anxiety (Gallego, McHugh, Villatte, & Lappalainen, 2020), we expected the openness to experience sub-skill of psychological flexibility to be a crucial factor in social interaction and communication anxiety. However, studies on the role of self-compassion and its components in social and public speaking anxiety are limited. Finally, to the best of our knowledge, there are no studies among university students that have explored which components of both psychological flexibility and self-compassion are crucial to anxiety when interacting with other people. Findings in the current study could facilitate development of interventions for university students who experience high levels of social and public speaking anxiety.

## METHOD

### *Participants*

University students (*N*= 97) were recruited from different faculties of the University of Jyväskylä using newsletters and poster advertisements around campus. The advertisement stated: "Are you nervous before presentations", further, it was stated that student volunteers were being recruited for a Virtual Reality research study aiming to decrease perceived insecurity and anxiety in performing and other social situations. Thus,

the current paper is part of the intervention study, presenting the data collected during the pre-measurement phase. Students using psychogenic medication, participating in a parallel psychological treatment, or those who did not reply or had difficulties fitting the data collection in with their schedule were excluded from the study ($n$= 21). The final sample consisted of 76 participants ($M$age= 24.95, $SD$= 6.50) experiencing anxiety in social situations (see also results). The final sample was predominantly characterized by females ($n$= 53; 69.7%), as males accounted for only one third of the total participants ($n$= 23; 30.3%). The participants came from different fields of study, with an average of nearly three years of study background (Table 1). The study, privacy, and storage of personal data, informed consent, and background data were granted ethical approval by the University Ethical Committee on March 25, 2019.

*Table 1*. Participants Characteristics ($n$= 76).

| | | |
|---|---|---|
| Age *M (SD)* | | 24.95 (6.50) |
| Female | | 53 (69.7%) |
| Male | | 23 (30.3%) |
| Year of study | | 2.81 (3.04) |
| Faculty/ Education | Humanities and Social Sciences | 22 (28.9%) |
| | Information Technology | 16 (21.1%) |
| | Education and Psychology | 15 (19.8%) |
| | Mathematics and Science | 11 (14.5%) |
| | Sport and Health Sciences | 9 (11.8%) |
| | Business and Economics | 3 (3.9%) |
| Social Interaction Anxiety* | Minimal | 30 (39.5%) |
| | Social Anxiety | 46 (60.5%) |
| Communication Anxiety** | Low | 0 (0%) |
| | Average | 22 (28.9%) |
| | High | 54 (71.1%) |

*Notes*: *= Social interaction anxiety scores according to SIAS: cut-off score 34; **= Communication apprehension scores according to PRCA-24: 24-51 low, 51-80 average, 80-120 high.

### *Measures*

Two different self-report scales were used to measure the students' social and communication anxiety: The Social Interaction Anxiety Scale (SIAS) and the Personal Report of Communication Apprehension (PRCA-24). In addition, Visual Analog Scales (VAS) were used to measure anxiety and fear associated with giving presentations. SIAS and PRCA-24 were our primary outcome or dependent variables, while Visual Analog Scales (VAS) were used as an additional measure in purpose to describe the investigated sample.

*Social Interaction Anxiety Scale* (SIAS; Mattick & Clarke, 1998) measured anxiety associated with the initiation and maintenance of social interactions. The SIAS version used in the study is a 20-item scale (e.g., "I have difficulty talking with other people"). Originally, Mattick and Clarke's (1998) version of the SIAS was comprised of only 19

items and differed from the most commonly used 20-item version by the omission of the reversed scored item "I find it easy to make friends of my own age" (Heimberg, Becker, & Van Ameringen, 2004). Each item is rated on a 0 (Not at all characteristic or true of me) to 4 (Extremely characteristic or true of me) Likert scale. Total score ranges from a low of 0 to a high of 80, with higher scores indicating a higher level of social anxiety interaction. A cutoff score of 34 generally identifies a person with clinical social anxiety (Brown, Turovsky, Heimberg, Juster, Brown, & Barlow, 1997). The SIAS is internally consistent. Its alpha reliability originally ranged from .88 to .93 (Mattick & Clarke, 1998). In this study, the SIAS showed excellent internal consistency with a Cronbach's $\alpha$ of .92.

*Personal Report of Communication Apprehension* (PRCA-24; McCroskey, 1982) investigated anxiety and fear associated with communicating with others across four contexts: speaking in public, speaking in small groups, speaking in meetings, and interpersonal encounters. It is a 24-item scale (e.g., "Generally, I am nervous when I have to participate in a meeting") where higher scores represent greater communication anxiety (CA) in social situations. The PRCA-24 uses a 5 interval (1= strongly agree, 5= strongly disagree) Likert scale. The score among the four contexts can range from a low of 6 to a high of 30, with a total measure score of 24-120. Total scores below 51 represent people with very low CA, scores between 51 and 80 represent people with moderate CA, and scores above 80 represent people with high CA. The scale's internal reliability was estimated at .94 (McCroskey, 1984), with alpha reliability ranging from .93 to .95 (McCroskey, Beatty, Kearney, & Plax, 1985). We reported a Cronbach's $\alpha$ of .91 for the total measure and .71, .91, .91, and .79 for public speaking, group discussion, meetings, and interpersonal conversations, respectively.

*Visual Analog Scales* (VAS). In this study, the students answered the following questions: "How uncomfortable do you feel to give the speech?", "How stressful do you feel about giving a speech?", "How nervous does speaking make you?" and "How willing are you to give a speech?" The participants were instructed to indicate how they felt by selecting a number ranging from 0 (e.g. not uncomfortable at all) to 10 (e.g. extremely uncomfortable). According to Boonstra, Preuper, Balk, and Stewart (2014), a score $\leq$3.8 indicates mild symptoms, between 3.9-5.7 moderate, and scores $\geq$5.8 severe. These scales helped us understanding their subjective feeling when asked to talk or giving a speech.

Two scales were used to assess psychological processes. Self-compassion was measured by The Self Compassion Scale–Short Form, and psychological flexibility by The Comprehensive Assessment of ACT Processes. We selected these scales because they include several sub-scales, and thus, provide more specific information of the processes associated with the anxiety in social situations.

*Self Compassion Scale–Short Form* (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011) was used to measure the self-compassion components self-kindness (SCS-SK), self-judgment (SCS-SJ), common humanity (SCS-CH), isolation (SCS-I), mindfulness (SCS-M) and over-identification (SCS-OI). It is a self-reported 12-item questionnaire (e.g., "I'm disapproving and judgmental about my own flaws and inadequacies") with a 5-point Likert scale ranging from 1 (Almost never) to 5 (Almost always) and higher total scores showing greater self-compassion. Each subscale component is described by two items where higher scores of self-kindness, common humanity, and mindfulness indicate greater self-compassion, and higher scores of self-judgment, isolation, and over-identification indicate lower self-compassion. The SCS-SF showed adequate internal consistency and an almost perfect correlation with the SCS long form (Cronbach's $\alpha$ >.86; Raes, Pommier, Neff, & Van Gucht, 2011). In this study, we observed good internal consistency with a Cronbach's $\alpha$ of .83 for total score and $\alpha$= .56 for the SCS-SK, $\alpha$= .78 for the SCS-SJ, $\alpha$= .60 for the SCS-CH, $\alpha$= .66 for the SCS-I, $\alpha$= .65 for the SCS-M, and $\alpha$= .65 for the SCS-OI.

*Comprehensive Assessment of ACT Processes* (CompACT; Francis, Dawson, & Golijani-Moghaddam, 2016) measured psychological flexibility, through the openness to experiences (CompACT-OE), behavioral awareness (CompACT-BA), and valued action

(CompACT-VA) subscales. The CompACT is a 23-item questionnaire (e.g., "I can keep going with something when it's important to me") with a 7-point Likert scale ranging from 0 (Strongly disagree) to 6 (Strongly agree) and higher scores representing greater psychological flexibility. The total score ranges between 0 and 138, with the CompACT-OE ranging from 0 to 60, the CompACT-BA ranging from 0 to 30, and the CompACT-VA ranging between 0 and 48. In this study, the CompACT showed good internal consistency (Cronbach's $\alpha$= .83) for total score, with .78 for the CompACT-OE, .65 for the CompACT-BA, and .83 for the CompACT-VA subscales.

*Procedure*

The university students contacted the research team either by email or phone asking for more information or to inform us of their willingness to take part in the study. Then, any questions were answered, and a screening Webropol survey link containing more detailed information about the research was sent to the potential participants. The same webpage provided a section for the collection of preliminary personal information, inclusion criteria 1) no current intervention for performance anxiety or 2) no possible holidays during the intervention period, and informed consent. Students who met the inclusion criteria were contacted via email with instructions on how to reserve a time for an initial study session using the online scheduling tool Doodle. The meeting was conducted at the Department of Psychology, University of Jyväskylä, where the students were provided more detailed information about the study, privacy and storage of personal data, informed consent, and participant's background, and successively filled in pre-measurement questionnaires on a tablet provided by the researcher.

*Data Analysis*

All statistical analyses were performed using IBM SPSS Statistics 24. The correlations between the variables were investigated using the Pearson correlation test. We considered a small correlation to fall within $r$= 0.10–0.29, a moderate correlation within $r$= 0.30–0.49, and a high correlation within $r$= 0.50–1 (Cohen, 1992; Kraemer *et alia*, 2003). A Shapiro-Wilk's test (Razali & Wah, 2011; Shapiro & Wilk, 1965) and visual inspection of histograms, normal Q-Q plots, and box plots were used to investigate distribution normality among the variables and for detection of possible outliers. After consulting our statistical expert, two data points (one measurement value in CompACT-BA and one in CompACT-VA, respectively) differing significantly from other observations were detected as outliers and therefore removed. For variables that were not normally distributed, a non-parametric statistical analysis (Spearman's correlations) was used to examine correlations. The regression analysis was performed with the SPSS linear and multiple regression (stepwise) method, using significant correlation as a criterion for the selection of the variables. Thus, we selected for the regression analyses only those process variables of SCS-SF and CompACT that significantly correlated with the SIAS and PRCA-24. Further, we tested whether multicollinearity was a problem by calculating tolerance and variance inflation factors (VIF, Kutner, Nachtsheim & Neter, 2004). The selected variables did not represent a problem for multicollinearity having VIF scores under 2.5.

## Results

The mean values with standard deviations, min-max values and 95% Confidence intervals of the measures are described in Table 2. A significant number of participants

*Table 2*. Descriptive table of measurements.

| | Mean (*SD*) | Minimum | Maximum | 95% confidence interval | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| SIAS* | 39.00 (15.00) | 9 | 70 | 35.57 | 42.43 |
| PRCA-24** | 89.28 (14.23) | 56 | 114 | 86.02 | 92.53 |
| VAS1 | 8.29 (1.42) | 4 | 10 | 7.97 | 8.61 |
| VAS2 | 8.53 (1.27) | 4 | 10 | 8.24 | 8.82 |
| VAS3 | 8.46 (1.44) | 4 | 10 | 8.13 | 8.79 |
| VAS4 | 2.93 (2.46) | 0 | 7 | 2.37 | 3.50 |
| CompACT Total | 83.13 (16.84) | 45 | 118 | 79.28 | 86.98 |
| CompACT-OE | 30.68 (9.95) | 10 | 51 | 28.41 | 32.96 |
| CompACT-BA | 18.18 (4.93) | 8 | 30 | 17.03 | 19.32 |
| CompACT-VA | 35.05 (6.64) | 18 | 47 | 33.52 | 36.59 |
| SCS-SF Total | 3.09 (0.65) | 1.58 | 4.58 | 2.94 | 3.24 |
| SCS - SK | 3.65 (0.86) | 2 | 5 | 3.45 | 3.84 |
| SCS - SJ | 3.19 (1.10) | 1 | 5 | 2.94 | 3.44 |
| SCS - CH | 3.66 (0.99) | 1 | 5 | 3.43 | 3.88 |
| SCS - I | 3.51 (1.14) | 1 | 5 | 3.25 | 3.77 |
| SCS - MI | 4.04 (0.81) | 2 | 5 | 3.86 | 4.22 |
| SCS - OI | 4.11 (0.82) | 1.5 | 5 | 3.92 | 4.30 |

*Notes*: SIAS= Social Interaction Anxiety; PRCA-24= Communication Anxiety; CompACT= Psychological Flexibility; CompACT-OE= Openness Experiences; CompACT= Behavioral Awareness; CompACT-VA= Valued Action; SCS= Self-Compassion; SCS-SK= Self-Kindness; SCS-SJ= Self-Judgment; SCS–CH= Common Humanity; SCS-IS= Isolation; SCS-MI= Mindfulness; SCS-OI = Over-Identified; VAS1= "How uncomfortable do you feel to give the speech?"; VAS2 ("How stressful do you feel about giving a speech?"), VAS3= "How nervous does speaking make you?"; VAS4= "How willing are you to give a speech?"; *= Social interaction anxiety scores according to SIAS: cut-off score 34; **= Communication apprehension scores according to PRCA-24: 24-51 low, 51-80 average, 80-120 high.

reported a high degree of social and communication anxiety (Tables 1 and 2). Approximately 60% of the participants were categorized as having social interaction anxiety, and around 70% reported high communication anxiety. The cut-off score (34) for social interaction anxiety scale (SIAS) identifying persons with clinical social anxiety, was within the 95% confidence interval range in the current sample (Table 2). Also, PRCA-24 scale suggested that our sample represented people with high communication anxiety (scores above 80). Moreover, participants reported that they felt uncomfortable, stressful and nervous when giving presentations (Table 2, VAS scales).

As expected, higher levels of social interaction anxiety (SIAS) strongly and positively correlated with higher levels of communication anxiety (PRCA-24; $r(74)= .71$, $p < .001$; Table 3). After examining the process measures, the results showed that social interaction anxiety (SIAS) had a small negative correlation with valued actions (CompACT-VA; $r(74)= -.25$, $p= .029$) and it moderately negatively correlated with openness to experiences (CompACT-OE; $r(74)= -.40$, $p < .001$). The behavioral awareness (CompACT-BA) showed a small and non-significant correlation with the SIAS. Moreover, higher social interaction anxiety (SIAS) was highly correlated with lower self-compassion (SCS-SF total score; $r(76)= -.53$, $p < .001$). The SIAS especially correlated strongly with the SCS subscales self-judgment (SCS-SJ; $r(76)= .55$, $p < .001$) and over-identification (SCS-OI; $r(76)= .54$, $p < .001$), while moderately with isolation (SCS-IS; $r(76)= .46$, $p < .001$). The SCS subscales self-kindness, common humanity and mindfulness showed low and non-significant correlations with the SIAS.

Communication anxiety (PRCA-24) correlated with openness to experiences (CompACT-OE; $r(76)= -.24$, $p= .036$). Correlations between the PRCA-24 and valued actions (CompACT-VA) and behavioral awareness (CompACT-BA) were low and non-

*Table 3*. Correlations between social interaction anxiety (SIAS), communication anxiety (PRCA-24), psychological flexibility (CompACT) and Self-Compassion (SCS).

| | PRCA-24 | CompACT Total | CompACT-OE | CompACT-BA | CompACT-VA | SCS Total | SCS-SK | SCS-SJ | SCS-CH | SCS-IS | SCS-MI | SCS-OI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIAS | .71** | -.41** | -.40** | -.13 | -.25* | -.53** | -.05 | .55** | -.19 | .46** | -.20 | .54** |
| PRCA-24 | - | -.29* | -.24* | -.11 | -.22 | -.42** | -.11 | .39** | -.18 | .32** | -.21 | .40** |
| CompACT Total | | - | .87** | .59** | .68** | .55** | .30** | -.49** | .32** | -.50** | .23* | -.26* |
| CompACT-OE | | | - | .39** | .40** | .50** | .26* | -.50** | .30** | -.40** | .17 | -.31** |
| CompACT-BA | | | | - | .06 | .29* | .16 | -.30** | -.00 | -.23* | .21 | -.17 |
| CompACT-VA | | | | | - | .41** | .25* | -.24* | .38** | -.44** | .21 | -.07 |
| SCS Total | | | | | | - | .62** | -.78** | .68** | -.69** | .48** | -.68** |
| SCS - SK | | | | | | | - | -.40** | .49** | -.23 | .30** | -.19 |
| SCS - SJ | | | | | | | | - | -.33** | .56** | -.14 | .59** |
| SCS - CH | | | | | | | | | - | -.22 | .34** | -.35** |
| SCS - I | | | | | | | | | | - | -.17 | .48** |
| SCS - MI | | | | | | | | | | | - | -.29* |

*Notes*: SIAS= Social Interaction Anxiety; PRCA-24= Communication Anxiety; CompACT= Psychological Flexibility; CompACT-OE= Openness Experiences; CompACT= Behavioral Awareness; CompACT-VA= Valued Action; SCS= Self-Compassion; SCS-SK= Self-Kindness; SCS-SJ= Self-Judgment; SCS–CH= Common Humanity; SCS-IS= Isolation; SCS-MI= Mindfulness; SCS-OI = Over-Identified; *= The correlation is significant at the 0.05 level; **= The correlation is significant at the 0.01 level.

significant. High communication anxiety (PRCA-24) also moderately correlated with low self-compassion (SCS-SF total; $r(76)= -.42$, $p < .001$). Among the different self-compassion components, PRCA-24 correlated moderately positively with self-judgment (SCS-SJ; $r(76)= .39$, $p < .001$) and over-identification (SCS-OI; $r(76)= .40$, $p < .001$). Additionally, the correlation between isolation and the PRCA-24 was relatively high (SCS-IS; $r(76)= .32$, $p= .006$). The SCS subscales self-kindness, common humanity and mindfulness showed low and non-significant correlations with PRCA-24.

Our second aim was to examine which psychological processes were predictors for social interaction and communication anxiety. We calculated first linear regressions and completed it with the stepwise models to predict social interaction anxiety (SIAS) and communication anxiety (PRCA-24) using psychological flexibility (CompACT) and self-compassion (SCS) as predictors (Table 4). For the analyses, we selected only

*Table 4*. Regression analyses showing significant predictors for Social Interaction Anxiety Scale (SIAS) and Communication Anxiety (PRCA-24). Standardized $\beta$ values with 95% confidence intervals and $R$ square ($R^2$) values are also presented (indicating the percentage of variance explained).

| Model | | Predictor | SIAS | PRCA-24 |
|---|---|---|---|---|
| CompACT | 1 | *Total* (Std $\beta$) | -.41* (-.55; -.17) | -.29* (-.43; -.06) |
| | | $R^2$ | .16 | .08 |
| | 2 | *CompACT-OE* (Std $\beta$) | -.40* (-.92; -.29) | -.24* (-.67; -.02) |
| | | $R^2$ | .15 | .06 |
| | 3 | *CompACT-VA* (Std $\beta$) | -.25* (-7.54; -.38) | |
| | | $R^2$ | .06 | |
| | 4# | *CompACT-OE* (Std $\beta$) | -.39* (-.91; -.26) | |
| | | *CompACT-VA* | Excluded, $p = .273$ | |
| | | $R^2$ | .15 | |
| SCS-SF | 1 | *Total* (Std $\beta$) | -.53* (-16.73; -7.70) | -.42* (-13.78; -4.62) |
| | | $R^2$ | .28 | .18 |
| | 2 | *Self-Judgment (SCS-SJ)* (Std $\beta$) | .57* (5.10; 10.32) | .41* (2.75; 8.77) |
| | | $R^2$ | .32 | .16 |
| | 3 | *Over-Identified (SCS-OI)* (Std $\beta$) | .56* (6.62; 13.64) | .44* (3.33; 9.25) |
| | | $R^2$ | .31 | .20 |
| | 4 | *Isolation (SCS-IS)* (Std $\beta$) | .46* (3.39; 8.78) | .32* (1.45; 7.70) |
| | | $R^2$ | .22 | .10 |
| | 5# | *Self-Judgment (SCS-SJ)* (Std $\beta$) | .36* (1.79; 8.88) | Excluded, $p = .122$ |
| | | *Over-Identified (SCS-OI)* (Std $\beta$) | .33* (1.42; 8.50) | .44* (3.33; 9.25) |
| | | *Isolation (SCS-I)* | Excluded, $p = .247$ | Excluded, $p = .342$ |
| | | $R^2$ | .39 | .20 |

*Notes*: SIAS= Social Interaction Anxiety; PRCA-24= Communication Anxiety; CompACT= Psychological Flexibility; CompACT-OE= Openness Experiences; CompACT= Behavioral Awareness; CompACT-VA= Valued Action; SCS= Self-Compassion; SCS-SK= Self-Kindness; SCS-SJ= Self-Judgment; SCS–CH= Common Humanity; SCS-IS= Isolation; SCS-MI= Mindfulness; SCS-OI = Over-Identified;; Std $\beta$= Standardized $\beta$ values; $R^2$= $R$ square values; *= Significant predictors; #= stepwise model was applied in purpose to identify the most significant predictors.

those process variables (SCS, CompACT) that significantly correlated with the SIAS and PRCA-24 (see also Table 3).

In relation to social interaction anxiety (SIAS), the CompACT and SCS total scores explained 16% and 28% of the variance in the SIAS, respectively. The CompACT subscales openness to experiences and valued action were both significant predictors, accounting for 15% and 6% of SIAS scores, respectively. When these CompACT subscales were included in the same model, only openness to experiences (OE) remained significant (Model 4, Table 4). Regarding self-compassion (SCS), the subscales self-judgment (SJ, 32% of the variance explained), over-identification (OI, 31%) and isolation (IS, 22%) were significant SIAS predictors (variance explained in the parentheses). When all these SCS subscales were included in the same model, both self-judgment and over-identification remained as significant predictors (Model 5, Table 4).

Regarding communication anxiety (PRCA-24), the significant predictors were similar as for SIAS, but the proportion of variance explained by these predictors was smaller compared to the SIAS. The CompACT and SCS total scores explained 8% and 18% of the variance in the PRCA-24, respectively. The CompACT subscale openness to experiences was the only significant predictor, accounting for 6% of PRCA-24 scores (Table 4). Regarding self-compassion (SCS), the subscales self-judgment (SJ, 16%), over-identification (OI, 20%) and isolation (I, 10%) were significant PRCA-24 predictors (variance explained in the parentheses). When all these SCS subscales were included in the same model, only over-identification remained significant (Model 6, Table 4).

Finally, all subscales (CompACT: openness to experiences, valued actions –only for SIAS; SCS: self-judgment (SJ), isolation (IS) and over-identification (OI)) were included in the regression analyses to identify the strongest set of predictors. In SIAS, the model ($F_{2,72}$= 22.98, $p$ <.001) included both the SCS subscale self-judgment and over-identified as significant predictors with an $R^2$= .39 (SCS SJ: Std $\beta$= .37; *CI*= 1.99, 9.04; SCS OI: Std $\beta$= .32; *CI*= 1.21, 8.28). In PRCA-24 instead, the model ($F_{1,74}$= 14.50, $p$ <.001) included only the SCS subscale over-identified (PRCA-24, Std $\beta$= .44; *CI*= 3.33, 9.25; $R^2$= .20).

## DISCUSSION

The aim of this study was to obtain a deeper understanding of the psychological processes or factors that are associated with communication anxiety among university students who reported high levels of anxiety when interaction with others. We were especially interested in investigating the role of self-compassion and psychological flexibility sub-components. The results demonstrated that high levels of self-reported anxiety while interacting with others was associated with low levels of self-compassion and psychological flexibility, as measured by SCS and CompACT, respectively. Previous research has also demonstrated negative associations between social anxiety and psychological flexibility (Kashdan & Rottenberg, 2010) and self-compassion, showing that people with social anxiety disorders have significantly lower self-compassion (Werner *et alia*, 2012). This study confirms that the role of self-reported self-compassion and psychological flexibility seems particularly relevant among university students who mean to train their social skills.

There is a growing indication that experiential avoidance plays a crucial role in anxiety related to social situations (Kashdan & Rottenberg, 2010; Levin *et alia*, 2017). In this study, our results suggested that openness to experiences, as measured by CompACT,

was one of the key factors in psychological flexibility that was associated with self-reported social interaction and communication anxiety. The current results present the benefits of being open to thoughts, feelings, or physical sensations without trying to avoid or change them when taking part in social interactions. In line with this, previous studies note the association of the fear of negative and positive evaluations with social anxiety (Weeks *et alia*, 2005), acknowledging the role of self-judgment and how people relate with negative experiences in social interaction. Self-judgement, in this context, refers to thoughts about the self and the critical or negative judgment involved in those thoughts, while over-identification refers to the fixation on these negative thoughts and emotions. They entail the non-accepting view of personal experiences and inadequacies; meanwhile, a compassionate point of view toward negative experiences refers to being understanding and accepting toward failures and painful thoughts, feelings, and emotions. Self-judgment and over-identification appeared to be the predominant component in self-compassion (as measured by SCS), accounting together for almost half of the variance (39%) in social interaction anxiety (SIAS). Additionally, self-reported over-identification with negative thoughts remained the only predictor and it represented one fifth of the variance (20%) in communication anxiety (PRCA). Thus, high levels of self-reported over-identification and self-judgment, and low levels of openness to experiences, were predictors for anxiety when interacting with others. However, when investigating all these components together, only self-judgment together with over-identification remained as a significant predictor of self-reported social anxiety, while only over-identification remained as a predictor of self-reported communication anxiety. These two processes are closely connected and suggest how people could become critical towards their thoughts and feelings, and how they at the same time could fixate on those negative experiences. This finding finally suggested that, when training students to manage their anxiety in situations where social interaction or communication is required, attention needs to be given to their reactions when they are disapproving, judgmental and when they identify themselves with their own thoughts. In other words, students may need to train discriminate that disapproving and judgmental reactions accompanied with identification with thoughts may cause problematic consequences. Further, they might need training in skills reducing the behavioral functions of verbal responding and training of alternative responses in social situations. Overall, these findings highlight the importance of accepting attitude toward one's own physical feelings, emotions, thoughts, and negative interpretations in social situations.

These results are consistent with previous literature that states that both low self-compassion (Leary, Tate, Adams, Batts Allen, & Hancock, 2007) and psychological flexibility (Hayes *et alia*, 2006) can account for impairments in social and personal experiences. Further, earlier studies (Marshall & Brockman, 2016) as well as the current study have shown that self-compassion and psychological flexibility are associated with each other. In the current data, psychological flexibility as measured by self-report measurement CompACT total and self-compassion as measured by SCS total scores were highly correlated ($r$= 0.55). This raises the possibility that both CompACT and SCS are measuring the same phenomenon. On the other hand, in accordance with our findings, it has been suggested that self-compassion is a greater significant predictor of emotional well-being compared to psychological flexibility (Marshall & Brockman, 2016). The importance of self-compassion has further been shown in a longitudinal study by Marshall *et alia* (2015) exemplifying how self-compassion appears to act as a defense mechanism against negative emotions and experiences.

More studies are needed to confirm that increasing self-compassion and psychological flexibility skills, especially those skills demonstrating acceptance, tolerance, and an approving attitude toward oneself, can lower self-reported levels of anxiety when interacting and communicating with others. Moreover, further research is required to examine which psychological processes are truly involved when a decrease in anxiety is observed. The current study points out possible candidates for these processes.

In this study, however, we also need to take several limitations into consideration. The main limitation concerns the small study sample. The participants involved in this study (*N*= 76) were limited in numbers, but for a few reasons. One reason for the small sample can be attributed to the global coronavirus pandemic (COVID-19) and related national and university safety regulations. The original aim was to recruit more participants during 2020 and early 2021, but we had to stop recruiting because of the university coronavirus directives. Nevertheless, we decided to run another round of data collection during Fall 2021, and we expanded the original sample by 30 participants. Additionally, we were mainly interested in recruiting a specific group of students who wanted to improve their social and public speaking skills. Another limitation was the use of self-reported questionnaires to collect data, which could have influenced the current study's validity. For instance, the self-compassion components were measured through subscales in a short form of the Self-Compassion Scale (SCS), which might deliver low internal consistency. In fact, Raes, Pommier, Neff, & Van Gucht (2011) recommends using the scale's full form for a detailed investigation of the subscales. However, as Raes et alia (2011) also states, reliabilities for all but one subscale (self-kindness) were above 0.60, and Cronbach's alphas of 0.60 and above are generally deemed acceptable. In line with the validation of the short form SCS, in this study, reliabilities for all but one subscale (self-kindness) were above 0.60. Moreover, psychological flexibility was measured with the CompACT, a relatively new scale that has not been predominantly used in the literature. Psychological flexibility, in a recently growing number of studies, has more commonly been measured with the AAQ-II (Acceptance and Action Questionnaire, Bond et alia, 2011). However, the CompACT has good internal consistency, and it allows the investigation of psychological flexibility across three dimensions (openness to experiences, behavioral awareness, and valued actions), which is useful for understanding different components of psychological flexibility in relation to anxiety. An additional limitation involves the study participants, who were university students, which may limit the generalization of these results to the clinical population. Nevertheless, a high prevalence of social and performing anxiety is common among the selected population. Even though the Social Interaction Anxiety scale (SIAS) can be a useful instrument to measure anxiety in social situations, research has found that students may approach some items differently to the clinical population, making them less likely to meet the cutoff (Rodebaugh, Woods, Heimberg, Liebowitz, & Schneier, 2006). Nevertheless, in this study we investigated two outcome measures for social interaction anxiety (SIAS and PRCA-24) and generated comparable conclusions. Finally, one other limitation concerns the results' generalizability. A large part of the participant sample was characterized as female (70%), while males accounted only for around one third of the entire sample. As Neff (2003) describes, women generally report lower self-compassion scores and higher levels of self-judgment, isolation, and over-identification. Therefore, a larger randomized controlled trial with a more balanced gender population is needed.

The current study illuminated how social interaction and communication anxiety were associated with specific components of psychological flexibility and self-compassion.

Therefore, psychological interventions aimed at helping people with social anxiety might benefit if focused on increasing these skills. Specifically, attention should be given to how young adults negatively evaluate or criticize their personal aspects and how they fixate on those negative thoughts and emotions. Young adults with communication anxiety should be trained to promote acceptance, tolerance, and an approving attitude toward themselves. Future research is needed to investigate the role of psychological processes involved in social and communication anxiety. Increased knowledge of psychological processes can help practitioners for establishing effective therapeutic interventions (Hofmann & Hayes, 2019).

## References


Asikainen H, Hailikari T, & Mattsson M (2018). The interplay between academic emotions, psychological flexibility and self-regulation as predictors of academic achievement. *Journal of Further and Higher Education*, *42*, 439-453. Doi: 10.1080/0309877X.2017.1281889

Bond FW, Hayes SC, Baer RA, Carpenter KM, Guenole N, Orcutt HK, Waltz T, & Zettle RD (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, *42*, 676-688. Doi: 10.1016/j.beth.2011.03.007

Boonstra AM, Preuper HRS, Balk GA, & Stewart RE (2014). Cut-off points for mild, moderate, and severe pain on the visual analogue scale for pain in patients with chronic musculoskeletal pain. *Pain, 155*, 2545-2550. Doi: 10.1016/j.pain.2014.09.014

Brown EJ, Turovsky J, Heimberg, RG, Juster HR, Brown TA, & Barlow, DH (1997). Validation of the Social Interaction Anxiety Scale and the Social Phobia Scale across the anxiety disorders. *Psychological Assessment*, *9*, 21-27. Doi: 10.1037/1040-3590.9.1.21

Cohen J (1992). Statistical power analysis. *Current Directions in Psychological Science*, *1*, 98-101. Doi: 10.1111/14678721.ep10768783

Ebrahimi OV, Pallesen S, Kenter RM, & Nordgreen T (2019). Psychological interventions for the fear of public speaking: A meta-analysis. *Frontiers in Psychology*, *10,* 488. Doi: 10.3389/fpsyg.2019.00488

Fong M & Loi NM (2016). The mediating role of self-compassion in student psychological health. *Australian Psychologist*, *51*, 431-441. Doi: 10.1111/ap.12185

Francis AW, Dawson DL, & Golijani-Moghaddam N (2016). The development and validation of the Comprehensive Assessment of Acceptance and Commitment Therapy processes (CompACT). *Journal of Contextual Behavioral Science*, *5*, 134. Doi: 10.1016/j.jcbs.2016.05.003

Furmark T, Tillfors M, Stattin H, Ekselius L, & Fredrikson M. (2000). Social phobia subtypes in the general population revealed by cluster analysis. *Psychological Medicine*, *30*, 1335-1344.

Gallego A, McHugh L, Villatte M, & Lappalainen R (2020). Examining the relationship between public speaking anxiety, distress tolerance and psychological flexibility. *Journal of Contextual Behavioral Science, 16*, 128-133. Doi: 10.1016/j.jcbs.2020.04.003

Harwood E & Kocovski N (2017). Self-compassion induction reduces anticipatory anxiety among socially anxious students. *Mindfulness*, *8*, 1544-1551. Doi: 10.1007/s12671-017-0721-2

Hayes SC (2004). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies. *Behavior Therapy*, *35*, 639-665. Doi: 10.1016/S0005-7894(04)80013-3

Hayes SC, Hofmann SG, & Wilson DS (2020). Clinical psychology is an applied evolutionary science. *Clinical Psychology Review*, *81*, 101892. Doi: 10.1016/j.cpr.2020.101892

Hayes SC, Luoma JB, Bond FW, Masuda A, & Lillis J (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, *44*, 1-25. Doi: 10.1016/j.brat.2005.06.006

Hayes SC, Pistorello J, & Levin ME (2012). Acceptance and commitment therapy as a unified model of behavior change. *Counseling Psychologist*, *40*, 976-1002.

Hayes SC, Strosahl KD, & Wilson KG (1999). *Acceptance and Commitment Therapy: An Experimental Approach to Behavior Change*. Guilford Press.

Hayes SC, Strosahl KD, & Wilson KG (2012). *Acceptance and Commitment Therapy: The Process and Practice of Mindful Change* (2nd ed.). Guilford Press.

Hayes SC, Villatte M, Levin M, & Hildebrandt M (2011). Open, aware, and active: Contextual approaches as an emerging trend in the behavioral and cognitive therapies. *Annual Review of Clinical Psychology, 7*, 141-168. Doi: 10.1146/annurev-clinpsy-032210-104449

Heimberg R, Becker R, & Van Ameringen M (2004). Cognitive-behavioral group therapy for social phobia: Basic mechanisms and clinical strategies. *Canadian Journal of Psychiatry*, *49*, 149-150.

Hofmann SG, & Hayes SC (2019). The future of intervention science: Process-based therapy. *Clinical Psychological Science*, *7*, 37-50. Doi: 10.1177/2167702618772296

Ipser JC, Singh L, & Stein DJ (2013). Meta-analysis of functional brain imaging in specific phobia. *Psychiatry and Clinical Neurosciences*, *67*, 311-322. Doi: 10.1111/pcn.12055

Jeffords JR, Bayly BL, Bumpus MF, & Hill LG (2020). Investigating the relationship between university students' psychological flexibility and college self-efficacy. *Journal of College Student Retention: Research, Theory & Practice*, *22*, 351-372. Doi: 10.1177/1521025117751071

Kashdan T & Rottenberg J (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review*, *30*, 865-878. Doi: 10.1016/j.cpr.2010.03.001

Kraemer HC, Morgan GA, Leech NL, Gliner JA, Vaske JJ, & Harmon RJ (2003). Measures of clinical significance. *Journal of the American Academy of Child and Adolescent Psychiatry*, *42*, 1524-1529.

Kunttu K, Pesonen T, & Saari J (2017). *Korkeakouluopiskelijoiden terveystutkimus 2016 [Student health survey 2016]. A National Survey among Finnish University Students*. Ylioppilaiden terveydenhoitosäätiön julkaisuja, 48, Helsinki.

Kutner MH, Nachtsheim CJ, & Neter J (2004). *Applied Linear Regression Models*. 4th Edition. New York: McGraw-Hill/Irwin.

Lear MR, Tate EB, Adams CE, Batts Allen A, & Hancock J (2007). Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself kindly. *Journal of Personality and Social Psychology*, *92*, 887-904. Doi: 10.1037/0022-3514.92.5.887

Leichsenring F & Leweke F (2017). Social anxiety disorder. *The New England Journal of Medicine*, *376*, 2255-2264. Doi: 10.1056/NEJMcp1614701

Levin ME, Haeger J, & Smith G (2017). Examining the Role of Implicit Emotional Judgments in Social Anxiety and Experiential Avoidance. *Journal of Psychopathology and Behavioral Assessment, 39*, 264-278. Doi: 10.1007/s10862-016-9583-5

Levin ME, Krafft J, Pistorello J, & Seeley JR (2019). Assessing psychological inflexibility in university students: Development and validation of the acceptance and action questionnaire for university students (AAQ-US). *Journal of Contextual Behavioral Science*, *12*, 199. Doi: 10.1016/j.jcbs.2018.03.004

Luciano C, Ruiz FJ, Torres RMV, Martín VS, Martínez OG, & López JCL (2011). A Relational Frame Analysis of Defusion Interactions in Acceptance and Commitment Therapy. A Preliminary and Quasi-Experimental Study with At-Risk Adolescents. *Internacional Journal of Psychology & Psychological Therapy*, *11*, 165-182.

Luciano C (2016). La Evolución de ACT. *Análisis y Modificación de Conducta, 42*, 3-14.

Marshall E & Brockman R (2016). The relationships between psychological flexibility, self-compassion, and emotional well-being. *Journal of Cognitive Psychotherapy*, *30*, 60-72. Doi: 10.1891/0889-8391.30.1.60

Marshall SL, Parker PD, Ciarrochi J, Sahdra B, Jackson CJ, & Heaven PC (2015). Self-compassion protects against the negative effects of low self-esteem: A longitudinal study in a large adolescent sample. *Personality and Individual Differences*, *74*, 116-121. Doi: 10.1016/j.paid.2014.09.013

Masuda A & Tully EC (2012). The role of mindfulness and psychological flexibility in somatization, depression, anxiety, and general psychological distress in a nonclinical college sample. *Journal of Evidence-Based Complementary & Alternative Medicine*, *17*, 66-71. Doi: 10.1177/2156587211423400

Mattick RP & Clarke J (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy*, *36*, 455-470. Doi: 10.1016/S0005-7967(97)10031-6

McCroskey JC (1982). *An Introduction to Rhetorical Communication* (4th ed.). New York: Pearson Education.

McCroskey JC (1984). The communication apprehension perspective. In J. Daly & J.C. McCroskey (Eds.), *Avoiding communication: Shyness, reticence and communication apprehension*. Newcastle: Sage Publications.

McCroskey JC, Beatty MJ, Kearney P, & Plax TG (1985). The content validity of the PRCA-24 as a measure of communication apprehension across communication contexts. *Communication Quarterly*, *33*, 165-173. Doi: 10.1080/01463378509369595

Mohr C & Schneider S (2013). Anxiety disorders. *European Child & Adolescent Psychiatry*, *22*, 17. Doi: 10.1007/

s00787-012-0356-8
Neely M, Schallert D, Mohammed S, Roberts R, & Chen Y (2009). Self-kindness when facing stress: The role of self-compassion, goal regulation, and support in college students' well-being. *Motivation and Emotion*, *33*, 88-97. Doi: 10.1007/s11031-008-9119-8
Neff KD (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, *2*, 223-250. Doi: 10.1080/15298860309027
Pilling S, Mayo-Wilson E, Mavranezouli I, Kew K, Taylor C, & David CM (2013). Recognition, assessment, and treatment of social anxiety disorder: Summary of NICE guidance (National Institute for Health and Care Excellence). *British Medical Journal*, *346*, f2541.
Pull B (2012). Current status of knowledge on public-speaking anxiety. *Current Opinion in Psychiatry*, *25*, 32-38. Doi: 10.1097/YCO.0b013e32834e06dc
Raes F, Pommier E, Neff K, & Van Gucht D (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. *Clinical Psychology and Psychotherapy*, *18*, 250-255. Doi: 10.1002/cpp.702
Ranta K, Kaltiala-Heino R, Rantanen P, & Marttunen M (2009). Social phobia in Finnish general adolescent population: Prevalence, comorbidity, individual and family correlates, and service use. *Depression and Anxiety*, *26*, 528-536. Doi: 10.1002/da.20422
Razali NM & Wah YB (2011). Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests. *Journal of Statistical Modeling and Analytics*, *2*, 21-33.
Rodebaugh TL, Woods CM, Heimberg RG, Liebowitz MR, & Schneier FR (2006). The factor structure and screening utility of the Social Interaction Anxiety Scale. *Psychological Assessment*, *18*, 231-237.
Ruiz FJ & Perete L (2015). Application of a relational frame theory account of psychological flexibility in young children. *Psicothema*, 27, 114-119. Doi: 10.7334/psicothema2014.195
Ruiz FJ, Beltrán DMG, Cifuentes AM, & Falcón JCS (2019). Single-case Experimental Design Evaluation of Repetitive Negative Thinking-Focused Acceptance and Commitment Therapy in Generalized Anxiety Disorder with Couple-related Worry. *Internacional Journal of Psychology & Psychological Therapy*, *19*, 261-276.
Shapiro SS & Wilk MB (1965). An analysis of variance test for normality (complete samples). *Biometrika*, *52*(3/4), 591-611. Doi: 10.2307/2333709
Smeets E, Neff K, Alberts H, & Peters M (2014). Meeting suffering with kindness: Effects of a brief self-compassion intervention for female college students. *Journal of Clinical Psychology*, *70*, 794-807. Doi: 10.1002/jclp.22076
Teo AR, Lerrigo R, & Rogers MA (2013). The role of social isolation in social anxiety disorder: A systematic review and meta-analysis. *Journal of Anxiety Disorders*, *27*, 353-364. Doi: 10.1016/j.janxdis.2013.03.010
Törneke N, Luciano C, Barnes-Holmes Y, & Bond F (2015). RFT for Clinical Practice: Three core strategies in understanding and treating human suffering. In RD Zettle, SC Hayes, D Barnes-Holmes & A Biglan (Eds.), *The Wiley Handbook of Contextual Behavioral Science* (pp. 254-272). New York: Wiley-Blackwell.
Webb CA., Beard C, Kertz SJ, Hsu KJ, & Björgvinsson T (2016). Differential role of CBT skills, DBT skills and psychological flexibility in predicting depressive versus anxiety symptom improvement. *Behaviour Research and Therapy*, *81*, 12-20. Doi: 10.1016/j.brat.2016.03.006
Weeks JW, Heimberg RG, Fresc DM, Hart TA, Turk CL, Schneier FR, & Liebowitz MR (2005). Empirical validation and psychometric evaluation of the brief fear of negative evaluation scale in patients with social anxiety disorder. *Psychological Assessment*, *17*, 179-190.
Werner KH, Jazaieri H, Goldin PR, Ziv , Heimberg, RG, & Gross JJ (2012). Self-compassion and social anxiety disorder. *Anxiety, Stress, & Coping*, *25*, 543-558. Doi: 10.1080/10615806.2011.608842

Received, May 26, 2021
Final Acceptance, January 15, 2022