UNIVERSITY OF TURIN

Ph.D. in Psychological, Anthropological, and Educational Sciences

DOCTORAL THESIS

MENTAL HEALTH AMONG HIGHER EDUCATION STUDENTS

Understanding the impact of housing conditions and psychological risk factors, and mapping interventions provided by students' consulting services throughout Europe

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To the man by my side

Like dipping bread into salt and eating

Nazim Hikmet

ABSTRACT

Introduction. Emerging adulthood is a phase of development in which young people need to continue the process of separation from their parents and prepare the ground for their adult lives. For some young adults, this phase coincides with the years of higher education, which implies further tasks. Tertiary education students often showed higher rates of psychological distress compared both to the general population and to their working peers, and several clinical and contextual risk factors have been identified. *Aims.* The aim of the present research project was to investigate university students' psychological distress and its development over time, considering both clinical (e.g., adult attachment, alexithymia, personality dimensions) and contextual (e.g., housing conditions) risk factors. Moreover, it aimed at mapping and comparing different psychological services addressed to higher education students in Europe. *Materials and methods.* First, we conducted a descriptive, cross-sectional study aimed at investigating students' mental health and we tested a moderated mediation model of negative affectivity, alexithymia and housing conditions on state anxiety, trait anxiety and depression. Moreover, we conducted an explanatory, longitudinal study to explore the development of students' distress over time. Besides, we conducted a systematic literature review on psychological intervention offered to higher education students in Europe. Then, we conducted a retrospective analysis aimed at collecting online information on students' psychological services and finally we conducted a web-based in-depth survey with personnel working in these services. *Results.* Higher education students reported concerning levels of distress, most notably anxiety and depression. Considering the associations between psychological distress and housing conditions, we only found that commuting vs. all other housing conditions was a significant predictor of lower trait anxiety. Moreover, our results suggested the importance of stable clinical variables in students' distress, supporting our hypothesis that alexithymia mediates the association between negative affectivity and psychologica distress while controlling for age and gender. However, our results did not confirm that students' housing conditions have a significant impact on anxiety and depression. Moreover, we found a considerable consistency in students' mental health over time. Only students who commuted showed significant differences in state and trait anxiety at the beginning and at the end of their first year of university attendance, both lower at the retest. International research on intervention offered to higher education students in Europe underlined the prevalence and the effectiveness of counseling programs, cognitive-behavioral and psychodynamic interventions, and mindfulness. Institutions with different dimensions, legal

statuses, categories, and geographical locations reported varying percentages concerning the presence of student psychological centers. Moreover, only a few institutions in Europe reported offering psychotherapies on their websites despite the widely established effectiveness of these types of support for tertiary education students. Finally, in the opinion of services' staff, students accessing those services mostly reported anxiety, social and relational problems, academic issues, and mood disorders. Concerning organizational issues, a shortage of staff was the most frequently reported, followed by a high number of requests. *Discussion.* Our findings are of great concern since students' psychological distress can interfere significantly with their personal lives and with their retention in school and academic achievement, particularly for those from lower socioeconomic backgrounds. Moreover, they underline the importance of a large-scale data collection on students' psychological services in Europe, that would enable a systematic and continuous monitoring of students' mental health and offer the ability to assess and improve the efficacy of interventions.

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In the end, a sincere thanks to CS: landing in balance was no small feat, but we made it.

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INTRODUCTION

In recent years, an increasing focus has been placed on people in their twenties, leading to important changes in the conceptualization of the process of becoming adults both in the scientific perspective and in the public perspective. Arnett coined the term "*emerging adulthood*" (Arnett, 2000; Arnett et al., 2014) to describe this specific transitional phase between adolescence and adulthood. Emerging adults have to continue the process of separation from their parents and define who they want to be in their adult lives, making choices that will influence their future in the long term (Miller, 2017; Schechter et al., 2018). For some young men and women, this phase coincides with the years of tertiary education, that can be both an opportunity and a stressful chalenge for emerging adults who often have to face relocation, the loss of previous relationships with their peers, and academic demands (Whitaker, 2011).

Previous research outlined high levels of psychological distress in higher education students, whose distress seems to be higher compared to both the general population and their working peers (Dachew et al., 2015; James et al., 2017; Mboya, 2020; Stallman, 2010; Tariku et al., 2017). Students' psychological distress seems to be influenced not only by academic challenges, but also by other facets, such as relationships with their peers, financial difficulties, and poor housing conditions (Alsubaie et al., 2019; Andrews & Wilding, 2004; Bukhari & Azfal, 2017; Friedlander et al., 2007; Hicks & Heastie, 2008; Larcombe et al., 2016; Mahmoud et al., 2012; Mikolajczyk et al., 2008; Richardson & Elliott, 2011; Vungkhanching et al., 2017). Moreover, as clinicians, we cannot underestimate the extent to which some clinical characteristics (e.g., negative affectivity, emotion regulation, and personality dimensions), can lead to elevated levels of distress, anxiety, dissatisfaction, and a tendency toward focusing on the unpleasant aspects of themselves, other people, the world/life, and the future (Gross & Jazaieri, 2014; Jeronimus, Riese, Sanderman & Ormel, 2014).

On the basis of the above, Chapter 1 aims at developing a theoretical understanding of emerging adulthood and deepening the experiences of emerging adults in facing tertiary education challenges. In particular, paragraph 1.1 outlines some elements for a psychoanalytic understanding of emerging adulthood, while paragraph 1.2 explores previous literature on the mental health of young adults attending tertiary education. Moreover, paragraph 1.3 presents research on psychological distress among tertiary education and their working peers, including the results of a preliminary study conducted in cooperation with the Piedmont Epidemiology Service (SEPI) – Local Health Authority

TO3, the "Rita Levi Montalcini" Department of Neurosciences and the Department of Clinical and Biological Science of the University of Turin. Finally, a systematic review on housing conditions and psychological distress in tertiary education students is presented in paragraph 1.4.

As far as we know, only a few Italian studies have focused on higher education students' psychological distress and mental health (Eskin et al., 2016; Piumatti, 2017; Piumatti et al., 2018; Pompili et al., 2017; Kara et al., 2015) and none has investigated the connection between psychological distress and housing conditions.

Thus, we conduced a cross-sectional study aimed at investigating mental health in students attending the University of Turin (UniTo) and exploring differences connected to their housing conditions (Cfr. Study 1). In particular, Chapter 2 aims at exploring students' psychological distress, determining whether there are significant differences among students living in different housing conditions and investigating if those differences survive while controlling for other sociodemographic variables. Besides, Chapter 3 presents a moderated mediation model of negative affectivity, alexithymia and housing conditions on mental health (i.e., state anxiety, trait anxiety and depression).

Previous research has extensively focused on student distress in higher education students, but little is known about its longitudinal evolution (Zivin et al., 2009). Psychological distress seems higher during tertiary education years compared to pre-admission levels (Bewick, Koutsopoulou et al., 2010), and students' anxiety seems to peak in the first term of second year and final year, whereas depression seems to increase over time, peaking at the end of the final year (Regehr, Glancy & Pitts, 2013).

Thus, Chapter 4 presents a quasi-experiment on the field with a "pre-post" design aimed at exploring the development of UniTo students' distress over time and its association with other clinical, contextual and demographic variables (Cfr. Study 2).

Students' psychological distress can interfere significantly with their personal lives and with their retention in school and academic achievement, particularly for those students from lower socioeconomic backgrounds (Andrews & Wilding, 2004; Ciotoli et al., 2018; Collins & Mowbray, 2005; Eisenberg et al., 2007). In this context, students' psychological services are essential for providing guidance and support for emerging adults (Buchanan, Le & Rishi, 2012; Gallagher, 2009). Counseling services have been established in several tertiary education institutions around the world (Kraft, 2009),

with the dual task of both supporting students experiencing difficulties and giving feedback to the academic establishment (Adamo et al., 2012). Previous research has shown that these interventions maintain their effectiveness over time, with benefits for the students' long-term mental health as well as their academic career (Cerutti et al., 2020; Collins & Mowbray, 2005; Monti, Tonetti & Ricci Bitti, 2016). Moreover, while such interventions are often aimed at tackling the ongoing issues that are affecting a distressed student's academic performance, they can also represent the first step for students with a stable psychopathology, allowing them access to mental health services or psychotherapeutic interventions (Biasi et al., 2017). Indeed, there is recent data that shows a progressive increase in the severity of the issues treated in such contexts (Benton, Robertson, Tseng, Newton & Benton, 2003; Kettmann et al., 2007; Storrie, Ahern & Tuckett, 2010; Zivin et al., 2009).

Therefore, Study 3 aims at investigating the availability and provision of student consulting services in Europe in order to try to reach a better understanding of how these services are accessed, the types of interventions provided, and the major issues affecting students' mental health. In particular, Chapter 5 presents a systematic literature review of psychological and psychotherapeutic interventions offered to higher education students in European tertiary education institutions. Besides, Chapter 6 presents a retrospective analysis aimed at collecting information on students' psychological services in Europe, and on the interventions they offer. Finally, Chapter 7 states the results of an in-depth web-based survey conducted with personnel working in these services throughout Europe.

Chapter 1

EMERGING ADULTS FACING TERTIARY EDUCATION CHALLENGES

Since the beginning of the 21st century, an increasing focus has been placed on young people in their twenties, and the conceptualization of the process of becoming adults changing both in the scientific view and in the public's view. Several socioeconomic changes have occurred in Western societies since the middle of the 20th century: the progressive shift from an industrial to an information-based economy has increased the need for tertiary education and the breakdown of previous pathways to adulthood. Thus, marriage and parenthood are deferred, many young people do not reach stable employment before the age of thirty and they often move between transitory and inconsistent states with regard to residence and occupation (Arnett, 2006; Shulman & Ben Artzi, 2003; Shulman et al., 2006). In his work with college students, Jeffrey Arnett noted that most of them did not consider themselves as adolescents nor adults. They were not just in transition from late adolescence to young adulthood, but were in a stage of their lives characterized by specific developmental tasks and trajectories (Arnett, 2000, 2015; Arnett et al., 2014). Most of his respondents did not give importance to what were previously considered as milestones for becoming an adult, except for financial independence: on the contrary, they gave central importance to psychological characteristics, such as independent decision-making and taking responsibility. Thus, Arnett coined the term "*emerging adulthood*" to describe this specific developmental stage in which neurobiology changes, cognition is in development, relationships are constantly renegotiated and reorganized, and occupational goals are not yet defined.

In this stage, young people are still asked to reach financial self-sufficiency and to make choices about their career and intimate relationships: what the socioeconomic changes modified is the time needed to complete these processes. Emerging adults need to continue the process of separation from their parents and prepare the ground for their adult lives, exploring different possibilities (e.g., concerning relationships and occupation) and then making decisions that will define who they are both in the outside word and in their own minds (Knight & Miller, 2017; Miller, 2017; Schechter et al., 2018).

Even if a comprehension of the historical and cultural facets underlying the process of becoming adults is of pivotal importance for understanding the experience of emerging adults, we also have to focus on the interactions between these elements and young people's families, their biology, their temperament and the psychological process connected to becoming adults (Knight & Miller, 2017).

1.1 Emerging adulthood: A psychoanalytical perspective

Over the years, the conceptualization of human development has moved toward more process-oriented theories. A nonlinear dynamic systems approach is now increasingly integrated into psychology and supports a model of individual development that is fluid, idiosyncratic, and nonpredictive (Gilmore, 2019). The current theories, also in the psychoanalytic field, try to offer a description of events in a constant flux, emphasizing the influence of several simultaneous variables (Bonovitz, 2018). Thus, individual life and identity development are now considered a fluid process contextualized in a series of nestled systems, such as age; life stage (considering biological maturation, the individual perception of one's own internal time of life, and cultural expectations); one's developmental trajectories (the family/families in which one has grown and its/their histories); culture; environmental demands; and the resources that one does or does not have access to on a personal, relational and environmental level (Gilmore, 2019; Thelen & Smith, 1994). This leads to a conceptualization of development, including adulthood, as an ongoing process of becoming characterized by continuous disequilibrium, which the individual tries on a somato-psychic level to face relying on the environment as well as on his/her internal structures.

Every developmental phase is characterized by a temporary disorganization and a subsequent transformative reorganization that is connected to biological, emotional, cognitive, and relational maturational advances (Knight, 2017).

Emerging adulthood seems to be characterized by increasing evidence of neuroanatomical changes (Zimmermann & Iwanski, 2014) and of a heightened neuroplasticity (Dougherty & Clarke, 2018), but only relying on neurobiological changes to define developmental phases risks and not giving adequate importance to the way the personality changes over time due to the interaction of external and internal

factors (Miller, 2017). Indeed, emerging adulthood is mainly characterized by changes connected to environmental and psychological facets by regulatory systems and structures (Knight, 2017).

Introducing the emerging adulthood phase, of course, implies a different conceptualization of what come before and after. Adolescence can no longer be seen as a developmental phase that implies an intrapsychic crystallization of personality, a stabilization of defenses, intrapsychic and interpersonal resources, and the capability of making conscious choices that allow a certain direction to the future. Indeed, nowadays, the third decade of development does not require long-term commitments, but rather further developmental opportunities and potential changes (Gilmore, 2019). It is noteworthy that the dimensions emerging adults underlined as being fundamental for adulthood in Arnett's and following research (Arnett, 2003; Nelson & Padilla-Walker, 2013) are consistent with the dimensions that psychoanalytic research underlines as important, i.e., somato-psychic wellbeing, emotional awareness, morals and ethics, harmonious family and group relationships, engagement in the community, educational attainment, and the capability to confront with and act on reality (Miller, 2017).

Using a more evocative language, we can say that one of the major tasks of this developmental phase is forming a dream on what young people are and where they want to go (Levinson, 1978). Before putting into test one's developing self, emerging adults need to put it to test in a transitional space (Winnicott, 1953) in which one can assess his/her competences, discover his/her flaws, imagine his/her opportunities and transform his/her developmental trajectories according to these evaluations.

This way, process can be deeply undermined and derailed because of unresolved conflicts connected to previous developmental stages and earlier disharmonies, and also because of relational, economical, or academic and occupational difficulties (Miller, 2017).

Colarusso (1991) pointed out that for young people the sense of time changes from something experienced as unlimited to the feeling of the time left and the time to be lived; thus, opening the sense of mortality. Even the body image changes: in previous phases of development, the physical body can be taken for granted. Young people may feel their body aging not in the sense of developing, but in the sense of changes connected with getting older (e.g., changes in the shape of the body and in muscular tone). Moreover, during emerging adulthood, psychological structures such as ego

functions, ego ideal, and superego are still developing (Knight & Miller, 2017). Young people question themselves about life, death, spirituality, and, in general, about their beliefs about the world trying to develop their own set of values separate from the ones of their family of origin: they try to figure out who they are and who they want to be (Bonovitz, 2018).

Indeed, in the transition from adolescence to emerging adulthood, the emerging adults experience another iteration of separation and individualization from the familiar context, which starts being overshadowed, and they start engaging with other independent social contexts that lead them to a number of questions concerning ethics and ideals as well as their identity and sexuality (Schechter et al., 2018). Emerging adults need to find their ways outside the family of origin, neither remaining pathologically dependent to their parents, nor remaining in a stall characterized by opposition and detachment. In this phase, parents also have to be recognized as normal people with their strengths and weaknesses. Emerging adults need to reach the capability to distinguish between their actual parents and their internalized ones as well as have an increased curiosity about and a nuanced understanding of one's family history and narratives, along with one's parents' intrapsychic and interpersonal functioning, as a basis for the capability of the emerging adult of finding his or her own position in the outside world without using parents as scapegoats to blame (Bonovitz, 2018). This process of separating from one's parents requires parents who are not too narcissistically fragile or dependent on their child, and that can tolerate giving way to the next generation (Ogden, 2006).

Young people improve their abstract thinking, gain a nuanced understanding of interpersonal relationships and develop a more realistic envisioning of the future: internal representations of themselves and of others are re-negotiated to sustain a more mature exploration of their sexuality, the choice of an occupation that can keep together desires, passion and reality, and the engagement in more intimate relationships; thus, moving from a narcissistic self-involvement to more mature object relations (Schechter et al., 2018).

Emerging adults seem to be more interested than adolescents in intimate relationships outside their family of origin, considering the others' needs and concerns as well as their own (Miller, 2017). Fluctuations in this domain are not necessarily pathological but can be considered as a process of exploration. A stable commitment in an intimate relationship does not necessarily imply a mature commitment (Shulman, 2017). At the same time, they often engage in floating academic and occupational engagements: for some of them, studying becomes obsolete because of demanding

and/or meaningful occupations while others are stuck in unpleasant jobs, others change their occupational and academic trajectories after having already completed their studies and found a job, and yet others can invest in further academic commitments or in another career to avoid an unpleasant occupational context (Shulman, 2017).

However, these are not yet stable capabilities: affective flooding and regression to more primitive modes of thought, defenses, and modes of relating are common (Schechter et al., 2018). Also, emerging adults can experience important fluctuations in the recognition of their genuine qualities and capacities, along with the feeling of consistency between who they feel to be and how they are experienced by others. This is an achievement that is vulnerable to derailment during development (Bonovitz, 2018; Schechter et al., 2018). Moreover, their relative lack of life experiences, together with idealized aspirational fantasies and the feeling that every decision they make can change the course of their future, can lead to a sense of personal crisis and severe judgments and attacks on the self, which cannot rely on a more mature perspective when such a crisis occurs, but can be overcome, and that confronting reality includes limitations and failures (Schechter et al., 2018; Shulman, 2017). Indeed, the individual capability to realize, express, and recognize oneself is connected to the acknowledgement of one's own position in confronting external reality, events, and obstacles and provisions from the physical, contextual, and relational environment (Corrao, 1961). In the process of negotiating between different motivations and between oneself and others, conflicts and defenses can preclude the capability of recognizing one's own characteristics and influence unconscious beliefs about oneself, relational exchanges and expectations, responses to reality, and life choices (Schechter et al., 2018). Thus, emerging adults may assume what they think is an adult role based on family, peers, or cultural norms without having developed a mature adult identity (Shulman et al., 2006).

What is not reached in this case is the possibility of becoming a subject (i.e., someone with a sufficiently coherent and cohesive contact with his/her Self and emotions, and a good sense of self-continuity) and a person (i.e., someone with a defined and stable identity, with clear somato-psychic boundaries and a clear separation from the others). In some cases, neither of these aspects are reached, while in others one can become a subject and not a person (e.g., someone with a strong subjectivity, but with a scarce definition of his/her boundaries as a person) or one can become a person and not a subject (e.g., someone who engages in interpersonal relationships without experiencing subjective feelings) (Bolognini, 2016, 2017).

1.2 Higher education students' mental health

Starting tertiary education is a challenging task for many emerging adults. Not only do they have to face transformations connected to this developmental phase, but they also have to face tasks connected to higher education, such as relocation, performance demands, changes in living conditions and lifestyles, along with dealing with a social and educational context different from what has been experienced before (Schulenberg & Schoon, 2012; Settersten & Ray, 2010). Not only is a university an unfamiliar context for freshmen, but it can also arise many doubts on one's individual capability to meet parents', friends', and one's own expectations (Dyson & Renk, 2006).

Of course, a certain amount of stress can be considered as a normal part of life, and even motivating in certain circumstances (Robotham & Julian, 2006), but high levels of distress greatly threaten mental health and academic achievements (Cohen et al., 2019; Eicher et al., 2014).

Many mental disorders show their first onset during emerging adulthood (Kessler et al., 2005, 2007), but starting higher education seems to constitute a crucial transition for mental health (Auerbach et al., 2016; Harris, 2019; Molina et al., 2012; Pedrelli et al., 2015) since students consistently report higher levels of distress compared to the general population (Dachew et al., 2015; James et al., 2017; Mboya et al., 2020; Stallman, 2010; Tariku et al., 2017). Thus, over the years, educational systems have paid increased attention to students' mental health and emotional well-being, and on the impact of untreated diseases on those affected, on their colleagues and on the institution (Cvetkovski et al., 2019; Shuchman, 2007).

Research underlines how students' psychological distress is connected to academic stressors and a variety of background stressors, e.g., individual, familiar, relational, and socio-economic stressors (Heffer & Willoughby, 2017; McIntyre et al., 2018). Of course, students' psychological well-being seems to be affected by precarious living conditions (Vaez et al., 2004) as well as by performance stress (McIntyre et al., 2018), academic pressure and demanding workloads (Elani et al., 2014). Moreover, many students show important worries about their current financial situation (Darling et al., 2007; Karyotaki et al., 2020; McIntyre et al., 2018; Stallman, 2010; Wege et al., 2016) and their future financial arrangements (Vaez et al., 2004). Even relationships with their family of origin (Darling et al., 2007; Karyotaki et al., 2020; Stallman, 2010) and childhood adversities (McIntyre et al., 2018) strongly impact students' mental health as well as their relationships with peers (Darling et al., 2007; Hurst et al., 2012;

Karyotaki et al., 2020; Stallman, 2010). Students' psychological distress can also be amplified by the feeling of being discriminated, lonely and worried about problems experienced by loved ones (Karyotaki et al., 2020; McIntyre et al., 2018). Love life assumes a great importance (Darling et al., 2007; Karyotaki et al., 2020; Stallman, 2010) as well as personal aspects of life (Vaez et al., 2004), such as worries about one's own health (Borst et al., 2016; Darling et al., 2007; Karyotaki et al., 2020; Stallman, 2010), abuse and mistreatment (Cook et al., 2014).

Previous research showed that 53.2% to 83.9% of students reported experiencing stress (Brown, 2016; Syed et al., 2018; Stallman, 2010) while symptoms of psychological distress emerged in 32.2% to 72.9% of students (Jaisoorya et al., 2017; Liébana-Presa et al., 2014; Saleh et al., 2017), with severe or extremely severe levels in 11% of them (Beiter et al., 2015).

Psychological symptoms were assessed in 23% to 40.7% of the students (Delara & Woodgate, 2015; Tang et al., 2018) while 19.2% to 37% of them reported mental health problems, with subsyndromal symptoms in 67.4% of them (Abdolhossini et al., 2012; Auerbach et al., 2016; Stallman, 2010; Zivin et al., 2009). Moreover, 17.3% to 41.1% of them showed psychiatric distress (Oksanen et al., 2017; Poorolajal et al., 2017; Macaskill, 2013).

For what concerns anxiety, research is inconsistent, showing anxiety in 5% to 86.3% of students perhaps because of different tools used to detect it (Brown, 2016; Oyekcin et al., 2017; Saleh et al., 2017; Simić-Vukomanović et al., 2016; Syed et al. 2018; Tran et al., 2017; Wörfel et al., 2016; Zivin et al., 2009). However, mild to severe anxiety symptoms can be assessed in 54.4% of students (Lun et al., 2018), and severe or extremely severe anxiety in 15% to 21% of them (Beiter et al., 2015; McIntyre et al., 2018; Spitzer et al., 2006). General Anxiety Disorder emerged in .02% to 17.5% of students (Farrer et al., 2016; Karyotaki et al., 2020; Torres et al., 2017) and panic attacks in 1.0% to 2.2% of them (Torres et al., 201; Tran et al., 2017). It seems that students experience an increase in anxiety in their academic journey, in particular when graduation approaches and they have to decide what to do next (Schechter et al., 2018).

With regard to depression, results are once again inconsistent likely because of the heterogeneity of the tools used. Indeed, depression was found in 11.4% to 100% of students (Asante & Andoh-Arthur, 2015; Delara & Woodgate, 2015; Dyson & Renk, 2006; Oyekcin et al., 2017; Saleh et al., 2017; Simić-Vukomanović et al., 2016; Syed et al., 2018; Tran et al., 2017; Villatte et al., 2017; Wörfel et al., 2016;

Zivin et al., 2009). Moderate to severe depression was assessed in 9% to 39.5% of students (Beiter et al., 2015; Deb et al., 2016; McIntyre et al., 2018; Peltzer et al., 2013; Reyes-Rodríguez et al., 2013; Schofield et al., 2016) while 4.0% to 8.7% of students received a clinical diagnosis of major depression (Chen et al., 2013; Farrer et al., 2016; Torres et al., 2017; Vázquez & Blanco, 2008).

Suicidal thoughts at least once in their lifetime have been assessed in 15.1% to 16.2% of students (Oyekcin et al., 2017; Poorolajal et al., 2017). Suicidal behavior at least once in the past has been detected in 2% to 15% of students (Chesin & Jelic, 2012; McIntyre et al., 2018; Poorolajal et al., 2017; Tang et al., 2018) while current suicidal ideation was detected in 3% to 20% of them (Chesin & Jelic, 2012; McIntyre et al., 2018; Zivin et al., 2009) and suicidal risk in 13.1% (Torres et al., 2017).

Fifty-one percent of students reported binge drinking (Cranford et al., 2009), 1.9% reported alcohol use (Karyotaki et al., 2020) and .6% reported regular alcohol use in the 30 days preceding the evaluation (Tran et al., 2017). Substance addiction was inconsistently reported by 1.9% to 35% of students (Karyotaki et al., 2020; Mathews, 2019; Oberleitner et al., 2011; Poorolajal et al., 2017) while medication use was reported in 11% to 14% of them, and nonmedical prescription drug use was reported in 13% of them (Zivin et al., 2009; Zullig & Divin, 2012). 10.2% to 18.7% of students showed problematic internet use and 60% of them gambling, with 6% frequent (weekly or more) gambling (Caldeira et al., 2017; Chen et al., 2013). Eating disorders were detected in 3.6% to 32% of students (Eisenberg et al., 2011; Torres et al., 2017; Zivin et al., 2009).

This data must be carefully considered by mental health professionals and educational systems. Indeed, not only academic demands increase the risk of mental health problems (Beiter et al., 2015), but students experiencing higher psychological distress are at a higher risk of academic failure and dropout (Ishii et al., 2018; Jaisoorya et al., 2017), with major implications on campus health services and mental health policymaking (Viñas Poch et al., 2004).

1.3 Perceived health and psychological distress among tertiary education students and their working peers

Emerging adulthood does not imply attending higher education for every young man and woman: others are engaged in the school-to-work transition. Employment can promote young workers'

emancipation and enhance psychological well-being, but it can also be a stressful and demanding experience, with important sequelae on their mental health (LaMontagne et al., 2013).

On the one hand, research underlined that young workers experience relatively high levels of psychological distress and suffer from occupational distress more than older workers do. Besides, compared to older workers, they are more exposed to psychosocial stressors (e.g., harassment, low job control, and conflicts with coworkers). They experience workplace bullying and are at risk for addictive behaviors (Alexander et al., 2012; Frone, 2000; LaMontagne et al., 2013; Pidd et al., 2017).

On the other hand, university students show higher rates of psychological distress compared to the general population (Ibrahim et al., 2013) and to their working peers (Ibrahim et al., 2013; Leahy et al., 2010; Stallman, 2010; Stewart-Brown et al., 2000; Vaez et al., 2004), but such results still appear controversial (Blanco et al., 2008; Cvetkovski et al., 2012).

Investigating psychological distress in young students and workers is a matter of great concern because it has been recognized that workers' distress is one of the major challenges for occupational health and safety (Marinaccio et al., 2013) while health, mental health, and well-being have a well-documented influence on academic achievements (Ciotoli et al., 2018).

Thus, we started a cooperation with the Piedmont Epidemiology Service (SEPI) – Local Health Authority TO3 (Dr. Angelo d'Errico), the "Rita Levi Montalcini" Department of Neurosciences (Dr. Fabrizio D'Ovidio) and the Department of Clinical and Biological Sciences (Prof. Giuseppe Costa) of the University of Turin. Our aim was to investigate differences in perceived anxiety and depression, and self-rated general, physical, and mental health, among Italian 19 to 29 years old students, workers and working students recruited in both 2004-2005 (N=10,673) and 2012-2013 (N=7,939). Italian National Health Surveys (NHS) were performed by the Italian National Institute of Statistics (ISTAT)[1].

Overall, we found a lower prevalence of anxiety and depression (1%) and lower levels of poor perceived general health (10.1%) than those observed in previous research (Beiter et al., 2015; De

[1] The results of this preliminary study are presented in the paper, Franzoi, I.G., D'Ovidio, F., Costa, G., d'Errico, A., & Granieri, A. (*under review*). Self-rated health and psychological distress among University students and their working peers in Italy.

Waure et al., 2015; Tran et al., 2017). This could be connected to differences between our study and previous research in the assessment of such dimensions (in the NHS, they are self-reported), in enrolment and in participation rates (Franzoi, D'Ovidio et al., *under review*).

Consistently with previous research (Kovess-Masfety et al., 2016; Bíró et al., 2009), students showed higher levels of anxiety and depression, and lower levels of poor perceived health, opening to further research on what components of physical and mental health are taken into account by emerging adults when they have to consider their health status (Franzoi, D'Ovidio et al., *under review*). Moreover, students showed a greater risk of low mental health compared to workers, which was even higher among working students. In contrast, young workers were at higher risk of low physical health than the other two groups (Franzoi, D'Ovidio et al., *under review*).

These results place themselves within the controversial literature on the topic (Ibrahim et al., 2013; Leathy et al., 2010; Stallman, 2010; Stewart-Brown et al., 2000; Vaez et al., 2004), suggesting that in Italy, young students experience higher psychological distress than young workers (Franzoi, D'Ovidio et al., *under review*), and that they are more concerned with their emotional well-being than their physical well-being (Marshall et al. 2008; Piko, 2000; Vaez & Laflamme, 2002).

On the contrary, it seems that working life compromises physical health, suggesting the need for specific prevention programs. However, these results have to be interpreted carefully. Indeed, young workers can actually experience lower levels of distress, living a more rewarding emerging adulthood (Crocetti et al., 2015), but they can also struggle with recognizing symptoms of poor mental health (Gulliver et al., 2010; Pidd et al., 2017).

Finally, the experience of working students needs particular emphasis because they experience the highest risk of low mental health. This can be connected to their need to balance both academic and occupational demands, leading to physical (e.g., headache, fatigue) and psychological (e.g., excessive worries, anxiety) strain (Park et al., 2013).

1.4 Housing conditions and psychological distress among higher education students: A literature review

Housing has been identified as one of the main domains relating to individual well-being (Sotgiu et al., 2011; van Praag et al., 2003). In particular, subjective well-being seems to be deeply connected to the living space available to everyone and the ability to control it (Caffaro et al., 2018).

Amongst higher education students, those living away from home or not owning the room they are living in showed higher psychological distress regardless of their parental financial support (Flett et al., 2009; Stroebe et al., 2002; Verschuur et al., 2004; Watson et al., 2016). Thus, even if separation from home does not necessarily have a negative impact on higher education students, it may be a risk factor for emerging adults with previous vulnerabilities who might experience increased anxiety and depression, with a negative effect on their overall health (Biasi et al., 2018; Stroebe et al., 2015; Thurber & Walton, 2012).

Therefore, we conducted a systematic literature review on psychological distress and housing conditions among higher education students[2].

1.4.1 Materials and methods

Search strategies

The systematic review was conducted in accordance with the PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analyses – guidelines for search, systematization, and report of systematic reviews (Moher et al., 2009). Studies were identified by searching the following databases: Scopus, Web of Science (WoS), MEDLINE/PubMed, ProQuest Psychology Journals, PsychINFO and PsychARTICLES. We used a combination of the keywords ("university student*" OR "college student*" OR "campus student*") AND ("housing condition*" OR "living condition*" OR "living

[2] This systematic literature review is presented in the paper Franzoi, I.G., Carnevale, G., Sauta, M.D., & Granieri, A. (*under review*). Housing Conditions and Psychological Distress in European University Students: A Systematic Literature Review.

arrangement*" OR "housing arrangement*" OR "housing *location") AND (psych* OR "mental health" OR "mental disorder*" OR "mental disease" OR depress* OR anx* OR emotion* OR wellbeing OR "well-being" OR "quality of life" OR distress OR stress). We used different search criteria considering the different search fields available in the databases considered. Specifically, keywords were searched into: (1) title, abstract and keywords for what concerns Scopus; (2) title and abstract for what concerns PubMed/MEDLINE; (3) all fields for what concerns WoS; (4) text through the PsychINFO and PsychARTICLES databases; and (5) all fields for what concerns ProQuest. We chose to include only Journal Articles published in the last decade (January 2010–September 2020) in English.

Selection criteria

Progressive exclusion was performed by the author and two other judges [MDS[3] and GC[4]] reading the title, the abstract, and finally, the full text. In case of disagreement, a fourth judge [AG[5]] was consulted.

Inclusion criteria were:

1. Quantitative or qualitative original research.
2. Research making an explicit reference to students' housing conditions.
3. Research making an explicit reference to students' psychological distress/mental health.
4. Publications within the given time interval (January 2010–September 2020).
5. Articles' language limited to English.

Exclusion criteria were:

1. Studies not reporting original results (reviews, letters, editorials, and comments).
2. Dissertations.

[3] Maria Domenica Sauta, Psy.D. student, Department of Psychology, University of Turin.

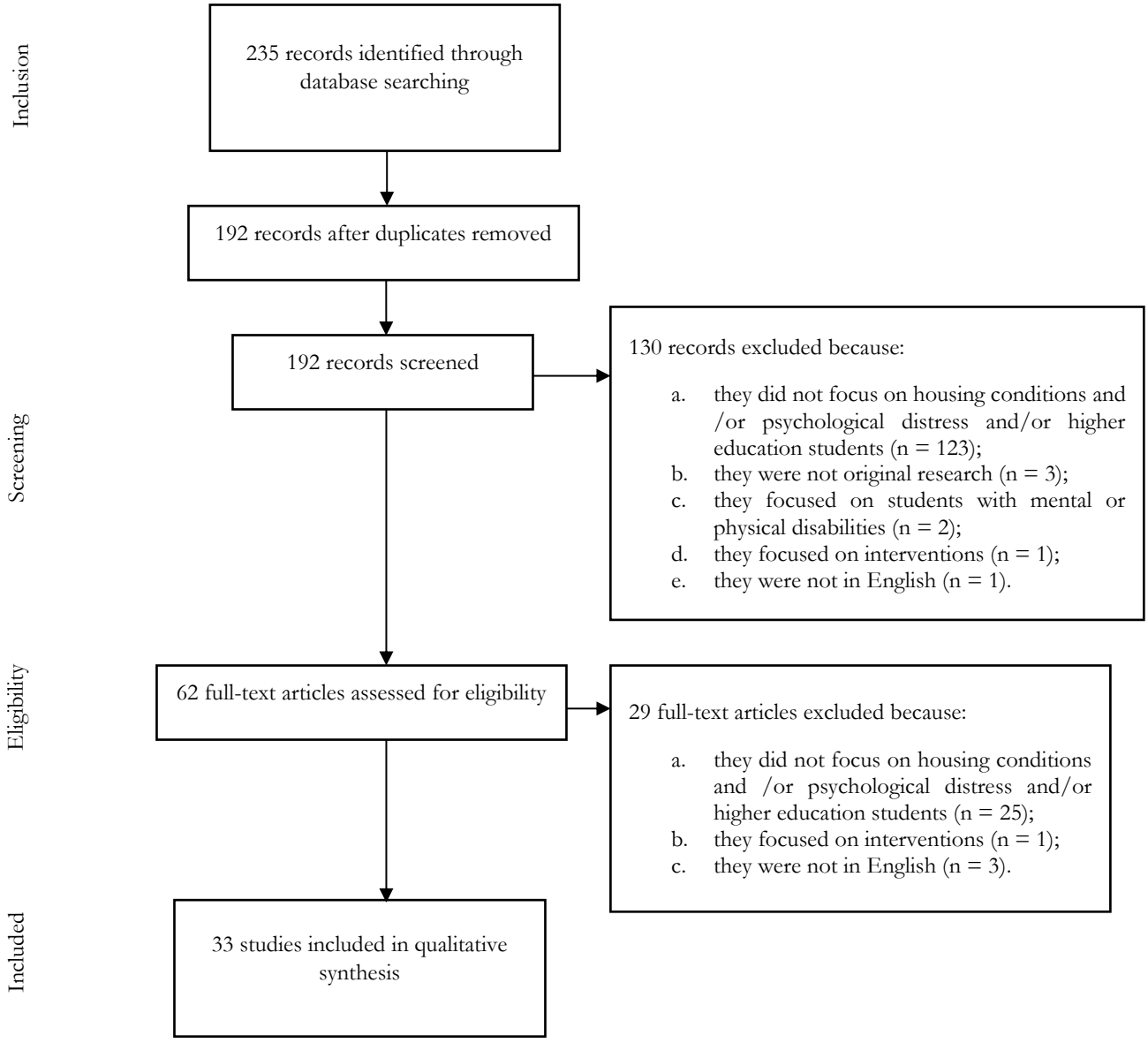
[4] Giuliano Carnevale, Psy.D. student, Department of Psychology, University of Turin.

[5] Antonella Granieri, Psy.D., Associate Professor, Department of Psychology, University of Turin.

3. Focus on limited sub-groups of students (i.e., students with mental and/or physical disabilities).

Any discrepancy regarding the inclusion/exclusion of articles was discussed within the research group until an agreement was reached. A list of excluded studies, including level and reasons of exclusion, was kept. References of included articles were manually checked for any study not retrieved by the automatic literature search: studies identified in this step underwent the same screening process of the papers retrieved by the database search. The entire procedure is displayed in Figure 1.

Figure 1. Flow of information through the different phases of the systematic review



Data analysis

Data analysis was carried out through a standardized data extraction form that included: (1) general details (authors, title, publication source, year of publication); (2) type of study; (3) sample characteristics (e.g., age, gender, and country); (4) measures; and (5) results.

1.4.2 Results

The electronic databases search identified 198 records while five articles were identified through previous literature knowledge. After duplicates were removed, 192 articles were identified. One hundred and thirty articles were excluded based on title and abstract because they either: (a) did not focus on housing conditions and/or university students, and/or psychological distress (n = 123); (b) were not original research (n = 3); (c) focused on students with mental or physical disabilities (n = 2); (d) focused on interventions (n = 1); or (e) were not in English (n = 1). Another 29 articles were excluded based on full-text evaluation because they either: (a) did not focus on housing conditions and/or university students, and/or psychological distress (n = 25); (b) focused on interventions (n = 1); or (c) were not in English (n = 3). The 36 articles resulting from electronic and manual literature searches underwent data extraction and qualitative analysis.

Results were classified into 10 categories according to their focus (each paper was included in all the pertaining categories): 1. Homesickness and adaptation to college life (3 papers); 2. Overall health and distress (3 papers); 3. Sleep (2 papers); 4. Depression, anxiety, and other mental health conditions (7 papers); 5. Alcohol abuse (13 papers); 6. Substance abuse (3 papers); 7. Tobacco use (3 papers); 8. Internet addiction (2 papers); 9. Eating disorders (1 paper); and 10. Sexual behaviors (1 paper). Table 1 summarizes the results.

Table 1. Results of the systematic review on housing conditions and psychological distress in higher education students

Year	Authors	Title	Source	Characteristics of the sample	Outcome measures	Results	Country
2020	Hong, P. & Cui, M.	Helicopter Parenting and College Students' Psychological Maladjustment: The Role of Self-control and Living Arrangement	Journal of Child and Family Studies	The study sample consisted in 432 students from two universities in the southern United States aged 18 to 29. Most of the students are female (89.6%)	- Five-item over-parenting scale - Brief Self-Control Scale - Ten-item version of the Center for Epidemiological Studies - Depression Scale - Ten-item version of the Beck Anxiety Inventory - Five-item satisfaction with life scale	For college students living at home, helicopter parenting was connected to psychological maladjustment ($r = .12$, $p < .05$)	USA
2020	Vasilenko, E.A., Vorozheykina, A.V., Gnatyshina, E.V., Zhabakova, T.V., & Salavatulina, L.R.	Psychological factors influencing social adaptation of first-year students to the conditions of university	Journal of Environmental Treatment Techniques	The study sample consisted in 142 students, 90.1% females and 9.9% and males	- Self-assessment of adaptation - Self-assessment of emotional states - Self-evaluation and expert assessment of the development of training skills - Self-evaluation of relationships with teachers - Temperament questionnaire - Diagnostic questionnaire for identifying character accentuations	Housing conditions influences self-assessment of emotional states of university students ($\beta = .461$)	Russia

					- Sixteen Personality Factor Questionnaire - Intelligence Structure Test–2000 R		
2018	Bhat, U. S., Amaresha, A. C., Kodancha, P., John, S., Kumar, S., Aiman, A., … Cherian, A.V.	Psychological distress among college students of coastal district of Karnataka: A community-based cross-sectional survey	Asian Journal of Psychiatry	The study sample consisted in 4,839 students, 1,958 males and 2,881 females, with an average age of 19.23 ± 1.54	- 20-item Self-Reporting Questionnaire (SRQ-20)	Students who lived with their families showed higher levels of psychological distress than students who did not live with parents (U = 2,687,648.5; p = .004)	USA
2018	Cleveland, M. J., Turrisi, R., Reavy, R., Ackerman, S., & Buxton, O. M.	Examining parent and peer influences of alcohol use: A comparison of first-year community college and baccalaureate students	Journal of Alcohol and Drug Education	The study sample consisted in 295 participant, 56% females and 44% males. The average age was 18.42 years	- Young Adult Alcohol Problems Screening Test (YAAPST) - Drinking Norms Rating Form (DNRF)	First-year baccalaureate students residing on-campus show higher alcohol consumption rates than peers living with their families (p < .001). Factors related to the university environment, such as proximity to peers, seemed to foster risky drinking behavior	USA
2018	Cleveland, M. J., Mallett, K. A., Turrisi, R., Sell, N. M., Reavy, R., & Trager, B.	Using latent transition analysis to compare effects of residency status on alcohol-related consequences during the first two years of college	Addictive Behaviors	The study sample consisted in 1,706 students, 57.2% females, with an average age of 18.18	- Young Adult Alcohol Consequences Questionnaire (YAACQ) - Daily Drinking Questionnaire (DDQ)	Students living on-campus were at a lower risk of engaging in risky drinking-related behaviors than those who lived in fraternities (p < .001) or off-campus (p < .001)	USA
2018	Dazkir, S. S.	Place Meaning, Sense of Belonging, and Personalization Among University Students in Turkey	Family & Consumer Sciences Research Journal	The study sample consisted of 33 students, 18 males and 15 females, aged between 18 and 27 years	- Semi-structured interviews	80% of women and 72% of men experienced homesickness when they first entered college. Being away from their families and homes, living in a new and unfamiliar environment, feeling lonely and not having many interpersonal relationships were the reasons most frequently associated to homesickness. Moreover, students declared that creating new relationships	Turkey

						with their peers and personalizing their new rooms helped them overcome their homesickness.	
2018	Henry, B, Cormier, C., Hebert, E. P., Naquin, M. R., & Wood, R.	Health and health care issues among upper-level college students and relationships to age, race, gender, and living arrangements.	College Student Journal	The study included 397 students, 41.8% males and 57.7% females. Age ranged from 19 to 69 years	- Ad hoc survey instrument including questions regarding age, gender, race, college classification, full- or part-time status, number of hours employed per week, residency/living arrangement, general physical and mental health, specific health-related behaviors, perceptions of health-related factors affecting academic success, and health care access and use	Students who lived on campus reported lower levels of overall health than those living off campus ($\chi2(4) = 10.38$, $p < .05$)	USA
2018	Kolar, K., Erickson, P., Hathaway, A., & Osborne, G.	Differentiating the Drug Normalization Framework: A Quantitative Assessment of Cannabis Use Patterns, Accessibility, and Acceptability Attitudes among University Undergraduates	Substance Use and Misuse	The total sample of the study consisted in 1,757 students	- Self-administered web-based drug use and attitude survey	Living conditions exposing to cannabis users predicted cannabis acceptability (OR=1.16; SE= .23; 95% CI [.78,1.71]; z = .72)	Canada
2018	McIntyre, J. C., Worsley, J., Corcoran, R., Woods, P. H.,	Academic and non-academic predictors of student psychological	Journal of Mental Health	The total sample consisted in 1,135 students, with an	- Academic Stress Scale	Results highlighted that both financial stress ($\beta = .25$, $p < .001$) and poor living conditions ($\beta = -.09$, $p = .012$) were linked	UK

	& Bentall, R. P.	distress: the role of social identity and loneliness		average age of 20.78 years	- Academic Expectations Stress Inventory - UCLA Loneliness Scale (ULS-8) - English Housing Survey - Debt Worry Scale - Generalized Anxiety Disorder-7 (GAD-7) - Perceived Inequality in Childhood Scale - ACEs scale - Patient Health Questionnaire (PHQ-9)	to high levels of depression and anxiety. In the sample examined, 11.3% met criteria for severe depression and 20.9% met criteria for severe anxiety	
2018	Rogowska, A. M.	The Relationship Between Demographic Variables and Substance Use in Undergraduates	International Journal of Mental Health and Addiction	The study sample consisted in 983, 303 females and 680 males, aged between 21 and 36 years	- Self-administered questionnaire "Students 2004"	Results suggested a link between students living in a dorm or apartment and the use of binge drinking behaviors (OR=1.65; p = .0002). Living conditions were also associated with the use of illicit substances (OR=1.36; p = .08)	Poland
2018	Tyler, K. A., Schmitz, R. M., Ray, C. M., Adams, S. A., & Simons, L. G.	The Role of Protective Behavioral Strategies, Social Environment, and Housing Type on Heavy Drinking among College Students	Substance Use and Misuse	The study sample consisted in 1448 students, 755 females and 693 males	- Protective behavioral strategies scale	Students living off-campus with parents (β =-.349, roommates (β = -.111), romantic partner (β = -.131), or in dorms (β =-.348) perceived fewer close friends engaged in risky drinking compared to students living in Greek housing	USA
2017	Tran, A., Tran, L., Geghre, N., Darmon, D., Rampal, M., Brandone, D., … Avillach, P.	Health assessment of French university students and risk factors associated with mental health disorders	Plos ONE	The sample consisted in 4184 students, 42.57% males and 57.43% females, aged 18 to 20 years	- Data were collected prospectively by medical doctors and nurses using a computer-assisted medical	Results indicated that students with depressive symptoms were more likely to be dissatisfied with their living conditions (OR = 2.36, CI95 = [1.63; 3.39]). Being a woman and living alone	France

					examination software program called CALCIUM	were associated with anxiety (OR = 2.28, CI95 = [1.67; 3.11])	
2016	Bähler, C., Foster, S., Estévez, N., Dey, M., Gmel, G., & Mohler-Kuo, M.	Changes in living arrangement, daily smoking, and risky drinking initiation among young Swiss men: a longitudinal cohort study	Public Health	The total sample of the study consisted of 4,662 male students with an average age of 21.1 years	- Ad-hoc questionnaire	Results showed a link between moving out from parental home and both daily smoking (OR = 1.67; p= .007) and risky drinking behavior (OR monthly risky single-occasion drinking = 1.42; p= .012)	Switzerland
2016	Deb, S., Banu, P.R., Thomas, S., Vardhan, R.V., Rao, P.T., & Khawaja, N.	Depression among Indian university students and its association with perceived university academic environment, living arrangements and personal issues	Asian Journal of Psychiatry	The sample consisted of 717 students, 402 males and 315 females. Age ranged from 21 to 26 years	- Ad-hoc questionnaire; - University Student Depression Inventory, - Students' academic performance was measured through the Choice-Based Credit System	Positively experiencing living arrangements led to lower levels of depression ($p < .01$). Dissatisfaction with housing conditions was a significant stressor for students	India
2016	Miller, M. B., Merrill, J. E., Yurasek, A. M., Mastroleo, N. R., & Borsari, B.	Summer versus school-year alcohol use among mandated college students	Journal of Studies on Alcohol and Drugs	The study sample consisted in 305 students, 67% male, with a mean age of 18.68 years	- Online questionnaire	Alcohol consumption during summer months is lowered by living with a parent (B = -1.42, SE = .50; 95% CI [-2.43, -.46])	USA
2016	Peltz, J. S., & Rogge, R. D.	The indirect effects of sleep hygiene and environmental factors on depressive symptoms in college students	Sleep Health	The study sample consisted in 335 college students, 77% females and 23% males, with an average age of 19.9 years	- -Patient Health Questionnaire - Pittsburgh Sleep Quality Index (PSQI) - Adolescent Sleep Hygiene Scale (ASHS)	Environmental factors related to living conditions induced sleep disturbances, with an impact on depressive symptoms (B= .27, SE = .07)	USA
2016	Ran, M. S., Mendez, A. J., Leng, L. L., Bansil, B., Reyes, N.,	Predictors of Mental Health Among College Students in Guam: Implications for Counseling	Journal of Counseling and Development	The study sample consisted in 308 students, 205 females and 103 males	- Ad-hoc sociodemographic questionnaire - 42-item Depression	Students who lived alone and those who shared housing with friends were more likely to have severe depressive and anxiety symptoms than students who	Guam

	Cordero, G., … Tang, M.				Anxiety Stress Scales (DASS)	lived with their family. Living alone (β = .34,sr2 = .03), t(134) = 3.29, p < .05; Living with friends (β = .22, sr2 = .02), t(134) = 2.51, p < .05	
2016	Seelman K. L.	Transgender Adults' Access to College Bathrooms and Housing and the Relationship to Suicidality	Journal of Homosexuality	The study sample consisted in 2,325 transgender students, with an average age of 27 years	- National Transgender Discrimination Survey	Negative experiences related to housing conditions negatively impacted on psychological well-being, increasing suicide attempts (p < .01-.50; OR=.61)	USA
2016	Tao, Z., Wu, G., Wang, Z.	The relationship between high residential density in student dormitories and anxiety, binge eating and Internet addiction: a study of Chinese college students	Springer Plus	The study sample consisted of 1,048 students, 540 males with a mean age of 20.6 years, and 508 females with a mean age of 20.8	- -Zung's Self-Rating Anxiety Scale - Internet Addiction Test - -Self-Control Scale	High binge eating and internet addiction seemed connected to anxiety caused by high-density living conditions (Binge eating, p= .008; internet addiction, p = .000).	China
2015	Kono, K., Eskandarieh, S., Obayashi, Y., Arai, A., & Tamashiro, H	Mental Health and Its Associated Variables Among International Students at a Japanese University: With Special Reference to Their Financial Status	Journal of Immigrant and Minority Health	The study sample consisted in 276 students.	- Ad-hoc questionnaire assessing demographic information; educational background including Japanese language skills; lifestyle-related practices, such as, exercise, alcohol consumption, and quality of sleep; mental health; and current housing conditions	Poor housing conditions had an impact on depressive symptoms (OR 2.98; CI 1.69–5.26)	Japan
2015	Nasui, B. A., Popa, M., & Popescu, C. A.	Drinking Patterns and Behavioral Consequences: A Cross-Sectional Study among Romanian University Students	Zdravstveno Varstvo	The study sample consisted in 468 students, 35.5% males, 64.5% females. The	- Patient Health Questionnaire (PHQ- 9) - Baseline Questionnaire	Regarding living arrangement, students living in rented apartments reported higher levels of alcohol consumption than students living with their	Romania

				average age was 21.9 ± 3.22 years.		families did. However, no statistically significant differences in alcohol consumption emerged considering livings condition (F = .742; p = .564)	
2014	O'Connell, V. A.	The healthy college student: The impact of daily routines on illness burden	SAGE Open	The study sample consisted in 84 students	- Ad-hoc survey assessing stress, food choices, sleeping patterns, exercise, alcohol and cigarette use, and hygiene	Living conditions were significantly associated with disease burden: students living alone reported .42 days of acute illness versus 1.23 days for students living in double (p = .014)	USA
2014	Roemer, A., & Walsh, Z.	Where you live matters: The roles of living arrangement and self-esteem on college students' hazardous drinking behaviors	Addiction Research and Theory	The study sample consisted in 139 college students, 37% males, aged from 17 to 35 years	- Rosenberg Self-Esteem Scale - The Rutgers Alcohol Problem Index (RAPI)	The influence of self-esteem on drinking behaviors is moderated by living arrangement, B = 1.32, t(60) = 2.03, p < .05.	Canada
2014	Sokratous, S., Merkouris, A., Middleton, N., & Karanikola.	The prevalence and socio-demographic correlates of depressive symptoms among Cypriot university students: A cross-sectional descriptive co-relational study	BMC Psychiatry	The study sample consisted in 1,500 students, 448 males and 1,052 females, with an average age of 20.3	- Ad-hoc questionnaire	Quality of living condition was associated with the occurrence of clinical depressive symptoms OR 2.73, 95% CI: 2.00 – 3.72. Students living alone showed a prevalence of clinically significant symptoms of depression compared to those who live together (31.5% vs. 26.9%, p = .03)	Greece
2013	Galambos, N. L., Lascano, D. I. V., Howard, & A., Maggs, J. L.	Who Sleeps Best? Longitudinal Patterns and Covariates of Change in Sleep Quantity, Quality, and Timing Across Four University Years	Behavioral Sleep Medicine	The study sample consisted in 186 first-year students, 112 females and 74 males	- Pittsburgh Sleep Quality Index (PSQI)	Students living on-campus reported a higher level of stress in the sleep indicators: quantity (B=.05; SE=.09) disturbances (B=.05; SE=.03), bedtime (B=.33; SE=.07), rise time (B=.46; .07)	Canada
2013	Hallett, J., Howat, P., McManus, A., Meng, R.,	Academic and personal problems among Australian university students who drink at	Health promotion Journal of Australia	The sample consisted of 942 students, both 53.3% males and	- Ad hoc questionnaire on alcohol consumption	Results highlighted a link between alcohol-related problems and housing conditions. The 45% of students living in shared housing reported	Australia

	Maycock, B., & Kypri, K.	hazardous levels: Web-based survey		46.7% females, aged 17 to 24	- Academic Role Expectations and Alcohol Scale (AREAS) - Alcohol Problems Scale (APS)	that alcohol intake negatively influenced the quality of their university career. Emotional outbursts were among the most frequently reported alcohol-related and non-academic related problems (30.5%)	
2013	Lorant, V., Nicaise, P., Soto, V. E., & D'Hoore, W.	Alcohol drinking among college students: College responsibility for personal troubles	BMC Public Health	The sample consisted of 7,015, 47.2% males, 57.3% females, with an average age of 21.5	- Positive Drinking Consequences Questionnaire - European School Survey Project on Alcohol and Other Drugs (ESPAD) questionnaire	Results showed how living on campus may lead to an increase in alcohol consumption (OR =1.12 95% CI: 1.06-1.18)	Belgium
2013	Odacı, H.	Risk-taking behavior and academic self-efficacy as variables accounting for problematic internet use in adolescent university students.	Children and Youth Services Review	The study sample consisted in 556 students, 58.1% females and 41.9% males, with an average age of 19.25 years	- Ad-hoc questionnaire on personal information - Problematic Internet Use Scale - Adolescent Risk-Taking Scale - Academic Self-Efficacy Scale	Problematic internet use did not vary according to housing conditions (t=−.13, p>.05)	Turkey
2013	Sa, J., Seo, D. C., Nelson, T. F., & Lohrmann, D. K.	Cigarette smoking among Korean international college students in the united states	Journal of American College Health	Participants were 1,201 South Korean students, aged 18 to 28 years	- National College Health Risk Survey - Behavioral Risk Factor Surveillance System questionnaire - College Alcohol Study questionnaire - Acculturative Stress Scale for International Students	Results highlighted that factors like living place and living situation are strongly associated with smoking habits. Most students living off campus (62%) compared to those living on campus (25%) reported an increase in smoking	USA

2013	Shamsuddin, K., Fadzil, F., Ismail, W. S., Shah, S. A., Omar, K., Muhammad, N. A., … Mahadevan, R.	Correlates of depression, anxiety and stress among Malaysian university students	Asian Journal of Psychiatry	The study sample consisted in 506 students, aged 18 to 24 years, 44.7% males and 55.3% females	- Ad-hoc questionnaire - Depression Anxiety Stress Scale-21 (DASS-21)	Students born in rural areas had higher average scores for depression and anxiety, with significant differences for both types of mental distress compared to students born in urban areas ($F(2,505) = 3.574$, $p = .029$; and $F(2,505) = 4.275$, $p = .014$)	Malaysia
2012	Iwamoto, D., Takamatsu, S., & Castellanos, J.	Binge drinking and alcohol-related problems among U.S.-born Asian Americans.	Cultural Diversity and Ethnic Minority Psychology	The study sample consisted of 1,575 Asian American students, with an average age of 19.85 years. Participants were 71.9% females and 28.1% males	- Web-based assessment of demographic information - Multigroup Ethnic Identity Measure-Revised (MEIM-R) - Descriptive norms instrument, adapted from the Daily Drinking Questionnaire (DDQ) - Rutgers Alcohol Problems Index (RAPI)	Results showed that students living off-campus were more likely to consume higher quantity of alcohol ($r= .07$, $p<.01$) and to show alcohol-related problems ($r = .07$, $p <.01$)	USA
2012	Quinn, P. D., & Fromme, K.	Personal and contextual factors in the escalation of driving after drinking across the college years	Psychology of Addictive Behaviors	The study sample consisted in 1833 students	- Web-based college survey	Students who lived on-campus were less likely to drive after drinking than students who lived off-campus ($\Delta\chi2$ (6) = 18.54, $p = .005$)	USA
2010	Boot, C. R. L., Rosiers, J. F. M, Meijman, F. J., & Van Hal, G. F. G.	Consumption of tobacco, alcohol and recreational drugs in university students in Belgium and the Netherlands: The role of living situation.	International Journal of Adolescent Medicine and Health	The sample of this study consisted of 8,258 students from a University in the Netherlands and 27,210 students from a University of	- Ad-hoc questionnaire including questions about health status, problem solving, support, time pressure, study-	This study highlighted that the living situation is a determining factor with respect to the consumption of substances among students. Living with peers seemed to increase tobacco, alcohol and drugs use	Belgium, Netherlands

				Belgium, aged 17 to 27 years	related problems, study questions, including health status, substance use, participation in leisure activities, knowledge about substance use regarding counseling, treatment and drug issues	in both the countries investigated: For what concerns Netherland, data were: consumption of tobacco (OR = 1.22; 95%CI [1.02; 1.46]), alcohol (OR = 2.02; 95%CI [1.49; 2.74]), recreational drugs (OR = 1.35; 95%CI [1.13; 1.62]). For what concerns Belgium, data were: consumption of tobacco (OR= 1.22; 95%CI [1.02; 1.46]), alcohol (OR = 3.58; 95%CI [1.32; 9.71]), recreational drugs (OR= 1.94; 95%CI [1.32; 2.84])	
2010	Hittner, J. B., & Kryzanowski, J. J.	Residential status moderates the association between gender and risky sexual behavior	Journal of Health Psychology	The study sample consisted in 410 college students, 136 males and 258 females (16 did not report gender), aged from 18 to 26 years	- CORE Alcohol and Drug Survey - AIDS-Risky Behavior Inventory	Living on-campus increased risky sexual behavior compared to off-campus living in a drunk or high condition (β = –.149, p = .019, sr = –.123, sr2 = .015)	USA

Homesickness and adaptation to college life

Dazkir (2018) investigated the perception of living arrangements and its link to psychological distress in 33 students living in a residence hall. He underlined how place meaning, place attachment and place personalization can preserve students' psychological well-being, with a positive effect on their academic achievements. In particular, 80% of females and 72% of males in this sample reported feeling homesick when they first started college and 21% of them revealed that they still struggled with homesickness. Being away from their families and homes, living in a new and unfamiliar environment, and feeling lonely and not having many interpersonal relationships were the reasons most frequently associated with homesickness. Moreover, students declared that creating new relationships with their peers and personalizing their new rooms helped them overcome their homesickness. The objects they used for personalizing their rooms were either pleasing to them or were connected to memories and meanings associated with their loved ones and their previous home. Moreover, a study conducted by Vasilenko and colleagues (2020) on 142 first-year students underlined that satisfaction with living conditions influenced the adaptability of first-year students to university conditions. Finally, in a study on 432 college students, Hong and Cui (2019) found that living arrangements moderated the association between perceived helicopter parenting (i.e., parenting characterized by excessive involvement, assistance, and control) and college students' psychological maladjustment, finding a stronger association in students who were still living with their family of origin than among those living away from their families.

Overall health and distress

In a 2014 study, O'Connell highlighted that living arrangements were significantly linked to mental health. More specifically, students living in a single room were significantly less likely to report being sick than students living in a double room: they reported fewer days of acute illness, less runny noses and sneezing, and a lower overall illness burden. On the contrary, students who lived off-campus reported a significantly higher average of illness burden as well as higher rates of sore throats, runny noses, earaches, sneezing, and fatigue. Moreover, Henry and colleagues (2018) explored 397 college students' health perceptions and found that students living on campus reported lower levels of overall health than those living off campus. Finally, a cross-sectional community-based survey on 4,839 Indian

students conducted by Bhat and colleagues (2018) showed that students living with their families reported higher levels of psychological distress than those living away from their families of origin.

Sleep

Research also focused on sleep quality and housing conditions. Peltz and Rogge (2016) focuses on sleep hygiene and environmental factors that disturb sleep as direct predictors of sleep disorders and indirect depressive disorders in a sample of 335 college students. In both students living in a single room and living with a roommate, environmental noise and poor environmental hygiene practices were directly associated with low sleep quality, and indirectly associated with increased depressive symptoms. Moreover, students living alone showed an indirect association between depression and the cognitive dimension of sleep hygiene (e.g., thinking about things to do when going to bed) while students living with a roommate showed indirect associations between depression and the physiological dimension (e.g., caffeine assumption before going to bed) and the environmental dimension of sleep hygiene (e.g., sleeping with lights off or on softly). For students living in a double room, the sources of environmental disturbance in their room (e.g., light, music, or television on) predicted additional sleep disturbances and higher depressive symptoms. Moreover, research from Galambos and colleagues (2013) on 186 students showed that living away from home was linked to more sleep disturbances, later bedtimes, and later rise times, while living on campus was associated with later bedtimes and rise times.

Depression, anxiety, and other mental health conditions

Research underlined that students who were not satisfied with their housing conditions showed higher levels of depression than those satisfied with their living arrangements in different countries: similar results were found by Deb and colleagues (2016) on 717 Indian students, and by McIntyre and colleagues (2018) on 1,135 English students. In a study on 4,184 French undergraduate students, Tran and colleagues (2017) found that students who were not satisfied with their living conditions had higher risk of depression, and that students with depressive symptoms were more likely dissatisfied with their living conditions. Moreover, in a study on 311 Chinese students Ran and colleagues (2016)

found that living alone or with friends were significant predictors of depressive symptoms, while in a study on 1,500 Cypriot students Sokratous and colleagues (2014) found that living condition quality was associated with depressive symptoms and that students living alone showed greater prevalence of clinically significant symptoms of depression compared to students living with other people. On the contrary, a study conducted by Shamsuddin and colleagues (2013) on 506 Malaysian university students found no association between depression and living accommodations or living conditions. However, the study underlined that depression scores were significantly higher among students born in rural areas than among those born in urban areas. The same study found no association between anxiety and living conditions, but it underlined higher anxiety scores among students born in rural areas than among those born in urban areas. Finally, Kono and colleagues (2015) focused on 726 international students in Japan, identifying that poor housing conditions were statistically associated with a higher risk of developing depressive symptoms. For what concerns anxiety, in their study on 1,135 English students, McIntyre and colleagues (2018) found that a low level of satisfaction with housing conditions was connected to higher levels of anxiety as well as higher levels of paranoia. Moreover, in their research on 4,184 French undergraduate students, Tran and colleagues (2017) found that students living alone had increased levels of anxiety. Moreover, in a study conducted by Seelman (2016), 2,316 USA transgender students underlined higher levels of suicide attempts among transgender students living on college campuses who did not have access to adequate and specific toilets for transgender people.

Alcohol abuse

A research conducted by Cleveland, Turrisi and colleagues (2018) on 295 USA first-year students showed that freshmen living on-campus reported higher rates of alcohol use compared to their peers living at home. Moreover, in a research on 4,662 young Swiss men, Bähler and colleagues (2016) reported a strong association between moving from their family of origin and the initiation of monthly risky single-occasion drinking, and in a research on 983 Polish undergraduates, Rogowska (2018) showed excessive alcohol drinking among students living in a dorm or an apartment, and living in an urban area. A study conducted by Miller and colleagues (2016) on 305 male students who had violated campus alcohol policy reported that during the summer students exhibited significantly lower alcohol consumption. In this season, students most likely lived with their families of origin; thus, living with

a parent resulted in lower alcohol consumption. Furthermore, Boot and colleagues (2010) investigated differences between students living with their parents and students living alone or with peers in a sample of 8,258 Belgian students and 27,210 Dutch students, finding that students living with peers showed greater alcohol consumption. Moreover, a study by Quinn and Fromme (2012) on 1,833 non-abstaining USA students reported that students who lived on campus drove less after drinking than those who did not. A study conducted by Tyler and colleagues (2018) on 1,448 USA college students underlined that students living in fraternity housing had higher rates of heavy drinking and perceived their close friends as engaging in more risky drinking compared to students with different housing conditions. Moreover, a research conducted by Lorant and colleagues (2013) on 7,015 Belgian college students showed that living on campus or in a dormitory with a higher number of roommates was connected to excessive drinking patterns. However, a study by Iwamoto and colleagues (2012) on 1,575 Asian American undergraduates revealed that living off-campus was associated with higher binge drinking, a higher quantity of alcohol consumption and higher alcohol-related problems. Roemer and Walsh (2014) examined the influence of living arrangements on problematic alcohol use among 139 Canadian university students. They found that students living with parents showed an association between self-esteem and both binge drinking and alcohol-related problems, which was not observed in students living on campus or off campus without parents. Another study of Cleveland, Mallet and colleagues (2018) on 1,706 students found that students who remained in on-campus spaces during their first two years more likely showed no consequence for their drinking behavior over time compared to those who moved to a fraternity or off-campus housing. On the contrary, students who remained in on-campus spaces were the least likely to belong to the group of students characterized by physical consequences for their drinking behavior, even if non repeated. Moreover, students who moved to fraternity housing were less likely to have multiple consequences for their drinking behavior compared to students in off-campus arrangements, and were more likely to belong to the group of students with repeated and multiple consequences for their drinking behaviors compared to students living in on-campus and off-campus spaces. Contrary to other research, Nasui and colleagues (2015) conducted a study on 468 Romanian university students and found no statistically significant difference in alcohol consumption depending on their living conditions. At the same time, Hallett and colleagues (2013) conducted a study on 942 Australian undergraduate students and found that housing conditions were only connected to sexual consequences of alcohol consumption: students living with parents reported fewer unpleasant sexual encounters than those

living in shared apartments or dormitories. Moreover, high alcohol consumption led students who live alone to engage in more sexual encounters without precautions.

Substance abuse

The study conducted by Rogowska (2018) in 983 Polish undergraduates revealed excessive substance use among students living in a dormitory or an apartment, and living in an urban area, while students living at home showed healthier habits. Moreover, the study conducted by Boot and colleagues (2010) on 8,258 Belgian students and 27,210 Dutch students showed that the consumption of recreational drugs was associated with living with peers. A study conducted by Kolar and colleagues (2018) on 1,713 Canadian undergraduate students showed that living off campus with parents or in residences did not have an impact on cannabis use.

Tobacco use

The study conducted by Boot and colleagues (2010) on 8,258 Belgian students and 27,210 Dutch students showed that the consumption of tobacco was associated with living with peers. Moreover, the research on 4,662 young Swiss men conducted by Bähler and colleagues (2016) reported a strong association between moving from their family of origin and the consumption of tobacco. Living with peers emerged as a strong predictor of daily smoking. Finally, a research conducted by Sa and colleagues (2013) explored the prevalence of cigarette smoking among 1,201 South Korean international college students in the United States, showing that students living off-campus were more frequent smokers than those living on campus, and more likely reported an increase in smoking.

Internet addiction

A study conducted by Tao and colleagues (2016) on 1,048 Chinese college students showed that anxiety connected to high-density living conditions had a strong impact on Internet addiction, higher than that of other factors, such as the size of the dormitory room. However, research on 556 Turkish

students conducted by Odacı (2013) revealed that problematic Internet use was not connected with whether students were living with their families or not.

Eating disorders

Research conducted by Tao and colleagues (2016) on 1,048 Chinese college students showed that binge eating scores and the frequency of compensatory behaviors were significantly predicted by anxiety caused by high-density living conditions.

Sexual behaviors

Research conducted by Hittner and Kryzanowski (2010) on 410 USA college students revealed that males living on-campus engaged in more frequent casual sex than males living off-campus while the casual sex frequency for females did not vary as a function of residential status.

1.4.3 Discussion

The increase in students' enrolment in higher education led to an increased concern worldwide for their mental health problems (Busari, 2012; Chen et al., 2013; Pidgeon et al., 2014; Pozos-Radillo et al., 2014; Shamsuddin et al., 2013). A variety of health and health-related issues have been identified among college students, particularly problems connected to diet, sleep patterns, sexual behaviors, and alcohol and substance abuse. Being a student during emerging adulthood has been identified as a risk for excessive alcohol use due to a combination of individual, family, peer, and cultural factors (Schulenberg & Maggs, 2002). Students' housing conditions play an important role among these risk factors. Specifically, living with parents resulted a protective factor for alcohol consumption and dangerous sexual behaviors (Hallett et al., 2013). Consistently, several studies reported higher rates of alcohol use among students living on campus or in fraternity housing compared to their peers living at home (Bähler et al., 2016; Cleveland, Mallet et al., 2018; Tyler et al., 2018). Moreover, university students are often engaged in risky sexual behavior, such as unprotected sex or using unreliable

contraceptive methods, which can lead to negative consequences on their mental health and on their academic performance (Grace, 1997; Hightow et al., 2005; Lechner et al., 2013; Scholly et al., 2005). In particular, literature highlighted that students living with their parents reported fewer unpleasant sexual encounters than those living in shared apartments, and that high alcohol consumption led students who live alone to engage in more unprotected sexual encounters (Boot et al., 2010; Evans-Polce et al., 2017; Hallett et al., 2013; Roemer & Walsh, 2014). Moreover, living in a dormitory or living with peers was associated with excessive substance use (Boot et al., 2010; Rogowska, 2018). Leaving their family house and starting a new life in college seems to lead to great emotional distress. Research confirmed that living arrangements were significantly linked to mental health (O'Connell, 2014). More specifically, living in a single room or with a roommate was associated with low sleep quality and depressive symptoms (Peltz & Rogge, 2016). Moreover, living alone and in poor housing conditions was a significant predictor of depressive symptoms (Kono et al., 2015; Ran et al., 2016). Likewise, higher levels of anxiety emerged in students living alone or those who were not satisfied with their housing conditions (McIntyre et al., 2018; Tran et al., 2017), even if such results are controversial (Shamsuddin et al., 2013). Besides, students born in rural areas reported higher depression, anxiety and stress compared to students with an urban upbringing (Bayram & Bilgel, 2008) possibly because of poorer family economic situations. These results underline the importance of taking into account housing conditions in mental health prevention and intervention programs targeted to higher education students.

Study 1

MENTAL HEALTH AMONG UNIVERSITY STUDENTS: A CROSS-SECTIONAL STUDY

Chapter 2

INVESTIGATING PSYCHOLGICAL DISTRESS IN STUDENTS ATTENDING THE UNIVERSITY OF TURIN AND EXPLORING DIFFERENCES CONNECTED TO THEIR HOUSING CONDITIONS

The aim of the present study was to: (1) explore psychological distress in a sample of university students attending the University of Turin (UniTo); (2) determine whether there are significant differences among students living in different housing conditions; and (3) investigate if those differences survive while controlling for other sociodemographic variables.

2.1 Materials and methods

2.1.1 Study design and participants

We conducted a descriptive, cross-sectional study with purposive sampling (Corbetta, 2015a,b) based on four housing conditions: students still living with their family of origin, commuter students, non-resident students living in a residence hall, and non-resident students not living in a university residence. For each condition, the sampling target was to include an equal number of students attending courses pertaining to the three research domains identified by the European Research Council (ERC): Social Sciences and Humanities (SH), Physical sciences and Engineering (PE), and Life Sciences (LS). We decided to exclude students attending master's degree courses because their distress could be connected not to their current course, but to their former bachelor course attended in institutions other than UniTo. Moreover, since the research team[6] worked at UniTo, in order to

[6] The research team included the author, prof. Antonella Granieri (Psy.D., Associate Professor in Clinical Psychology, Department of Psychology, University of Turin), and Maria Domenica Sauta (Psy.D. student, Department of Psychology,

avoid students feeling forced to give their consent to the research in order to please the researchers or because they value them, and to avoid connected response biases, we decided to exclude students attending courses in which the research team was involved at any level.

Students were recruited between October 2018 and February 2020, and the enrollment was prematurely ended because of the spread of the Covid-19 pandemic.

Inclusion criteria were being aged between 18 and 29 years old (emerging adults) and attending bachelor's degree courses or single-cycle master's degree courses at UniTo.

Exclusion criteria were having poor knowledge of the Italian language, being aged more than 29 years old and attending another higher education institution.

The enrollment was conducted through cooperation with professors, student representatives, departmental councils, and Heads of Departments. We reached 35 (50.73%) out of the 69 bachelor's degree courses and four (44.44%) out of the nine single-cycle master's degree courses available at UniTo. We emailed 102 professors, and 70 (68.63%) gave their availability to host a research presentation in their classes. We had positive responses from 35 out of 43 (81.40%) SH professors, 14 out of 18 (77.78%) PE professors, and 21 out of 41 (51.22%) LS professors. Nine hundred and seventy-nine students declared their willingness to participate in the study. Among these, only 183 (18.69%) students agreed to be tested. In our final sample, each housing condition did not include an equal number of students attending courses pertaining to the three ERC research domains. However, there were no statistically significant differences between housing conditions for what concerns the ERC domains of the students tested ($\chi^2 = 4.002$; $p = .676$). Sampling is reported in Table 2.

Table 2. Sampling

	ERC Domains	Hypothesized sample size*	Students tested	*χ2*	*df*	*p*
Housing conditions						
Students living with their families (n=60)	SH	15-20	37	4.002	6	.676
	PE	15-20	18			
	LS	15-20	5			

University of Turin). Prof. Marianna Azzurra Filandri (Ph.D., Associate Professor in Economic Sociology, Department of Cultures, Politics and Society, University of Turin) supervised the study design.

Commuter students (n=42)	SH	15-20	22
	PE	15-20	17
	LS	15-20	3
Non-resident students in a Residence (n=33)	SH	15-20	19
	PE	15-20	9
	LS	15-20	5
Non-resident students not in a Residence (n=48)	SH	15-20	31
	PE	15-20	12
	LS	15-20	5

*Effect size = .25
α err prob = .05
Power (1-β err) = .80 – .90

2.1.2 Outcome measures

The study included the administration of an ad hoc questionnaire aimed at investigating socio-demographic characteristics and a pool of self-report questionnaires validated for the Italian population: the Attachment Style Questionnaire (ASQ; Feeney et al., 1994; Fossati et al., 2003), the Toronto Alexithymia Scale-20 (TAS-20; Bagby et al., 1994; Bressi et al., 1996), the State-Trait Anxiety Inventory-Y (STAI-Y; Pedrabissi, & Santinello, 1996; Spielberg et al., 1983), the Beck Depression Inventory-II (BDI-II; Beck et al., 1996; Ghisi et al., 2006), the Suicidal History Self-Rating Screening Scale (SHSS; Innamorati et al., 2011), and the Personality Inventory for DSM-5-Brief Form (PID-5-BF; Fossati & Borroni, 2015; Krueger et al., 2013).

The administration was conducted at the university in the presence of a psychologist or a trained post-graduate psychology student. The average time of completion was 39.79 ± 9.89 minutes (range 20–77 minutes).

The ASQ is a 40-item self-report questionnaire aimed at assessing adult attachment. It comprises five scales: Confidence (C), which assesses secure attachment; Relationship as Secondary (RS) and Discomfort with Closeness (DC), which describes avoidant attachment; Need for Approval (NA) and and Preoccupation with Relationship (PR), which assess attachment anxiety. Each item is rated on a six-point scale (ranging from 1 = "totally disagree" to 6 = "totally agree"). Cut-off scores for the Italian sample are < 29 for Confidence; > 42.5 for Discomfort with Closeness; > 20 for Relationship as Secondary; > 25 for Need for Approval and > 33 for Preoccupation with Relation (Fossati et al., 2007). The ASQ showed good internal consistency (Cronbach's alpha coefficients ranging from .76 to .84) and test-retest reliability (test-retest reliability coefficients ranging from .67 to .78) in the original

version. For the Italian version, considering the quite small number of items for each scale, the internal consistency coefficients were acceptable (for the nonclinical sample, Cronbach's alpha coefficients ranged from .64 to .73). In our study, Cronbach's alpha was .52 for Confidence; .81 for Discomfort with Closeness; .67 for Relationship as Secondary; .77 for Need for Approval and .71 for Preoccupation with Relation.

The TAS-20 is a 20-item self-reported measure of alexithymia. It has a three-factor structure: Difficulty in Identifying Feelings (DIF), Difficulty in Describing Feelings (DDF), and Externally Oriented Thinking (EOT). Participants are asked to rate how accurately each of the items describe them on a five-point scale (ranging from 1 = "completely disagree" to 5 = "completely agree"). A TAS-20 total score $\geq$ 61 is considered indicative of alexithymia, whereas scores between 51 and 60 indicate borderline alexithymia. TAS- 20 demonstrated good internal consistency and test-retest reliability both in the original version (Cronbach's alpha = .81; $r = .77$, $p < .001$), and in the Italian validation (Cronbach's alpha = .82; $r = .86$; $p < .001$). In our research, Cronbach's alpha was .79 for TAS total score, .81 for DIF, .58 for DDF, and .52 for EOT.

The STAI-Y is a 40-item self-report inventory aimed at assessing two types of anxiety symptoms: state anxiety (i.e., how a person in the current situation responds to perceived threat) and trait anxiety (i.e., the stable tendency to attend, experience, and report negative emotions such as fears, worries, and anxiety across many situations). Each of these dimensions comprises 20 non-overlapping trait facets. Participants are asked to rate how accurately each of the items describe them on a five-point scale (ranging from 1 = "almost never" to 4 = "almost always"). As suggested by previous research (e.g., El Sawy, 2012; Hart & McMahon, 2006), we used a cut-off of 40 to evaluate the presence or absence of state and trait anxiety. The STAI-Y original version demonstrates good internal consistency (Cronbach's alpha = .90) and test-retest reliability ($r = .70$, $p < .001$). For the Italian version, both state and trait scales demonstrate good internal consistency (Cronbach's alpha = .93 and .88, respectively) and test-retest reliability ($r = .49$ and .82, respectively). In our study, Cronbach's alpha was .94 for state anxiety and .92 for trait anxiety.

The BDI-II is a 21-item self-report questionnaire in which each item corresponds to a specific category of depressive symptoms and attitudes. Participants are asked to choose between four options for each item ranging from 0 to 3 (0 = "I do not feel sad"; 3 = "I am so sad or unhappy that I can't stand it"). Higher total scores indicate more severe depressive symptoms. Scores from 14 to 19 indicate mild

depression, scores from 20 to 28 indicate moderate depression, and scores from 29 to 63 indicate severe depression. The BDI-II demonstrated good internal consistency and test-retest reliability both in the original version (Cronbach's alpha = .91; $r = .93$, $p < .001$), and in the Italian sample (Cronbach's alpha = .90; $r = .85$, $p < .001$). In our study, Cronbach's alpha was .52.

The SHSS is a 16-item measure assessing thoughts of death, suicidal ideation, and behavior. Participants are asked to answer eight yes/no questions concerning the last 12 months and eight yes/no questions concerning their lifetime except for the last 12 months. Higher total scores indicate more severe suicidal ideation, and scores > 8 indicate a risk for suicidal behavior. The SHSS was specifically developed and validated for Italian samples and demonstrates good internal consistency (Cronbach's alpha = .80). In our study, Cronbach's alpha was .88 for the total score, .76 for the scale on the last 12 months, and .80 for the scale on lifetime except for the last 12 months.

The PID-5-BF is a 25-item dimensional self-report measure assessing five broad pathological personality traits: Negative Affectivity (NA), Detachment (DE), Antagonism (A), Disinhibition (DI), and Psychoticism (P). Items come from the 220 items of the self-report PID-5 (Fossati et al., 2013; Krueger et al., 2012). Participants are asked to rate how accurately each item describes them on a four-point scale (ranging from 0 = "very false or often false" to 3 = "very true or often true"). Mean scores assess the presence of each trait and the overall personality disfunction on a scale from 0 = "absent" to 3 = "severe". Previous research (Gomez et al., 2020) found good internal consistency for the five scales in the PID-5- BF original version (Cronbach's alpha ranging from .66 to .81) as well as in a sample of Italian adolescents (Fossati et al., 2015). In our study, Cronbach's alpha was .85 for the total score, .66 for Negative Affectivity, .71 for Detachment, .70 for Antagonism, .63 for Disinhibition, and .75 for Psychoticism.

2.1.3 Ethics

The study was reviewed and approved by the Institutional Review Board (IRB) of the University of Turin (protocol number 162317 dated 4/19/2018). All participants were given a complete description of the study and provided informed and written consent before entering the study. Since the outcome measures could point out important mental health issues (e.g., high levels of anxiety or depression,

suicide risk), participants were asked if they wanted someone to be informed in case their results highlight severe distress, along with who they wanted us to contact (themselves, a friend, a relative, their general practitioner) and how (via email, cellphone, etc.). All research procedures were conducted in accordance with the ethical standards of the committees responsible for human experimentation (institutional and national) and with the Helsinki Declaration of 1975 (as revised in 2013).

2.1.4 Statistical analyses

Data analyses were conducted using the Statistical Package for the Social Sciences (SPSS; IBM Corp., Armonk, NY, USA) version 26. The Power analysis was conducted using G*Power, version 3.1.9.4 (Faul et al., 2009). At first, we computed skewness and kurtosis, and we tested for normality with a Kolmogorov-Smirnov test. We calculated descriptive statistics and χ^2 tests to get a preliminary description of the sociodemographic and clinical characteristics of the sample. Then, we conducted Spearman, point-biserial, and Pearson correlations to get an initial overview of the variables, using a dichotomous variable for assessing housing conditions, differentiating between students still living with their family of origin (on-site students and commuters) and non-resident students (regardless of whether they live or not in a residence hall). Besides, we conducted a multivariate analysis of covariance (MANCOVA) on the BDI-II, STAI-Y and SHSS scores, setting gender and housing (considering all four housing conditions) as fixed factors, and ASQ scale scores, TAS-20 total score and PID-5-BF total score as covariates. Finally, we created four dichotomous variables, one for each housing condition, to discriminate between students in a specific condition and all the others, and we performed linear regression analyses to ascertain the effects of housing conditions, ASQ scale scores, TAS-20 total score and PID-5-BF scale scores on the BDI-II, STAI-Y and SHSS scores. All tests were two-tailed, and we set the statistical significance threshold at $p \leq .05$.

2.2 Results

2.2.1 Sociodemographic and clinical characteristics of the sample

Table 3. Socio-demographic characteristics of the sample

	M	DS	Range	Skewness		Kurtosis		Kolmogorov-Smirnov test		
				statistic	SE	statistic	SE	statistic	df	p
Age	21.54	2.15	18–29	.74	.18	.22	.36	.17	183	< .001
Grade point average	26.58	1.98	20–30	-.52	.20	-.19	.40	.12	145	< .001
	n	**%**								
Gender										
Females	131	71.58								
Males	52	28.42								
Geographical origin	n	%								
Northern Italy	136	74.32								
Middle Italy	11	6.01								
Southern Italy	24	13.11								
Islands	9	4.92								
ND	3	1.64								
Ethnicity										
White	180	98.36								
Black/African American	1	.55								
Asiatic	1	.55								
Middle eastern or North African	1	.55								
Employment										
None	121	66.12								
Casual work	50	27.32								
Regular work	11	6.01								
ND	1	.55								
Financial status										
Dependent on parents	178	97.27								
Independent	4	2.19								
ND	1	.55								
Family income										
Low	1	27.87								
Medium	103	56.28								
High	27	14.75								
ND	2	1.09								
Sexual orientation										
Heterosexual	159	86.89								
Homosexual	10	5.46								
Bisexual	9	4.92								
Other	4	2.19								
ND	1	.55								

Romantic relationship		
Yes	86	46.99
No	94	51.36
ND	3	1.64

Table 4. Students' family income level for different housing conditions

	Family income level								
	Low		Medium		High				
	n [expected]	%	n [expected]	%	n [expected]	%	χ^2	df	p
Housing conditions									
Students living with their families	17 [16.34]	29.31	31 [33.01]	53.45	10 [8.65]	17.24	.36	2	.84
Commuter students	23 [11.83]	54.76	18 [23.90]	42.86	1 [6.27]	2.38	16.43	2	< .001
Non-resident students in a Residence	4 [9.30]	12.12	23 [18.78]	69.70	6 [4.92]	18.18	4.21	2	.12
Non-resident students not in a Residence	7 [13.52]	14.58	31 [27.32]	64.58	10 [7.16]	20.83	4.77	2	.09
Total	51	28.18	103	56.91	27	14.92			

$\chi^2 = 25.75$; df = 6; $p < .001$

As shown in Table 3, our final sample consisted of 183 UniTo students (71.58% females). Age was not normally distributed (Kolmogorov-Smirnov test = .17, $p < .001$), with a mean value of 21.54 (SD = 2.15). Regarding socio-demographic data, 136 students came from Northern Italy (74.32%), 11 from Middle Italy (6.01%), 24 from Southern Italy (13.11%), and nine from the Islands (4.92%). The 98.36% of students (n = 180) was of white ethnicity. In total, 66.12% (n = 121) of the sample were unemployed and 97.27% (n = 178) was financially dependent on his/her family of origin. The family income level of most students (56.28%, n = 103) was medium: it was low in 27.87% of cases (n = 51) and high in 14.75% (n = 27). The percentage of students reporting different financial income levels differed according to their housing conditions ($\chi^2 = 25.75$, $p < .001$). Moreover, the percentage of commuter students reporting low family income levels was higher than the total percentage for students ($\chi^2 = 16.43$, $p < .001$) (Table 4). One hundred and fifty-nine students (86.89%) were heterosexual and 46.99% (n = 86) of them was involved in a romantic relationship at the time of the survey. Grade point average was not normally distributed (Kolmogorov-Smirnov test = .12, $p < .001$), with a mean value of 26.58 (SD = 1.98) (Table 3).

Table 5. Clinical characteristics of the sample

	M	SD	Range	Skewness		Kurtosis		Kolmogorov-Smirnov test		
				statistic	SE	statistic	SE	statistic	df	p
ASQ C	30.67	5.85	17–62	1.02	.18	5.96	.36	.09	183	.001
ASQ NA	23.12	6.43	10–40	.33	.18	-.41	.36	.07	183	.023
ASQ DC	37.94	8.16	17–57	-.05	.18	-.56	.36	.06	183	.200
ASQ PR	29.89	6.30	15–44	-.09	.18	-.20	.36	.06	183	.200
ASQ RS	15.21	4.73	7–31	.87	.18	.73	.36	.15	183	< .001
TAS20 DIF	16.62	6.70	7–35	.40	.18	-.85	.36	.11	183	< .001
TAS20 DCF	14.58	4.79	3–25	-.02	.18	-.78	.36	.08	183	.008
TAS20 EOT	16.74	5.07	7–34	.45	.18	-.01	.36	.08	183	.011
TAS20 TOT	47.79	12.63	21–85	.13	.18	-.41	.36	.06	183	.060
PID-5-BF NA	1.39	.62	0–3.2	.07	.18	-.11	.36	.09	183	.058
PID-5-BF DE	.74	.57	0–2.4	.62	.18	-.42	.36	.16	183	< .001
PID-5-BF A	.53	.45	0–2	1.01	.18	.99	.36	.15	183	.023
PID-5-BF DI	.87	.51	0–2.4	.48	.18	.06	.36	.10	183	.017
PID-5-BF P	.75	.67	0–3	.91	.18	.40	.36	.14	183	< .001
PID-5-BF TOT	.87	.40	.12–2.6	.57	.18	.83	.36	.08	183	.070
STAI-Y State	40.68	12.61	20–76	.54	.18	-.25	.36	.10	183	.063
STAI-Y Trait	45.56	11.72	23–73	.32	.18	-.63	.36	.06	183	.074
BDI-II TOT	12.63	10.26	0–47	.58	.18	.56	.36	.15	183	.052
SHSS Last 12 months	.80	1.37	0–8	.68	.18	.49	.36	.34	183	.042
SHSS Before last year	1.19	1.69	0–7	.52	.18	.42	.36	.31	183	< .001
SHSS TOT	1.98	2.86	0–13	.56	.18	.45	.36	.27	183	.053

	n	%
ASQ C		
Confidence	125	68.31
No confidence	58	31.69
ASQ NA		
Need for approval	57	68.85
No need for approval	126	31.15
ASQ DC		
Discomfort with closeness	55	30.05
No discomfort with closeness	128	69.95
ASQ PR		
Preoccupation with relationship	52	28.42
No preoccupation with relationship	131	71.58
ASQ RS		
Relationship as secondary	26	14.21
No relationship as secondary	157	85.79
TAS-20 LIV		
No alexithymia	98	53.55
Borderline alexithymia	56	30.60
Alexithymia	29	15.85
STAI-Y STATE LIV		
No state anxiety	99	54.10
State anxiety	84	45.90

STAI-Y TRAIT LIV		
No trait anxiety	63	34.43
Trait anxiety	120	65.57
BDI-II LIV		
Minimal depression	116	63.39
Mild depression	28	15.30
Moderate depression	22	12.02
Severe depression	17	9.29
SHSS RISK		
No immediate risk	177	96.72
Immediate risk	6	3.28
Substance abuse		
Not reported	149	81.42
Reported	33	18.03
ND	1	.55
Substance abuse frequency		
3-5 days a week	5	16.67
1-2 days a week	3	10.00
More than 1-2 times a month	1	3.33
1-2 times a month	3	10.00
Less than once a month	18	60.00
Cannabis abuse		
Not reported	106	57.92
Reported	74	40.44
ND	3	1.64
Cannabis abuse frequency		
6-7 days a week	1	1.37
3-5 days a week	5	6.85
1-2 days a week	9	12.33
More than 1-2 times a month	5	6.85
1-2 times a month	15	20.55
Less than once a month	38	52.05
Satisfaction number social relationships		
Not at all	3	1.64
Slightly	15	8.20
Moderately	77	42.08
Very	50	27.32
Extremely	37	20.22
ND	1	.55
Satisfaction quality social relationships		
Slightly	17	9.29
Moderately	65	35.52
Very	55	30.05
Extremely	45	24.59
Previous psychiatric or psychological examinations		
No	123	67.21
Yes	59	32.24
ND	1	.55

Previous psychiatric or psychological treatments		
No	131	71.58
Yes	50	27.32
ND	2	1.09
Duration of treatments		
< 15 days	6	11.54
15-30 days	7	13.46
30-45 days	7	13.46
> 45 days	32	61.54
Previous psychotropic drugs assumption		
No	162	88.52
Yes	19	10.38
ND	2	1.09
Type of psychotropic drugs		
Anxiolytic	6	37.50
Antidepressant	6	37.50
Antipsychotic	3	18.75
Do not remember	1	6.25
Duration of psychotropic drugs assumption		
< 6 months	7	43.75
< 1 year	6	37.50
> 1 year	3	18.75
Knowledge of university psychological services		
No	65	35.52
Yes	115	62.84
ND	3	1.64
Interest in university psychological services		
No	80	43.72
Yes	100	54.64
ND	3	1.64

Table 6. Contingency table of state and trait anxiety

		State Anxiety			
		Not reported		*Reported*	
		n	**% tot**	**n**	**% tot**
Trait Anxiety	*Not reported*	55	30.05	8	4.37
	Reported	44	24.04	76	41.53

Table 7. Contingency table of substance and cannabis abuse

		Substance abuse			
		Not reported		*Reported*	
		n	**% tot**	**n**	**% tot**
Cannabis abuse	*Not reported*	106	58.89	0	.00
	Reported	41	22.78	33	18.33

		Substance abuse frequency									
		3-5 days a week		*1-2 days a week*		*more than 1-2 times a month*		*1-2 times a month*		*less than once a month*	
		n	**% tot**	**n**	**% tot**	**n**	**% tot**	**n**	**% tot**	**n**	**% tot**
Cannabis abuse frequency	*6-7 days a week*	1	3.33	0	.00	0	.00	0	.00	0	.00
	3-5 days a week	3	10.00	0	.00	0	.00	0	.00	1	3.33
	1-2 days a week	1	3.33	3	10.00	0	.00	0	.00	2	6.67
	more than 1-2 times a month	0	.00	0	.00	1	3.33	0	.00	0	.00
	1-2 times a month	0	.00	0	.00	0	.00	3	10.00	3	10.00
	less than once a month	0	.00	0	.00	0	.00	0	.00	12	40.00

Table 8. Contingency table of knowledge and interest for university psychological services according to different clinical conditions

		Knowledge of university psychological services				**Interest in university psychological services**			
		No		*Yes*		*No*		*Yes*	
		n	**% in row**	**n**	**% in row**	**n**	**% in row**	**n**	**% in row**
BDI-II	*No depression*	38	33.63	75	66.37	55	48.67	58	51.33
	At least mild depression	27	40.30	40	59.70	25	37.31	42	62.69
STAI-Y State	*Not reported*	30	31.25	66	68.75	51	53.13	45	46.88
	Reported	35	41.67	49	58.33	29	34.52	55	65.48
STAI-Y Trait	*Not reported*	21	33.87	41	66.13	32	51.61	30	48.39
	Reported	44	37.29	74	62.71	48	40.68	70	59.32
SHSS	*No immediate risk*	63	36.21	111	63.79	79	45.40	95	54.60
	Immediate risk	2	33.33	115	63.89	1	16.67	5	83.33

For what concerns the clinical characteristics of the sample (Table 5), most variables were not normally distributed, except for ASQ DC (Kolmogorov-Smirnov test = .06, p = .200), ASQ PR (Kolmogorov-Smirnov test = .06, p = .200), TAS TOT (Kolmogorov-Smirnov test = .06, p = .060), PID-5-BF NA

(Kolmogorov-Smirnov test = .09, p = .058) and PID-5-BF TOT (Kolmogorov-Smirnov test = .08, p = .070). Students' mean scores suggested levels of Confidence (M = 30.67; SD = 5.85), Need for Approval (M = 23.12; SD = 6.43), Discomfort with Closeness (M = 37.94; SD = 8.16), Preoccupation with Relationship (M = 29.89; SD = 6.30), and Relationship as Secondary (M = 15.21; SD = 4.73) in line with normative data of the Italian sample. However, 31.69% of students showed lower levels of Confidence than those in the normative sample, while higher levels of Need for Approval, Discomfort with Closeness, Preoccupation with Relationship and Relationship as Secondary were detected in 31.15%, 30.05%, 28.42% and 14.21% of cases, respectively. Moreover, students' mean scores suggested an overall absence of alexithymia (M = 47.79, SD = 12.63). However, 15.85% showed alexithymia, and 30.60% had borderline scores. The level of personality impairment was mild (M = 0.87; SD = .40). Students were characterized by mild levels of negative affectivity (M = 1.39; SD = .62), disinhibition (M = .87; SD = .51), psychoticism (M = .75; SD = .67), detachment (M = .74; SD =.57), and antagonism (M = .53; SD =.45).

Concerning psychological distress (Table 5), most variables were normally distributed, except for SHSS last 12 months (Kolmogorov-Smirnov test = .34, p = .042) and SHSS before last year (Kolmogorov-Smirnov test = .31, p < .001). UniTo students showed state (M = 40.68; SD = 12.61) and trait (M = 45.56; SD = 11.72) anxiety. More specifically, 45.90% showed state anxiety, 65.57% showed trait anxiety, and 41.53% showed both (Table 6). Our sample also showed minimal depressive symptoms (M = 12.63; SD = 10.26) with moderate to severe depression in 21.31% of cases. SHSS showed a not-at-risk mean value of (M = 1.98; SD = 2.86). However, 3.28% of the sample was at risk for suicidal behaviors. 18.03% of students reported substance abuse, with a frequency of less than once a month in 60.00% of cases. For what concerns cannabis abuse, it was reported by 40.44% of students and the frequency was less than once a month in 52.05% of cases. However, 16.67% of students who reported substance abuse reported a frequency of three to five days a week, while 20.55% of students who reported cannabis abuse reported a frequency of at least one day a week. As reported in Table 7, 18.33% of students reported both substance and cannabis abuse, 22.78% of them reported only cannabis abuse and none of them reported substance abuse, but not cannabis abuse. 13.33% of students who reported both cannabis and substance abuse reported a frequency for both of at least three days a week. 47.54% and 54.64% of students were at least very satisfied for the number and quality of their social relationships, respectively. However, 9.84% and 9.29% of students reported slight or no satisfaction for the number and quality of their relationships, respectively.

Regarding the psychological and psychiatric history of UniTo students (Table 5), 32.24% of them reported previous psychiatric or psychological examinations and 27.32% previous psychiatric or psychological treatments, which, in 61.54% of cases, lasted more than 45 days. 10.38% of students reported previous psychotropic drugs assumption, mostly anxiolytics (37.50% of cases) or antidepressants (37.50% of cases), with a frequency of less than six months in 43.75% of cases. Students reported to be aware of the availability of university psychological services in 62.84% of cases, and to be interested, in 54.64% of cases. Students with at least mild levels of depression were aware of the presence of university psychological services in 59.70% of cases, and were interested, in 62.69% of cases. Students with state anxiety were aware of the presence of university psychological services in 58.33% of cases, and were interested, in 65.48% of cases. Students with trait anxiety were aware of the presence of university psychological services in 62.71% of cases, and were interested, in 59.32% of cases, and students at risk for suicide were aware of the presence of university psychological services in 63.89% of cases, and were interested, in 83.33% (Table 8).

2.2.2 Correlations

Table 9. Pearson, point-biserial, and Spearman correlations for BDI-II, SHSS and STAI-Y scores

	BDI-II	**STAI-Y State**	**STAI-Y Trait**	**SHSS**
Pearson's correlations				
Age	-.236**	-.090	-.174*	-.142
Grade point average	-.202*	-.180*	-.123	-.076
ASQ C	-.419**	-.251**	-.380**	-.256**
ASQ NA	.501**	.455*	.631*	.322**
ASQ DC	.444**	.358**	.426**	.245**
ASQ PR	.392**	.312**	.526**	.317**
ASQ RS	.087	.173*	.143*	.008
TAS-20 TOT	.489**	.409**	.540**	.155*
PID-5-BF NA	.555**	.489**	.669**	.378**
PID-5-BF DE	.425**	.355**	.419**	.358**
PID-5-BF A	.101	.075	.092	.203**
PID-5-BF DI	.307**	.254**	.396**	.148*
PID-5-BF P	.448**	.249**	.445**	.468**
PID-5-BF TOT	.377**	.220**	.398**	.281**
BDI-II TOT	1	.658**	.779**	.487**
STAI-Y State	.658**	1	.730**	.365**
STAI-Y Trait	.779**	.730**	1	.481**
SHSS TOT	.487**	.365**	.481**	1
Point-biserial correlations				
Gender	.200**	.105	.150*	.016
Housing	-.159*	-.084	-.101	.065

Substance abuse	-.036	-.052	-.072	-.029
Cannabis abuse	-.122	-.101	-.164*	-.006
Romantic relationship	.154*	-.022	-.005	.010
Spearman's correlations				
Family income level	-.106	-.074	-.078	-.065
Satisfaction number social relationships	-.303**	-.205**	-.356**	-.180*
Satisfaction quality social relationships	-.275**	-.172*	-.273**	-.206**

** p < .01
* p < .05

As shown in Table 9, many correlations emerged between variables. Depression showed a negative significant correlation with age (r = -.236, p = .001), grade point average (r = -.202, p = .019), and satisfaction for the number (r = -.303, p < .001), and for the quality (r = -.275, p < .001) of social relationships. Conversely, gender and being involved in a romantic relationship showed a significant and positive association with depression (r = .200, p =.007 and r = .154, p = .039, respectively). Moreover, most psychological variables resulted correlated with depression, except for Relationship as Secondary (r = .087, p = .240) and Antagonism (r = .101, p = .174). Regarding state anxiety, it showed negative and significant correlations with grade point average (r = -.180, p = .038), and satisfaction for the number (r = -.205, p = .005) and for the quality (r = -.172, p = .020) of social relationships. Trait anxiety showed positive and significant correlations with gender (r =.150, p = .043), and significant and negative correlations with age (r = -.174, p = .018), cannabis abuse (r = -.164, p = .028), satisfaction for the number (r = -.356, p < .001) and for the quality (r = -.273, p < .001) of social relationships. All psychological variables resulted correlated with state and trait anxiety, except for Antagonism (r = .075, p = .315 and r = .092, p = .215, respectively). Finally, suicide risk showed a negative and significant correlation with the satisfaction for the number (r = -.180, p = .015) and for the quality (r = -.206, p = .005) of social relationships. Moreover, it showed significant correlations with all psychological variables, except for Relationship as Secondary (r = .008, p = .915). Housing showed a significant negative correlation only with depression (r = -.159, p = .031), indicating that depression scores are lower in non-resident students.

2.2.3 Multivariate analysis of covariance

A two-way MANCOVA was run to determine the effect of housing conditions and gender on psychological distress, controlling for age and other clinical variables. Means and adjusted means showed a general trend of the BDI-II, STAI-Y State and STAI-Y Trait to be higher in females, and of SHSS to be higher in males. No stable trends were detected for housing conditions, and for gender * housing conditions (Table 10).

*Table 10. Means, adjusted means, standard deviations and standard errors of psychological distress for different gender conditions, housing conditions, and gender * housing conditions*

		Psychological distress							
		BDI-II		**STAI-Y State**		**STAI-Y Trait**		**SHSS**	
		M (SD)	M_{adj} (SE)	M (SD)	M_{adj} (SE)	M (SD)	M_{adj} (SE)	M (SD)	M_{adj} (SE)
Gender									
	Males	9.38	9.86	38.60	37.34	42.79	43.24	2.06	2.42
		(7.35)	(1.18)	(10.35)	(1.62)	(11.04)	(1.2)	(3.05)	(.40)
	Females	13.92	13.55	41.51	41.23	46.66	46.23	1.95	1.79
		(10.96)	(.17)	(13.35)	(.98)	(11.84)	(.72)	(2.80)	(.24)
Housing conditions									
	Students living with their family of origin	14.10	12.32	42.22	40.89	46.72	44.97	2.07	1.87
		(10.62)	(1.21)	(12.45)	(1.66)	(11.45)	(1.22)	(2.80)	(.41)
	Commuter students	14.03	10.78	38.73	34.87	45.61	42.20	2.09	2.04
		(9.78)	(1.64)	(12.19)	(2.25)	(12.14)	(1.66)	(3.21)	(.55)
	Non-resident students in a Residence	10.05	11.04	41.26	42.63	44.64	46.15	1.55	2.16
		(9.07)	(1.32)	(12.23)	(1.81)	(11.41)	(1.33)	(2.82)	(.44)
	Non-resident students not in a Residence	12.10	12.65	39.60	39.74	44.90	45.61	2.19	2.36
		(10.88)	(1.27)	(13.51)	(1.75)	(12.28)	(1.29)	(2.78)	(.43)
Gender * Housing conditions									
Males	*Students living with their family of origin*	11.80	10.72	39.07	38.92	43.87	43.37	2.07	2.01
		(6.75)	(2.09))	(12.66)	(2.88)	(10.47)	(2.12)	(2.71)	(.70)
	Commuter students	11.25	7.99	37.88	32.20	47.25	41.21	2.75	2.46
		(7.89)	(2.87)	(9.78)	(3.95)	(12.79)	(2.91)	(4.27)	(.97)
	Non-resident students in a Residence	6.79	9.86	40.36	42.55	40.93	44.52	2.50	3.10
		(6.75)	(2.16)	(7.76)	(2.97)	(10.15)	(2.19)	(3.74)	(.73)
	Non-resident students not in a Residence	8.40	10.89	36.87	37.69	41.07	43.85	1.27	2.11
		(7.85)	(2.13)	(10.91)	(2.93)	(11.74)	(2.16)	(1.83)	(.72)
Females	*Students living with their family of origin*	14.87	13.93	43.27	42.86	47.67	46.57	2.07	1.73
		(11.59)	(1.18)	(12.34)	(1.63)	(11.71)	(1.20)	(2.86)	(.40)
	Commuter students	14.92	13.57	39.00	37.54	45.08	43.20	1.88	1.61
		(10.29)	(1.57)	(13.03)	(2.17)	(12.15)	(1.60)	(2.86)	(.53)
	Non-resident students in a Residence	11.68	12.31	41.71	42.71	46.50	47.78	1.07	1.21
		(9.73)	(1.49)	(14.05)	(2.05)	(11.73)	(1.51)	(2.16)	(.50)
	Non-resident students not in a Residence	13.79	14.39	40.85	41.80	46.66	47.37	2.61	2.61
		11.73	(1.40)	(14.52)	(1.92)	(11.84)	(1.42)	(3.05)	(.47)

Covariates appearing in the model are evaluated at the following values: Age = 21.54, ASQ C = 30.67, ASQ DC = 37.94, ASQ RS = 15.21, ASQ NA = 23.12, ASQ PR = 29.89, TAS-20 TOT = 47.79, PID-5-BF TOT = .9149.

The interaction effect between gender and housing conditions, after controlling for other clinical variables, was not statistically significant, F(12,434.19) = .63, p = .820, Wilks' Λ = .96, partial η^2 = .02, power = .32. Moreover, there was not a statistically significant main effect of housing conditions on the combined dependent variables, F(12,434.19) = 1.11, p = .354, Wilks' Λ = .92, partial η^2 = .03, power = .57. However, gender showed a statistically significant effect on the combined dependent variables, F(4,164) = 3.51, p = .009, Wilks' Λ = .92, partial η^2 = .08, power = .86. For what concerns our covariates, statistically significant effects were found for want concerns Need for Approval, F(4,164) = 6.95, p < .001, Wilks' Λ = .86, partial η^2 = .14, power = .99, Preoccupation with Relationship, F(4,164) = 2.57, p = .040, Wilks' Λ = .94, partial η^2 = .06, power = .71, alexithymia, F(4,164) = 6.79, p < .001, Wilks' Λ = .86, partial η2 = .14, power = .99, and general personality impairment, F(4,164) = 2.64, p = .036, Wilks' Λ = .94, partial η2 = .06, power = .73 (Table 11).

Table 11. Multivariate tests results

	Wilks' lambda	F	Hypothesis df	Error df	p	Partial eta squared	Power
Intercept	.99	.40	4	164	.808	.01	.14
Age	.97	1.39	4	164	.239	.03	.43
ASQ C	.97	1.11	4	164	.355	.03	43
ASQ DC	.95	1.94	4	164	.107	.05	.34
ASQ RS	.98	.85	4	164	.498	.02	.58
ASQ NA	.86	6.95	4	164	.000	.14	.99
ASQ PR	.94	2.57	4	164	.040	.06	.71
TAS-20 TOT	.86	6.79	4	164	< .001	.14	.99
PID-5-BF TOT	.94	2.64	4	164	.036	.06	.73
Gender	.92	3.51	4	164	.009	.08	.86
Housing	.92	1.11	12	434.20	.354	.03	.57
Housing*Gender	.96	.63	12	434..20	.820	.02	.32

Thus, follow up univariate two-way ANCOVAs were run and the main effect of gender was considered. There was a statistically significant main effect of gender for depression, F(1, 167) = 6.80, p = .010, partial η^2 = .04, power = .74, and for trait anxiety, F(1, 167) = 4.36, p = .038, partial η^2 = .03, power = .55, but not for state anxiety, F(1, 167) = 3.03, p = .083, partial η^2 = .02, power = .41, and for suicide risk, F(1, 167) = 1.78, p = .184, partial η^2 = .01, power = .26. Considering our

covariates, a statistically significant univariate effect of Discomfort with Closeness was found for depression, $F(1, 167) = 7.04$, $p = .009$, partial $\eta^2 = .04$, power = .75, and for Preoccupation with Relationship on trait anxiety, $F(1, 167) = 6.87$, $p = .010$, partial $\eta^2 = .04$, power = .74. Need for Approval showed a statistically significant univariate effect on depression, $F(1, 167) = 1.39$, $p = .002$, partial $\eta^2 = .06$, power = .89, state anxiety, $F(1, 167) = 12.18$, $p = .001$, partial $\eta^2 = .07$, power = .93, and trait anxiety, $F(1, 167) = 28.09$, $p < .001$, partial $\eta^2 = .14$, power = 1. Moreover, a statistically significant univariate effect of alexithymia was found on depression, $F(1, 167) = 9.30$, $p = .003$, partial $\eta^2 = .05$, power = .86, state anxiety, $F(1, 167) = 9.28$, $p = .003$, partial $\eta^2 = .05$, power = .86, and trait anxiety, $F(1, 167) = 17.11$, $p < .001$, partial $\eta^2 = .09$, power = .98. Finally, personality impairment showed a statistically significant univariate effect on depression, $F(1, 167) = 4.84$, $p = .029$, partial $\eta^2 = .03$, power = .59, trait anxiety, $F(1, 167) = 5.09$, $p = .025$, power =, partial $\eta^2 = .03$, power = .61, and suicide risk, $F(1, 167) = 5.27$, $p = .023$, partial $\eta^2 = .03$, power = .63.

Pairwise comparisons with a Bonferroni adjustment were performed for all of the four psychological distress measures. Females had statistically significantly greater adjusted mean depression and trait anxiety compared to males, an adjusted mean difference of -3.69 (95% CI, -6.48 to -.90), $p = .010$, and -3.00 (95% CI, -5.83 to -.16), $p = .038$, respectively. All other pairwise comparisons were not statistically significant (Table 12).

Table 12. Pairwise contrasts for adjusted means for psychological distress measures for males and females

	Males vs. Females				
	Difference in adjusted means	SE	p	95% CI	
				Lower	Upper
BDI-II TOT	-3.69	1.41	.010*	-6.48	-.90
STAI-Y State	-3.39	1.95	.083*	-7.23	.45
STAI-Y Trait	-3.00	1.44	.038*	-5.83	-.16
SHSS TOT	.63	.48	.184*	-.31	1.57

* Adjustment for multiple comparisons: Bonferroni

2.2.4 Regression analysis

To investigate if housing conditions predict psychological distress measures, we decided to create four dichotomous variables, one for each housing condition, to discriminate between students in a specific condition and all the others. Then, we performed linear regression analyses to ascertain the effects of

gender, housing conditions, ASQ scale scores, the TAS-20 total score and the PID-5-BF total score on the BDI-II, STAI-Y and SHSS scores.

The only model that showed a significant effect of housing conditions was the one considering commuter students vs. all other students as predictors for trait anxiety (Table 13). The regression analysis showed a significant positive effect on trait anxiety of gender ($\beta = .11$, SE = 1.36, $p = .047$), Need for Approval ($\beta = .35$, SE = .12, $p < .001$), Preoccupation with Relationships ($\beta = .17$, SE = .12, $p = .007$), and alexithymia ($\beta = .25$, SE = .06, $p < .001$). We also found a negative and significant effect of being a commuter ($\beta = -.12$, SE = 1.54, $p = .022$): being a commuter was a predictor of a lower trait anxiety. Altogether, the predictors explained 58% of the variance observed in trait anxiety scores, $F(9,173) = 25.96$, $p < .001$, $f^2 = 1.38$, power = 1.

Table 13. Predictors of STAI-Y trait considering commuter students vs. all other students

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	.11	1.36	2.00	.047	.04	5.41
ASQ C	-.07	.12	-1.26	.209	-.38	.08
ASQ DC	.10	.09	1.57	.119	-.04	.32
ASQ RS	-.02	.14	-.31	.756	-.32	.24
ASQ NA	.35	.12	5.49	< .001	.41	.88
ASQ PR	.17	.12	2.72	.007	.09	.55
TAS-20 TOT	.25	.06	4.03	< .001	.12	.35
PID-5-BF TOT	.11	1.23	1.89	.060	-.10	4.74
Housing_Commuters	-.12	1.54	-2.31	.022	-6.60	-.52

All other regression analyses are available as Supplementary Material.

2.3 Discussion

In line with southern European countries (Seiffe-Krenke, 2006, 2013) and Italian samples of university students (Albertini & Kohli, 2013; Cherlin et al., 1997), the majority of the sample was unemployed and financially dependent on his/her family of origin. Regarding psychological characteristics of the sample, consistent with the literature, our data indicated that adult attachment levels were in line with the normative data for the Italian sample (Cerniglia et al., 2017; Schimmenti et al., 2014). Moreover, our data showed a prevalence of no severe personality disorders in the student sample (Abdi & Pak,

2019; Duroy et al., 2018). Concerning alexithymia, as expected, students' mean scores also suggested no alexithymia, although a notable percentage of students showed alexithymic or borderline scores, indicating some difficulties in the emotion regulation process (Fang et al., 2019; Loftis et al., 2019). Moreover, students seemed satisfied for the number and quality of their social relationships (Graziani et al., 2006; Helsen et al., 2000). This seems to be an important protecting factor for young people's well-being, even if previous research on Italian samples highlighted that family is the main source of emotional and practical support for university students (Crocetti & Meeus, 2014; Crocetti et al., 2012).

Consistent with previous studies from other European universities (Çebi & Demir, 2019; Oksanen et al., 2017; Piumatti et al., 2018; Shankland et al., 2018; Véron et al., 2019), UniTo students showed concerning levels of distress. In particular, UniTo students showed higher levels of both trait and state anxiety compared with adult workers and high school students in the Italian normative sample (Pedrabissi & Santinello, 1996). However, to our knowledge, there is no normative Italian data on emerging adults. The percentages of students showing state anxiety, trait anxiety, or both are consistent with those detected in some studies (Beiter et al., 2015; McIntyre et al., 2018; Spitzer et al., 2006), but higher than those detected in other research, although they relied on clinical data (Tran et al., 2017) or other self-report questionnaires (Oyekcin et al., 2017; Ozen et al., 2010; Wörfel et al., 2016). Regarding depression, our sample showed minimal depressive symptoms, in line with other university student samples (Chen et al., 2013; Chun et al., 2013; Reyes-Rodríguez et al., 2013; Villatte et al., 2017). Consistent with previous literature, the prevalence of moderate and severe depression among students is remarkable (Chen et al., 2013; Villatte et al., 2017). Moreover, consistent with other studies, anxiety showed a higher percentage than depression (Regehr et al., 2013).

Regarding suicide, our data indicates a lower suicidal risk than that detected in previous studies on university students, although this discrepancy could be attributable to the different outcome measures (Chesin & Jelic, 2012; Oyekcin et al., 2017; Poorolajal et al., 2017; Torres et al., 2017). However, we cannot underestimate the risk for suicidal behaviors in 3.28% of the sample.

Consistent with previous literature (Kračmarová et al., 2011; Mekonen et al., 2017; Poscia et al., 2015), 18.33% of students reported both substance and cannabis abuse, and 22.78% of them reported only cannabis abuse. Regarding the psychological and psychiatric history of UniTo students, 32.24% of them reported previous psychiatric or psychological examinations and 27.32% reported previous psychiatric or psychological treatments, which in 61.54% of cases lasted more than 45 days. Moreover,

10.38% of students reported previous psychotropic drugs assumption, mostly anxiolytics (37.50% of cases) or antidepressants (37.50% of cases). The use of anxiolytic and hypnotic drugs is not infrequent in young adults. Students with mental distress often receive prescriptions when they seek mental health care (Lecat et al., 2020). Moreover, sometimes, students' access to health care might be deferred because they might lack information about the availability of health care services (Montagni et al., 2017). Regarding our sample, students reported to be aware of the availability of university psychological services in 62.84% of cases, and to be interested in 54.64% of cases.

Contrary to previous research (Kono et al., 2015; Tran et al., 2017; Ran et al., 2016), we did not find an overall effect of housing conditions on psychological distress. Housing showed a significant correlation only with depression, indicating that depression scores were lower in non-resident students. In line with these findings, Sokatous and colleagues (2014) underlined greater prevalence of clinically significant symptoms of depression in students living alone compared to students living with other people. Regarding gender, a statistically significant effect was detected on the combined dependent variables. In line with literature, females had statistically significantly greater depression and trait anxiety compared to males (Awadalla et al., 2020; Liu et al., 2017; Wong et al., 2006). Finally, we found that being a commuter was a predictor of a lower trait anxiety. This is in contrast with previous research on university students, suggesting that commuting was a strong predictor of moderate and severe anxiety (Othman et al., 2019). Indeed, commuting was found to be distressful for students who could incur several problems during their movements (road congestion, work in course, delays, or cancellations of public transport services) that may represent a kind of intermittent chronic stressor (Evans & Carrère, 1991; Wener et al., 2003). However, in line with our research, other studies on the general population identified commuting as an asset for psychological well-being (Humphreys et al., 2013; Martin et al., 2014; Roberts et al., 2011), suggesting the need for further investigation.

Chapter 3

STATE AND TRAIT ANXIETY AND DEPRESSION AMONG UNIVERSITY STUDENTS: A MODERATED MEDIATION MODEL OF NEGATIVE AFFECTIVITY, ALEXITHYMIA, AND HOUSING CONDITIONS[7]

It is widely known that even if affective experience changes across time and situations, individuals tend to lean toward some degree of stability. This is the case of negative affectivity, a personality dimension connected to the proneness to experience negative emotional states (e.g., fear, sadness, anger, and guilt), to withdraw from potentially risky situations, and to have intense reactions to stress (American Psychiatric Association, 2013; Craske, 2003; Naragon-Gainey et al., 2018). Negative affectivity develops early in life, although it can also be shaped by further experiences (Watson & Naragon-Gainey, 2014). Of course, there is a certain association between negative affectivity and anxiety, but they are not two completely overlapping concepts. Anxiety can be defined as a feeling of uneasiness and worry, usually generalized and unfocused, an overreaction to a situation that is only subjectively seen as menacing (Bouras & Holt, 2007). It is often accompanied by muscular tension, restlessness, fatigue, difficulties in concentration, somatic complaints, and rumination (American Psychiatric Association, 2013; Seligman et al., 2000). Negative affectivity is the temperamental factor most commonly associated with anxiety and other emotional disorders (Lonigan & Phillips, 2001; Muris & Ollendick, 2005; Nigg, 2006). Not every individual with heightened negative affectivity shows high levels of anxiety and/or depression; therefore, researchers have examined the potential factors that mediate or moderate the relationship between negative affectivity and anxiety (Tortella-Feliu et al., 2010), considering the role of emotion regulation and, more specifically, alexithymia. Indeed, even if affects and related personality dimensions have a critical impact on psychological distress, an

[7] Data on the moderated mediation models for state and trait anxiety on a smaller sample were previously published in Franzoi, I.G., Sauta, M.D., & Granieri, A. (2020). State and trait anxiety among university students: a moderated mediation model of negative affectivity, alexithymia and housing conditions. *Frontiers in Psychology, 11:* 1255. https://doi.org/10.3389/fpsyg.2020.01255

important role is also played by emotion regulation strategies activated to deal with distress and manage feelings (Sheppes et al., 2015). Depression can be defined as a state of low mood and aversion to activity, which can affect individual thoughts, behaviors, motivations, feelings, and well-being (American Psychiatric Association, 2013). People experiencing depression can experience feelings of dejection, hopelessness, and sometimes suicidal thoughts (de Zwart et al., 2019). Negative affectivity is a common component of depression and is considered one of the personality traits most relevant for psychopathology (Iqbal et al., 2015; Varma, 2017). Previous research has demonstrated a strong relationship between negative affectivity and symptoms of anxiety and depression, both in children (Verstraeten et al., 2011) and in adults (Roelofs et al., 2008).

As suggested by Bagby and colleagues (1994), alexithymia can be described as difficulty in identifying and describing feelings as well as in distinguishing feelings from the bodily sensations of emotional arousal. Moreover, alexithymic individuals exhibit constricted imaginative processes and externally oriented thinking (Taylor et al., 2000). They are often assailed by widespread negative affect, social evasion, and poor emotional relationships with other people. From a wider clinical perspective, there is strong evidence that emotion regulation is closely related to most, if not all, anxious and depressive disorders. A positive association between alexithymia (most notably difficulties identifying and describing feelings), anxiety (Craske, 2003; Devine et al., 1999) and depression has been found (Leweke et al., 2012; Luca et al., 2013; Sfeir et al., 2020; Tang et al., 2020). Moreover, previous research suggested that negative affectivity increases alexithymia (Bonnet et al., 2012; Gaher et al., 2013; Suslow & Donges, 2017). Previous research also explored the link between alexithymia and psychological distress in university students, focusing on depression and neuroticism (Liang & West, 2019; Morera et al., 2005), self-injurious behaviors (Paivio & McCulloch, 2004), and interpersonal problems (Vanheule et al., 2007).

Moreover, previous research suggested that students' levels of depression and anxiety vary according to their gender (Chapell et al., 2005; Grant et al., 2002; Howley & Dickerson, 2009), age (Rosenthal & Schreiner, 2000), and housing conditions (living off-campus versus living on campus) (Eisenberg et al., 2007).

However, as far as we know, no study to date has investigated the relationship between negative affectivity, emotion regulation, and students' depression and anxiety while taking into account their housing conditions.

Thus, the aim of the present study is to test if alexithymia mediates the relationship between negative affectivity and anxiety as well as the relationship between negative affectivity and depression. Previous research has already suggested this mediation effect, but as far as we know, the model has not yet been tested on university students. In addition, since housing conditions have already been linked to anxiety by previous research, we decided to include them in our model as a moderator. Indeed, literature shows how alexithymia and negative affectivity are rarely or only minimally influenced by contextual variables (Luminet et al., 2007; Mroczek & Kolarz, 1998). Thus, our final hypothesis was that the relationship between negative affectivity and both anxiety and depression is mediated by alexithymia while housing conditions act as a moderator for the indirect effect of negative affectivity on both anxiety and depression through alexithymia. The moderated mediation models tested are represented in Figure 2 (for state anxiety), Figure 3 (for trait anxiety), and Figure 4 (for depression).

Figure 2. Diagram for the hypothesized moderated mediation model: state anxiety

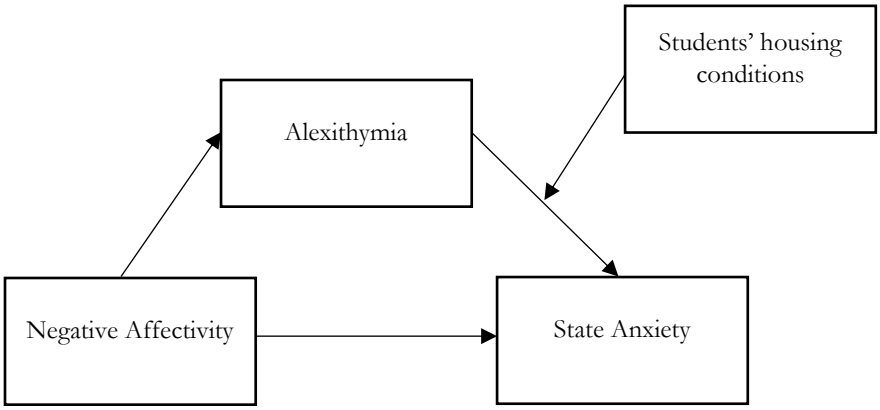


Figure 3. Diagram for the hypothesized moderated mediation model: trait anxiety

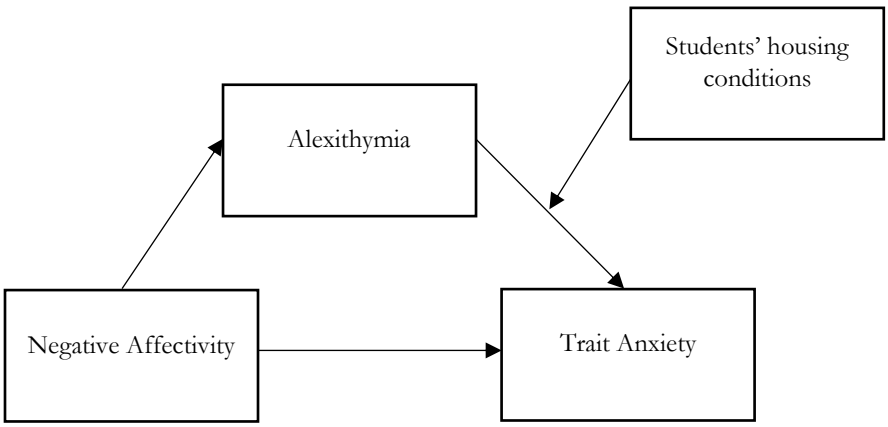
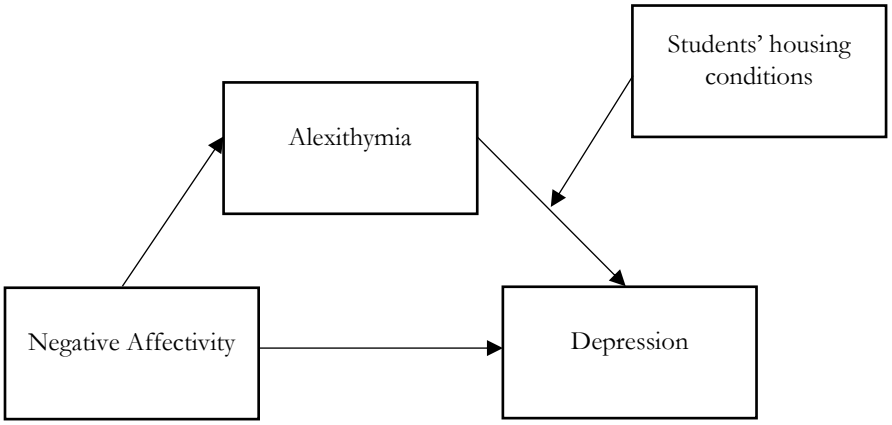


Figure 4. Diagram for the hypothesized moderated mediation model: depression



3.1 Materials and methods

3.1.1 Study design and participants

Study design and participants are the same as described for the previous study (Cfr. 2.1.1). However, in the current research, we considered students' housing conditions by dividing them into two groups: resident students (students living with their family of origin and commuter students) and non-resident students (regardless of whether they lived in a university residence).

3.1.2 Outcome measures

In the present research, we consider only socio-demographic data and the scores obtained from the STAI-Y, the BDI-II, the PID-5-BF, and the TAS-20. For more details, see 2.1.2.

3.1.3 Ethics

The study was reviewed and approved by the Institutional Review Board (IRB) of the University of Turin (protocol number 162317 dated 4/19/2018). All participants were given a complete description

of the study and provided informed and written consent before entering the study. All research procedures were conducted in accordance with the ethical standards of the committees responsible for human experimentation (institutional and national) and with the Helsinki Declaration of 1975 (as revised in 2013). For more details, see 2.1.3.

3.1.4 Statistical analyses

Data analyses were conducted using the Statistical Package for the Social Sciences (SPSS; IBM Corp., Armonk, NY, USA) version 26. We conducted Spearman, point-biserial, and Pearson correlations to get an initial overview of the variables to be included in our moderated mediation model. All tests were two-tailed, and we set the statistical significance threshold at $p \leq .05$. Finally, we conducted three moderated mediation analyses (one for state anxiety, one for trait anxiety and one for depression) using the PROCESS macro for SPSS (version 3.4.1; Hayes, 2018) and using model 14. The direct and indirect effects were estimated using the Preacher and Hayes' (2004) bias-corrected non-parametric bootstrapping techniques with 5,000 bootstrap samples. We also used the mean center for the construction of products. As suggested by previous research (Jin et al., 2019; Settanni et al., 2018), the existence of mediation and moderated mediation effects were further evaluated using 95% bias-corrected confidence intervals (CIs). If the CIs did not contain zero, these effects were considered statistically significant.

3.2 Results

3.2.1 Preliminary analyses for the moderated mediation model

Table 14. Pearson, point-biserial, and Spearman correlations

	TAS-20 TOT	STAI-Y State	STAI-Y Trait	BDI-II	PID-5-BF AN	Age	Gender	Housing conditions
Pearson's correlations								
STAI-Y State	.409**							
STAI-Y Trait	.540**	.730**						
BDI-II	.489**	.658**	.779**					

PID-5-BF AN	.425**	.489**	.669**	.555**				
Age	-.327**	-.090	-.174*	-.236**	-.219**			
Point-biserial correlations								
Gender	-.045	.105	.150*	.200**	.190*	-.147*		
Housing conditions	-.113	-.084	-.101	-.159*	-.224*	.237**	-.069	
Spearman's correlations								
Family income level	-.030	-.074	-.078	-.106	-.047	.292*	.040	-045

** p < .01
* p < .05

As expected (Table 14), negative affectivity correlated positively with alexithymia (r = .425; p < .001), state anxiety (r = .489; p < .001), trait anxiety (r = .669; p < .001), and depression (r = .555; p < .001). At the same time, alexithymia showed a positive and significant correlation with state anxiety (r = .409; p < .001), trait anxiety (r = .540; p < .001) and depression (r = .489; p < .001). Moreover, trait anxiety, depression, and negative affectivity correlated positively with gender (r = .150; p = .043, r = .200; p = .007, and r = .190; p = .010, respectively) and negatively with age (r = -.174; p = .018, r = -2.36; p = .001, and r = -.219; p = .003, respectively). Alexithymia correlated negatively with age (r = -.327; p < .001), and family income level positively correlated with age (r = .292; p < .001). Thus, in our final moderated mediation model, we decided to include only age and gender as covariates. Unexpectedly, housing conditions showed a significant correlation only with negative affectivity (r = -.224; p = .002) and age (r = .237; p = .001). Moreover, housing showed a significant negative correlation only with depression (r = -.159, p = .031)

3.2.2 Moderated mediation analysis

The first-step regression analysis showed a significant positive effect of negative affectivity on alexithymia (β = 8.12, SE = 1.36, p < .001). We also found a negative and significant effect of gender (β = -4.45, SE = 1.84, p = .016) and age (β = -1.55, SE = .39, p < .001) on alexithymia. Altogether, the predictors explained 26% of the variance observed in alexithymia scores, F(3,179) = 21.20, p < .001, f^2 = .35, power = .95 (Table 15).

Table 15. Moderated mediation model analysis: first step

Outcome variables	Independent variables	β	S.E.	t	p	95%CI
TAS-20 TOT						
	Constant	25.23	9.18	2.75	.007	[7.11;43.34]
	PID-5-BF AN	8.12	1.36	5.96	< .001	[5.43;10.81]
	Gender	-4.45	1.84	-2.42	.016	[-8.07;-.82]
	Age	-1.55	.39	-3.97	< .001	[-2.32;-.78]

State anxiety

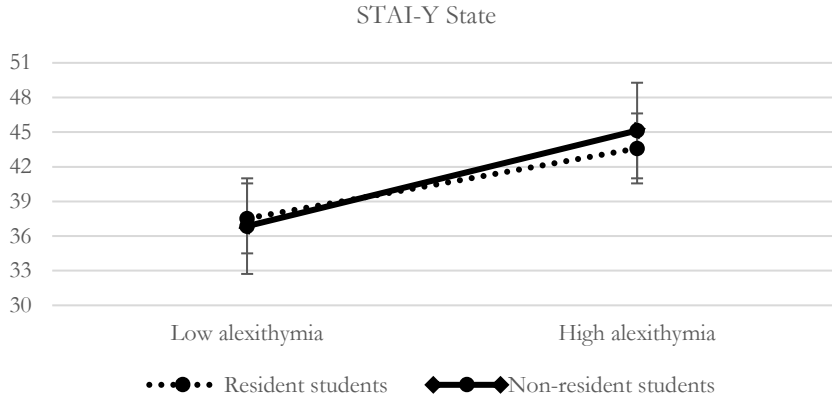
Table 16. Moderated mediation model analysis: state anxiety

Outcome variables	Independent variables	β	S.E.	t	p	95%CI
STAI-Y State	Constant	17.50	9.30	1.88	.062	[-.85;35.85]
	PID-5-BF AN	7.79	1.49	5.24	< .001	[4.86;10.72]
	TAS-20 TOT	.28	.07	3.77	< .001	[.13;.42]
	Housing conditions	.44	1.68	.26	.794	[-2.88;3.75]
	Int_1	.09	.13	.69	.489	[-.163;.340]
	Gender	1.57	1.84	.85	.394	[-2.05;5.19]
	Age	.53	.41	1.29	.198	[-.28;1.33]

As shown in Table 16, the second regression analysis showed a positive and significant effect of negative affectivity on state anxiety ($\beta = 7.79$, SE = 1.49, $p < .001$) and of alexithymia on state anxiety ($\beta = .28$, SE = .07, $p < .001$). However, student housing conditions was not a significant predictor of state anxiety ($\beta = .44$, SE = 1.68, $p = .794$). Concerning the covariates, neither gender ($\beta = 1.57$, SE = 1.84, $p = .394$) nor age ($\beta = .53$, SE = .41, $p = .198$) were significant predictors of state anxiety. The indirect effect of alexithymia on state anxiety was not significant ($\beta = .09$, SE = .13, $p = .489$). Overall, the predictors explained 30% of the variance observed in state anxiety, $F(6,176) = 12.58$, $p < .001$, $f^2 = .43$, power = .95. The inclusion of the interaction between alexithymia and housing conditions in the regression model led to a change in $R^2 = .002$, $F(1,176) = .48$, $p = .489$.

The simple slope analysis (Figure 5) of the interaction model showed a significant positive relationship between alexithymia and state anxiety for both resident ($\beta = .24$, SE = .09 p =.012) and non-resident students ($\beta = .33$, SE = .10, $p = .001$).

Figure 5. Simple slope analysis for state anxiety



For resident students, the moderated mediation model was significant (β = 1.95, bootstrap SE = .92, bootstrap 95% CI = .25; 3.85) as well as for non-resident students (β = 2.66, bootstrap SE = 1.00, bootstrap 95% CI = 1.05; 4.95). Overall, the moderated mediation model was not significant (β = .72, bootstrap SE = 1.14, bootstrap 95% CI = -1.27; 3.22) (Table 17).

Table 17. Direct and indirect effects of study variables: state anxiety

	β	S.E.	95%CI
Direct effect of negative affectivity on state anxiety			
	7.79	1.49	[4.86;10.72]

	β	bootstrap S.E.	bootstrap95%CI
Conditional indirect effects of negative affectivity on state anxiety via alexithymia at different housing conditions			
Resident students	1.95	.92	[.25; 3.85]
Non-resident students	2.66	1.00	[1.05; 4.95]
Index of moderated mediation			
	.72	1.14	[-1.27; 3.22]

Trait anxiety

Table 18. Moderated mediation model analysis: trait anxiety

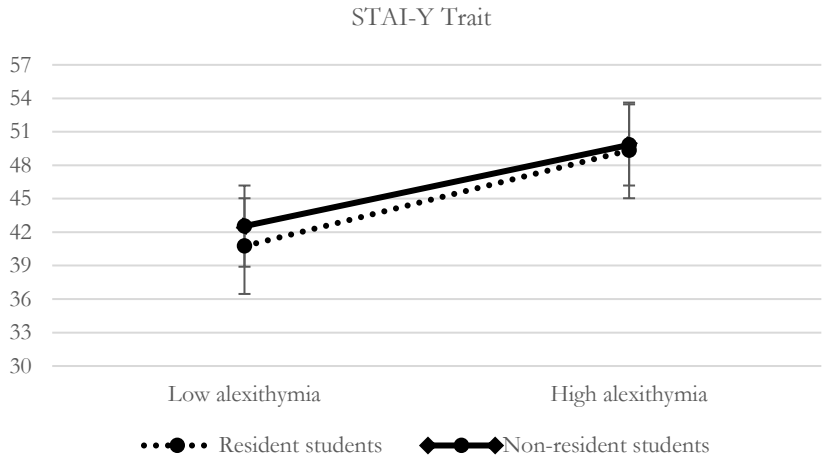
Outcome variables	Independent variables	β	S.E.	t	p	95%CI
STAI-Y Trait	Constant	23.81	7.03	3.39	.001	[9.94;37.67]
	PID-5-BF AN	10.09	1.12	8.98	< .001	[7.87;12.30]
	TAS-20 TOT	.32	.06	5.72	< .001	[.21;.43]
	Housing conditions	1.14	1.27	.90	.369	[-1.36;3.65]

Int_1	-.05	.10	-.54	.589	[-.24;.14]
Gender	2.00	1.39	1.44	.152	[-.74;4.73]
Age	.29	.31	.95	.341	[-.31;.90]

As shown in Table 18, the second regression analysis showed a positive and significant effect of negative affectivity (β = 10.09, SE = 1.12, p = .001) and alexithymia on trait anxiety (β = .32, SE = .06, p < .001). On the contrary, student housing conditions was not a significant predictor of trait anxiety (β = 1.14, SE = 1.27, p = .369). Concerning our covariates, neither gender (β = 2.00, SE = 1.39, p = .152) nor age (β = .29, SE = .31, p = .341) were significant predictors of trait anxiety, and the indirect effect of alexithymia on trait anxiety was not significant (β = -.05, SE = .10, p = .589). Overall, the predictors explained 54% of the variance observed in trait anxiety, $F(6,176) = 34.08$, $p < .001$, $f^2 = 1.17$, power = .96. The inclusion of the interaction between alexithymia and housing conditions in the regression model led to a change in $R^2 = .001$, $F(1,176) = .29$, $p = .589$.

The simple slope analysis (Figure 6) of the interaction model showed a significant positive relationship between alexithymia and trait anxiety for both resident (β = .34, SE = .07, p < .001) and non-resident students (β = .29, SE = .08, p < .001).

Figure 6. Simple slope analysis for trait anxiety



For students living with their family of origin, the model was significant (β = 2.76, bootstrap SE = .74, bootstrap 95% CI = 1.41; 4.31) as well as for non-resident students (β = 2.34, bootstrap SE =

.78, bootstrap 95% CI = 1.06; 4.07). Overall, the moderated mediation model was not significant (β = -.42, bootstrap SE = .81, bootstrap 95% CI = -1.90; 1.29) (Table 19).

Table 19. Direct and indirect effects of study variables: trait anxiety

	β	S.E.	95%CI
Direct effect of negative affectivity on trait anxiety			
	10.09	1.12	[7.87;12.30]
	β	**bootstrap S.E.**	**bootstrap95%CI**
Conditional indirect effects of negative affectivity on trait anxiety via alexithymia at different housing conditions			
Resident students	2.76	.74	[1.41;4.31]
Non-resident students	2.34	.78	[1.06;4.07]
Index of moderated mediation			
	-.42	.81	[-1.90;1.29]

Depression

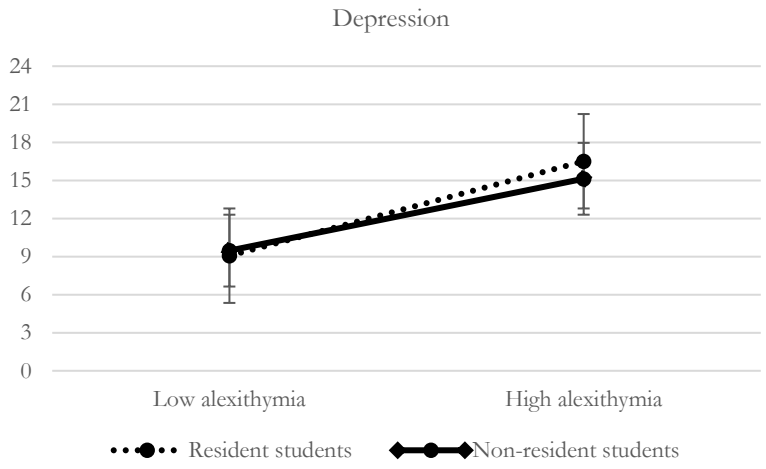
As shown in Table 20, the third regression analysis showed a positive and significant effect of negative affectivity (β = 6.33, SE = 1.11, p < .001) and alexithymia (β = .66, SE = .06, p < .001) on depression. On the contrary, student housing conditions was not a significant predictor of depression (β = -.49, SE = 1.26, p = .695). Concerning our covariates, gender (β = 3.18, SE = 1.37, p = .021), but not age (β = -.10, SE = .30, p = .744), was a significant predictor of trait anxiety. The indirect effect of alexithymia on trait anxiety was not significant (β = -.07, SE = .10, p = .460). Overall, the predictors explained 41% of the variance observed in depression, F(6,176) = 20.21, p < .001, f^2 = .70, power = .95. The inclusion of the interaction between alexithymia and housing conditions in the regression model led to a change in R^2 = .002, F(1,176) = .55, p = .460.

Table 20. Moderated mediation model analysis: depression

Outcome variables	Independent variables	β	S.E.	t	p	95%CI
BDI-II	Constant	3.67	6.95	.53	.60	[-10.05;17.40]
	PID-5-BF AN	6.33	1.11	5.70	< .001	[4.14;8.53]
	TAS-20 TOT	.66	.06	4.81	< .001	[.16;.37]
	Housing conditions	-.49	1.26	-.39	.695	[-2.97;1.99]
	Int_1	-.07	.10	-.74	.460	[-.26;.12]
	Gender	3.18	1.37	2.32	.021	[.47;5.89]
	Age	-.10	.30	-.33	.744	[-.70;.50]

The simple slope analysis (Figure 7) of the interaction model showed a significant positive relationship between alexithymia and trait anxiety for both resident (β = .30, SE = .07, p < .001) and non-resident students (β = .22, SE = .08, p = .003).

Figure 7. Simple slope analysis for depression



For students living with their family of origin, the model was significant (β = 2.39, bootstrap SE = .78, bootstrap 95% CI = 1.03; 4.05) as well as for non-resident students (β = 1.82, bootstrap SE = .78, bootstrap 95% CI = .64; 3.66). Overall, the moderated mediation model was not significant (β = -.57, bootstrap SE = .87, bootstrap 95% CI = -2.21; 1.23) (Table 21).

Table 21. Direct and indirect effects of study variables: depression

	β	S.E.	95%CI
Direct effect of negative affectivity on depression			
	10.09	1.12	[7.87;12.30]

	β	bootstrap S.E.	bootstrap95%CI
Conditional indirect effects of negative affectivity on trait anxiety via alexithymia at different housing conditions			
Resident students	2.76	.74	[1.41;4.31]
Non-resident students	2.34	.78	[1.06;4.07]
Index of moderated mediation			
	-.42	.81	[-1.90;1.29]

3.3 Discussion

This study investigated university students' distress, considering the potential relationship between negative affectivity, emotion regulation, and students' anxiety and depression while taking into account their housing conditions.

Consistent with literature (Iqbal et al., 2015; Hofman et al., 2019; Picardi et al., 2005; Roelofs et al., 2008; Varma, 2017; Verstraeten et al., 2011), students' state and trait anxiety, along with depression, were positively connected with other clinical variables (i.e., negative affectivity and alexithymia). Concerning the hypothesized covariates, consistent with the literature, negative affectivity was higher in females and younger students (Elhai et al., 2020; Ortuno-Sierra et al., 2019) while alexithymia was higher in younger students (Mattila et al., 2006; Moriguchi et al., 2007). Contrary to the existing literature (Hamaideh, 2018; Scimeca et al., 2014), no association was found between alexithymia and gender. Unexpectedly, family income level was correlated only with age (Song & Kim, 2020). Thus, in our final moderated mediation model, we included only age and gender as covariates.

In relation to the contextual variables (i.e., housing conditions), contrary to previous research, we did not find a significant correlation with student anxiety and depression (Biasi et al., 2018; Kono et al., 2015; Ran et al., 2016; Stroebe et al., 2015; Tran et al., 2017). However, although housing conditions did not seem to be associated with alexithymia, anxiety or depression, we proceeded with testing our moderated mediation model to explore whether they had an impact on the association or whether the connection between negative affectivity, alexithymia, and anxiety or depression differed in the two housing conditions.

Concerning our moderated mediation models, we found a significant positive effect of negative affectivity on alexithymia while controlling for age and gender. This is in line with previous research, indicating that greater levels of negative affectivity are associated with greater alexithymia (Suslow & Donges, 2017), and suggests that the manner in which emotions are experienced determines, to some extent, the ability to regulate emotions and the degree to which one attempts to control and avoid them (Lynch et al., 2001; Suveg et al., 2009).

Concerning anxiety and depression, our findings supported our hypothesis that alexithymia mediates the association between negative affectivity, state and trait anxiety and depression while controlling

for age and gender. Such findings are compatible with prior research, indicating that negative affectivity is positively associated with emotion regulation strategies (Malesza, 2019; Naragon-Gainey et al., 2018) and that emotion regulation strategies can help with modulating anxiety (Craske, 2003; Compare et al., 2014; Everaert & Joormann, 2020; Lonigan & Vasey, 2009). The current study brings these facets together, demonstrating the pathway from negative affectivity to state anxiety, trait anxiety and depression via alexithymia. However, the results did not confirm our hypothesis that students' housing conditions have a significant impact on anxiety and depression. For both resident and non-resident students, students with lower alexithymia are characterized by lower anxiety and depression. Further research is needed to explore whether housing conditions is a significant factor relating to student anxiety and depression in other Italian samples.

In a time when educational systems all over the world have recently increased their concern for the mental health and emotional well-being of university students (Cvetkovski et al., 2018), our results suggest the importance of stable clinical variables in students' distress, and also, of focusing on contextual facets of their daily lives.

Undoubtedly, university lifestyle can be demanding, but experiencing distress is not inevitable nor inexplicable. Previous research has tried to identify factors associated with university students' distress, aiming at using them to inform prevention and clinical interventions. However, as noted by Sharp and Theiler (2019), although socio-demographic, contextual, and academic variables have been widely explored, suggesting the need for interventions addressed to at-risk students, the importance of students' personality and clinical characteristics has been underestimated. Nevertheless, these characteristics can be of extreme importance both in targeting interventions and in training health professionals who administer those interventions. Moreover, institutional practices and governmental policies that can influence the student experience need to be considered and deserve further consideration (Byrd & McKinney, 2012).

3.4 Limitations and future directions

Studies presented in Chapter 2 and Chapter 3 have some critical limitations. First of all, the generalizability of the results is limited by our small, Italian-only sample from only one university.

Second, the cross-sectional design does not allow for causal inferences. For this reason, we should be cautious in interpreting the present findings as supporting the existence of predictive links between the studied variables. Further longitudinal studies are needed to explore the development of university students' distress over time and its association with other clinical and social variables. Moreover, psychological variables were assessed through self-report measures and, as such, further studies should also consider clinical and observational data.

3.5 Clinical implications

Despite these limitations, studies presented in Chapter 2 and Chapter 3 are the first attempts to obtain insight into Italian university students' distress, focusing on their connections with both clinical facets (i.e., negative affectivity and emotional regulation) and contextual facets (i.e., student housing conditions). The difficulties university students face are a matter of public concern. Thus, our results can be useful for both professional and clinical or educational institutions since it is well known that students experiencing higher psychological distress show a higher risk of academic failure and drop-out (Ishii et al., 2018; Jaisoorya et al., 2017). Such evidence strongly suggests the need to adopt an integrated approach toward university students to alleviate their psychological distress, and to improve the development of preventative and therapeutic interventions tailored to the clinical characteristics of students, along with taking their living environment into account.

Study 2

Housing Conditions and Mental Health in University Freshmen: A Longitudinal Study

Chapter 4

INVESTIGATING THE LONGITUDINAL IMPACT OF HOUSING CONDITIONS ON PSYCHOLOGICAL DISTRESS IN FRESHMEN ATTENDING THE UNIVERSITY OF TURIN

The aim of the present study was to: (1) explore the development of psychological distress in a sample of university freshmen in Turin; (2) determine whether distress development changes among students living in different housing conditions; and (3) investigate if those differences survive while controlling for other socio-demographic variables.

4.1 Materials and methods

4.1.1 Study design and participants

We conducted an explanatory, longitudinal study, a quasi-experiment on the field, with a "pre-post" design basing on four housing conditions, and non-random selection (Corbetta, 2015a,b). Similar to our cross-sectional study (Cfr. 2.1.1), the four housing conditions were: students still living with their family of origin, commuter students, non-resident students living in a residence hall, and non-resident students not living in a residence. For each condition, the sampling target was to include an equal number of freshmen enrolled in courses pertaining to the three ERC research domains: Social Sciences and Humanities (SH), Physical Sciences and Engineering (PE), and Life Sciences (LS). We decided to include only students at their first university enrollment because their distress could be connected to their previous academic experiences. Moreover, as for our cross-sectional study (Cfr. 2.1.1), since the

research team[8] worked at UniTo, we decided to exclude students attending courses in which the research team was at any level involved.

Students were recruited between autumn 2018 and autumn 2019 at the time of their enrollment, while a retest was scheduled after attending a full academic year of lessons (seven to eight months later, summer 2019 and summer 2020, respectively), and after attending two full academic years of lessons (19 to 20 months later, summer 2020 for students enrolled in 2018). However, because of the spread of the Covid-19 pandemic and the consequent relocation of many students, none of the students enrolled in the autumn of 2019 completed their re-test in the summer of 2020, and none of the students enrolled in 2018 participated in the second retest in the summer of 2020.

Inclusion criteria were being aged between 18 and 29 years (emerging adults) and attending bachelor's degree courses or single-cycle master's degree courses at UniTo.

Exclusion criteria were having poor knowledge of the Italian language, being aged more than 29 years old and attending another higher education institution in Turin.

The enrollment was conducted through cooperation with professors, student representatives, departmental councils, and Heads of Departments. We reached 30 (43.48%) out of the 69 bachelor's degree courses and three (33.33%) out of the nine single-cycle master's degree courses available in UniTo. We emailed 118 professors, and 34 (28.81%) gave their availability to host a research presentation in their class. We had positive responses from 19 (25.33%) SH professors, 10 (31.25%) PE professors, and 5 (45.45%) LS professors. Six hundred and sixteen students declared their willingness to participate in the study. Among these, only 64 (10.39%) students agreed to be tested at the T0 and only 28 (43.75%) of them showed up for the retest at T1.

[8] The research team included the author, prof. Antonella Granieri (Psy.D., Associate Professor in Clinical Psychology, Department of Psychology, University of Turin), and Maria Domenica Sauta (Psy.D. student, Department of Psychology, University of Turin). Prof. Marianna Azzurra Filandri (Ph.D., Associate Professor in Economic Sociology, Department of Cultures, Politics and Society, University of Turin) supervised the study design.

Table 22. Freshmen sampling and enrollment

Housing conditions	ERC Domains	Hypothesized sample size*	Students tested	Students retested	χ2	df	p
Students living with their families (n=9)	SH	11-14	12	5	2.28	4	.685
	PE	11-14	4	4			
	LS	11-14	1	0			
Commuter students (n=9)	SH	11-14	14	5			
	PE	11-14	10	3			
	LS	11-14	4	1			
Non-resident students living in a residence (n=0)	SH	11-14	0	0			
	PE	11-14	2	0			
	LS	11-14	0	0			
Non-resident students not living in a Residence (n=10)	SH	11-14	18	6			
	PE	11-14	7	4			
	LS	11-14	1	0			

*Effect size = .25
α err prob = .05
Power (1-β err) = .80 – .90

As reported in Table 22, our final sample did not reach an adequate sample size. Moreover, none of the students enrolled were living in a residence hall. Finally, each housing condition did not include an equal number of students attending courses pertaining to the three ERC research domains. However, there were no statistically significant differences between housing conditions for what concerns the ERC domains of the students tested ($\chi^2 = 2.28$; $p = .685$), and the three surviving housing conditions groups have a similar sample size.

4.1.2 Outcome measures

The study included the administration of the ad hoc questionnaire aimed at investigating socio-demographic characteristics and of the pool of self-report questionnaires validated for the Italian population used in the cross-sectional research (Cfr. 2.1.2): the Attachment Style Questionnaire (ASQ; Feeney et al., 1994; Fossati et al., 2003), the Toronto Alexithymia Scale-20 (TAS-20; Bagby et al., 1994; Bressi et al., 1996), the State-Trait Anxiety Inventory-Y (STAI-Y; Pedrabissi & Santinello, 1996; Spielberg et al., 1983), the Beck Depression Inventory-II (BDI-II; Beck et al., 1996; Ghisi et al., 2006), the Suicidal History Self-Rating Screening Scale (SHSS; Innamorati et al., 2011), and the Personality

Inventory for DSM-5-Brief Form (PID-5-BF; Fossati & Borroni, 2015; Krueger et al., 2013). For a detailed description of the outcome measures, see 2.1.2.

The administration was conducted at the university in the presence of a psychologist or a trained post-graduate psychology student. The average time of completion was 43.16 ± 13.82 minutes (range 23–93 minutes).

Regarding ASQ, in our study, Cronbach's alpha was .70 for Confidence; .85 for Discomfort with Closeness; .61 for Relationship as Secondary; .76 for Need for Approval and .73 for Preoccupation with Relationship. TAS-20 Cronbach's alpha was .89 for TAS total score, .83 for DIF, .74 for DDF, and .69 for EOT. Regarding STAI-Y, Cronbach's alpha was .95 for state anxiety and .93 for trait anxiety, BDI-II Cronbach's alpha was .92, SHSS Cronbach's alpha was .89 for the total score, .62 for the scale on the last 12 months, and .91 for the scale on lifetime except the last 12 months. PID-5-BF Cronbach's alpha was .83 for the total score, .65 for Negative Affectivity, .73 for Detachment, .63 for Antagonism, .67 for Disinhibition, and .76 for Psychoticism.

4.1.3 Ethics

The study was reviewed and approved by the Institutional Review Board (IRB) of the University of Turin (protocol number 162317 dated 4/19/2018). All participants were given a complete description of the study and provided informed and written consent before entering the study. Since the outcome measures could point out important mental health issues (e.g., high levels of anxiety or depression and/or suicide risk), participants were asked if they wanted someone to be informed in case their results highlight severe distress, along with who they wanted us to contact (themselves, a friend, a relative, their general practitioner) and how (via email, cellphone, etc.). All research procedures were conducted in accordance with the ethical standards of the committees responsible for human experimentation (institutional and national) and with the Helsinki Declaration of 1975 (as revised in 2013).

4.1.4 Statistical analyses

Data analyses were conducted using the Statistical Package for the Social Sciences (SPSS; IBM Corp., Armonk, NY, USA) version 26. Power analysis was conducted using G*Power, version 3.1.9.4 (Faul et al., 2009). At first, considering the high number of dropouts, we calculated t-tests for independent samples and χ^2 tests to examine eventual differences between students who dropped out and students who did not. Then, we focused on students who completed both administrations. We computed skewness and kurtosis, and we tested for normality with a Shapiro-Wilk test, considering the small sample size. Moreover, we calculated descriptive statistics and χ^2 tests to get a preliminary description of the socio-demographic and clinical characteristics of the sample. Finally, to ascertain eventual changes in psychological distress over time, we conducted repeated measure t-tests for the total sample, and for every housing condition group. Considering the high number of variables and the small sample size, we decided not to compute further analysis. All tests were two-tailed, and we set the statistical significance threshold at $p \leq .05$.

4.2 Results

4.2.1 Analysis of dropouts

Regarding the socio-demographic characteristics of the sample, no differences were found between the 45 students who dropped out and the 28 students who completed the retest (Table 23).

Table 23. Differences between students who dropped and students who did not on socio-demographic characteristics

		Age		**t**	**df**	**p**	**d**	**power**
		M	**DS**					
Drop	No drop	19.21	.79	-1.04	71	.302	.27	.20
	Drop	19.73	2.56					

				χ2	**df**	**p**
		Gender				
		M	F	.03	1	.859
Drop	No drop	8	20			
	Drop	12	33			

Geographical origin								
		Northern Italy	Center	Southern Italy		5.05	2	.080
Drop	No drop	26	0	2				
	Drop	41	3	0				
Ethnicity								
		White	Black/African American	Asiatic	Middle eastern or North African	3.78	3	.337
Drop	No drop	25	1	1	1			
	Drop	43	0	0	1			
Employment								
		None	Casual work	Regular work		3.39	2	.184
Drop	No drop	23	5	0				
	Drop	32	8	5				
Financial status								
		Dependent on parents	Independent			1.63	1	.202
Drop	No drop	27	1					
	Drop	45	0					
Family income								
		Low	Medium	High		4.70	2	.096
Drop	No drop	9	19	0				
	Drop	7	33	4				
Sexual orientation								
		Heterosexual	Homosexual	Bisexual	Other	4.76	3	.190
Drop	No drop	20	2	4	2			
	Drop	39	3	3	0			
Romantic relationship								
		Yes	No			.018	1	.894
Drop	No drop	16	12					
	Drop	25	20					
Housing conditions								
		Non transfer students	Transfer students living in a University Residence	Commuter students	Transfer students not living in a University Residence	2.42	3	.490
Drop	No drop	8	0	9	11			
	Drop	9	2	19	15			
ERC Domains								
		Social Sciences and Humanities	Physical Sciences and Engineering			2.14	2	.343
Drop	No drop	16	11					
	Drop	28	12					

Regarding the clinical characteristics of the sample, students who dropped out showed higher disinhibition scores that students who completed both assessments ($t = 2.67$, $p = .009$, $d = .62$, power

= .72). Moreover, students who dropped out showed a significantly lower percentage of previous psychiatric or psychological treatments (χ^2 = 9.18, p = .002). No other significant differences were found (Table 24).

Table 24. Differences between students who dropped and students who did not on clinical variables

		M	SD	t	df	p	d	power
ASQ C	No drop	28.79	6.16	-.66	71	.514	.16	.1
	Drop	29.69	5.44					
ASQ DC	No drop	39.68	9.13	.19	71	.849	.05	.05
	Drop	39.29	8.04					
ASQ RS	No drop	14.43	4.45	.88	71	.382	.21	.14
	Drop	15.44	5.00					
ASQ NA	No drop	22.61	7.08	.19	71	.847	.05	.05
	Drop	22.31	5.83					
ASQ PR	No drop	29.29	6.99	-1.18	71	.244	.28	.21
	Drop	31.20	6.63					
TAS-20 DIF	No drop	20.14	7.06	.25	71	.805	.06	.06
	Drop	19.73	6.76					
TAS-20 DCF	No drop	15.29	4.69	.62	71	.536	.15	.09
	Drop	14.58	4.76					
TAS-20 EOT	No drop	16.39	5.15	.25	71	.803	.06	.06
	Drop	16.11	4.34					
TAS20 TOT	No drop	51.32	14.85	.24	71	.808	.06	.06
	Drop	50.53	12.50					
BDI-II TOT	No drop	16.32	13.05	1.29	71	.201	.30	.23
	Drop	12.96	9.19					
STAI-Y State	No drop	42.61	11.87	.84	71	.404	.21	.14
	Drop	40.47	7.95					
STAI-Y Trait	No drop	48.61	12.58	1.64	71	.106	.42	.41
	Drop	43.63	11.40					
SHSS Last 12 Months	No drop	1.11	1.29	-.51	71	.610	.13	.08
	Drop	1.33	2.10					
SHSS Before last year	No drop	1.61	2.25	-.23	71	.821	.05	.05
	Drop	1.73	2.34					
SHSS Total	No drop	2.68	3.36	-.41	71	.680	.10	.07
	Drop	3.07	4.20					
PID-5-BF NA	No drop	1.49	.74	-.48	71	.631	.11	.07
	Drop	1.57	.78					
PID-5-BF DE	No drop	.88	.59	.94	71	.353	.23	.16
	Drop	.75	.55					
PID-5-BF A	No drop	.62	.45	-.12	71	.909	.02	.05
	Drop	.63	.50					
PID-5-BF DI	No drop	1.21	.63	2.67	71	.009	.62	.72
	Drop	.86	.50					
PID-5-BF P	No drop	1.16	.73	.60	71	.549	.15	.09
	Drop	1.05	.74					
PID-5-BF TOT	No drop	1.06	.40	-1.15	71	. 344	.25	.18

	Drop	1.28	1.18					
						χ2	**df**	**p**
		ASQ C						
		Confidence	No confidence			2.04	1	.153
Drop	No drop	16	12					
	Drop	18	27					
		ASQ DC						
		Discomfort with closeness	No discomfort with closeness			.382	1	.537
Drop	No drop	11	17					
	Drop	21	24					
		ASQ RS						
		Relationship as secondary	No relationship as secondary			.110	1	.741
Drop	No drop	3	25					
	Drop	6	39					
		ASQ NA						
		Need for approval	No need for approval			.166	1	.684
Drop	No drop	10	18					
	Drop	14	31					
		ASQ PR						
		Preoccupation with Relationship	No preoccupation with Relationship			1.22	1	.270
Drop	No drop	10	18					
	Drop	22	23					
		TAS-20						
		No alexithymia	Borderline alexithymia	Alexithymia		.53	2	.766
Drop	No drop	11	8	9				
	Drop	19	15	11				
		BDI-II						
		Minimal	Mild	Moderate	Severe	2.22	3	.527
Drop	No drop	14	4	5	5			
	Drop	26	7	9	3			
		STAI-Y State						
		No state anxiety	State anxiety			.06	1	.804
Drop	No drop	12	16					
	Drop	19	26					
		STAI-Y Trait						
		No trait anxiety	Trait anxiety			.01	1	.926
Drop	No drop	9	19					
	Drop	14	31					
		SHSS						
		No immediate risk	Immediate risk			.68	1	.410
Drop	No drop	26	2					
	Drop	39	6					
		Satisfaction number social relationships						

		Not at all	Slightly	Moderately	Very	Extremely	4.39	4	.355
Drop	No drop	1	1	14	8	4			
	Drop	0	7	20	10	8			
		Satisfaction quality social relationships							
		Not at all	Slightly	Moderately	Very	Extremely	.64	4	.959
Drop	No drop	2	2	11	11	2			
	Drop	2	4	15	20	4			
		Previous psychiatric or psychological examinations							
		No	Yes				.76	1	.384
Drop	No drop	12	16						
	Drop	24	21						
		Previous psychiatric or psychological treatments							
		No	Yes				9.18	1	.002
Drop	No drop	11	17						
	Drop	33	11						
		Duration of treatment							
		< 15 days	30-45 days	>45 days			2.05	5	.358
Drop	No drop	1	0	7					
	Drop	0	1	9					
		Previous psychotropic drugs assumption							
		No	Yes				1.58	1	.209
Drop	No drop	18	10						
	Drop	35	10						
		Knowledge of university psychological services							
		No	Yes				.96	1	.327
Drop	No drop	11	17						
	Drop	22	21						
		Interest in university psychological services							
		No	Yes				.64	1	.424
Drop	No drop	15	15						
	Drop	28	15						
		Substance Abuse							
		No	Yes				.15	1	.696
Drop	No drop	20	8						
	Drop	34	11						
		Cannabis Abuse							
		No	Yes				3.33	1	.068
Drop	No drop	20	7						
	Drop	23	21						

4.2.2 Sociodemographic and clinical characteristics of the sample

Table 25. Socio-demographic characteristics of the freshmen who participated both in T0 and T1

	M	DS	Range	Skewness		Kurtosis		Shapiro-Wilk test		
				statistic	SE	statistic	SE	statistic	df	p
Age	19.21	.79	18 – 21	.57	.44	.42	.86	.83	28	< .001
	n	**%**								
Gender										
Females	20	71.43								
Males	8	28.57								
Geographical origin										
Northern Italy	26	92.86								
Southern Italy	2	7.14								
Ethnicity										
White	25	89.29								
Black/African American	1	3.57								
Asiatic	1	3.57								
Middle eastern or North African	1	3.57								
Employment										
None	23	82.14								
Casual work	5	17.86								
Financial status										
Dependent on parents	27	96.43								
Independent	1	3.57								
Family income										
Low	9	32.14								
Medium	19	67.86								
Sexual orientation										
Heterosexual	20	71.43								
Homosexual	2	7.14								
Bisexual	4	14.29								
Other	2	7.14								
Romantic relationship										
Yes	16	57.14								
No	12	42.86								

Table 26. Students' family income level for different housing conditions in freshmen who participated both in T0 and T1

	Family income level						
	Low		Medium				
	n [expected]	%	n [expected]	%	χ^2	df	p
Housing conditions							
Students living with their families	3 [2.57]	37.50	5 [5.43]	62.50	.11	1	.745
Commuter students	3 [2.89]	33.33	6 [6.11]	66.67	.01	1	.937

Non-resident students not in a Residence	3 [3.54]	27.27	8 [7.46]	72.73	.12	1	.728
Total	9	32.14	19	67.86			

$\chi^2 = .23$; df = 2; p = .891

As shown in Table 25, our final sample consisted of 28 UniTo freshmen (71.43% females). Age was not normally distributed (Shapiro-Wilk test = .83, $p < .001$), with a mean value of 19.21 (SD = .79). Regarding socio-demographic data, 26 students came from Northern Italy (96.86%), and two came from Southern Italy (7.14%). 89.29% of students (n = 25) was of white ethnicity. In total, 82.14% (n = 23) of the sample was unemployed and 96.43% (n = 27) was financially dependent from his/her family of origin. The family income level of most students (67.86%, n = 19) was medium, and low in 32.14% of cases (n = 9). No differences were found in the percentage of students reporting different financial income levels according to their housing conditions ($\chi^2 = .23$, p = .891) (Table 26). Twenty students (71.43%) were heterosexual and 16 (57.14%) were involved in a romantic relationship at the time of the survey (Table 25).

Table 27. Clinical characteristics of the freshmen who participated both in T0 and T1

	M	SD	Range	Skewness		Kurtosis		Shapiro-Wilk test		
				statistic	SE	statistic	SE	statistic	df	p
ASQ C	28.79	6.15	18 – 39	-.26	.44	-.85	.86	.95	28	.151
ASQ NA	22.61	7.08	10 – 39	.11	.44	-.52	.86	.97	28	.514
ASQ DC	39.68	9.12	24 – 58	.07	.44	-.65	.86	.98	28	.748
ASQ PR	29.29	6.99	16 – 43	-.12	.44	-.80	.86	.96	28	.435
ASQ RS	14.43	4.45	9 – 26	.66	.44	.13	.86	.93	28	.071
TAS20 DIF	20.14	7.06	9 – 34	.01	.44	-1.16	.86	.95	28	.128
TAS20 DCF	15.29	4.69	5 – 25	.05	.44	-.04	.86	.99	28	.956
TAS20 EOT	16.39	5.15	8 – 25	-.03	.44	-1.17	.86	.95	28	.250
TAS20 TOT	51.32	14.85	24 – 75	-.28	.44	-1.18	.86	.94	28	.104
PID-5-BF NA	1.49	.74	.00 – 2.80	-.34	.44	-.48	.86	.96	28	.407
PID-5-BF DE	.88	.59	.00 – 2.20	.55	.44	-.07	.86	.94	28	.147
PID-5-BF A	.62	.45	.00 – 1.40	.16	.44	-1.36	.86	.91	28	.021
PID-5-BF DI	1.21	.63	.20 – 2.40	-.04	.44	-.83	.86	.96	28	.430
PID-5-BF P	1.16	.73	.00 – 3.00	.42	.44	.08	.86	.97	28	.528
PID-5-BF TOT	1.06	.40	.28 – 1.80	-.10	.44	-.84	.86	.97	28	.534
STAI-Y State	42.61	11.87	20 – 68	.40	.44	-.49	.86	.96	28	.369
STAI-Y Trait	48.61	12.58	24 – 70	-.19	.44	-.92	.86	.97	28	.462
BDI-II TOT	16.32	13.05	1 – 50	.95	.44	.30	.86	.91	28	.021
SHSS Last 12 months	1.11	1.29	.00 – 4	.87	.44	-.89	.86	.80	28	< .001
SHSS Before last year	1.61	2.25	.00 – 7.00	1.10	.44	-.18	.86	.74	28	<.001
SHSS TOT	2.68	3.36	.00 – 9.00	.81	.44	-1.00	.86	.77	28	<.001

	n	%
ASQ C		
Confidence	16	57.14
No confidence	12	42.86
ASQ NA		
Need for approval	10	35.71
No need for approval	18	64.29
ASQ DC		
Discomfort with closeness	11	39.29
No discomfort with closeness	17	60.71
ASQ PR		
Preoccupation with relationship	10	35.71
No preoccupation with relationship	18	64.29
ASQ RS		
Relationship as secondary	3	10.71
No relationship as secondary	25	89.29
TAS-20 LIV		
No alexithymia	11	39.29
Borderline alexithymia	8	28.57
Alexithymia	9	32.14
STAI-Y STATE LIV		
No state anxiety	11	39.29
State anxiety	17	60.71
STAI-Y TRAIT LIV		
No trait anxiety	9	32.14
Trait anxiety	19	67.86
BDI-II LIV		
Minimal depression	14	50.00
Mild depression	4	14.29
Moderate depression	5	17.86
Severe depression	5	17.86
SHSS RISK		
No immediate risk	26	92.86
Immediate risk	2	7.14
Substance abuse		
Not reported	20	71.43
Reported	8	28.57
Substance abuse frequency		
6-7 days a week	1	12.50
More than 1-2 times a month	1	12.50
Less than once a month	2	25.00
ND	4	50.00
Cannabis abuse		
Not reported	20	71.43
Reported	8	28.57

Cannabis abuse frequency		
3-5 days a week	1	12.50
More than 1-2 times a month	2	25.00
1-2 times a month	2	25.00
Less than once a month	3	37.50
Satisfaction number social relationships		
Not at all	1	3.57
Slightly	1	3.57
Moderately	14	50.00
Very	8	28.57
Extremely	4	14.29
Satisfaction quality social relationships		
Not at all	2	7.14
Slightly	2	7.14
Moderately	11	39.29
Very	11	39.29
Extremely	2	7.14
Previous psychiatric or psychological examinations		
No	11	39.29
Yes	17	60.71
Previous psychiatric or psychological treatments		
No	11	39.29
Yes	17	60.71
Duration of treatments		
< 15 days	1	5.88
> 45 days	7	41.18
ND	8	47.06
Previous psychotropic drugs assumption		
No	18	64.29
Yes	10	35.71
Type of psychotropic drugs		
ND	10	100.00
Duration of psychotropic drugs assumption		
ND	10	100.00
Knowledge of university psychological services		
No	11	39.29
Yes	17	60.71
Interest in university		

psychological services			
	No	15	53.57
	Yes	12	42.86
	ND	1	3.57

Regarding the clinical characteristics of the sample at the time of enrollment (Table 27), most variables were normally distributed except for PID-5-BF A (Shapiro-Wilk test = .91, p = .021). Freshmen's mean scores suggested levels of Need for Approval (M = 22.61; SD = 7.08), Discomfort with Closeness (M = 36.68; SD = 9.12), Preoccupation with Relationship (M = 29.29; SD = 6.99), and Relationship as Secondary (M = 14.43; SD = 4.45), which is in line with normative data of the Italian sample. On the contrary, mean scores suggested levels of Confidence (M = 28.79; SD = 6.15) lower than the normative sample. 42.86% of freshmen showed lower levels of Confidence than the normative sample, while higher levels of Need for Approval, Discomfort with Closeness, Preoccupation with Relationship and Relationship as Secondary were detected in 37.71%, 39.29%, 35.71% and 10.71% of cases, respectively. Moreover, freshmen's mean scores suggested borderline alexithymia (M = 51.32, SD = 14.85). 39.29% of freshmen showed alexithymia, 28.57% showed borderline alexithymia, and 39.29% showed no alexithymia at the time of enrollment. The level of personality impairment was mild (M = 1.06; SD = .40). Freshmen were characterized by mild levels of negative affectivity (M = 1.49; SD = .74), disinhibition (M = 1.21; SD = .63), psychoticism (M = 1.16; SD = .73), detachment (M = .88; SD =.59), and antagonism (M = .62; SD =.45).

Regarding psychological distress (Table 27), most variables were not normally distributed except for STAI-Y State (Shapiro-Wilk test = .96, p = .369) and STAI-Y Trait (Shapiro-Wilk test = .97, p < .462). UniTo freshmen showed state (M = 42.61; SD = 11.87) and trait (M = 48.61; SD = 12.58) anxiety. More specifically, 60.71% showed state anxiety, 67.86% showed trait anxiety, and 53.57% showed both (Table 28). Our sample also showed mild depressive symptoms (M = 16.32; SD = 13.05) with moderate to severe depression in 35.72% of cases. SHSS showed a not-at-risk mean value (M = 2.68; SD = 3.36). However, 7.14% of the sample were at risk for suicidal behaviors. 28.57% of freshmen reported substance abuse with a frequency of less than once a month in 25.00% of cases. Cannabis abuse was reported by 28.57% of students and the frequency was less than once a month in 37.50% of cases. However, 12.50% of students who reported substance abuse reported a frequency of six to seven days a week, while 12.50% of students who reported cannabis abuse reported a frequency of three to five days a week. As reported in Table 29, 25.93% of students reported both

substance and cannabis abuse, 18.52% of them reported only cannabis abuse and none of them reported substance abuse, but not cannabis abuse. 50.00% of students who reported both cannabis and substance abuse reported a frequency of both of less than once a month. 42.86% and 46.43% of students were at least very satisfied for the number and quality of their social relationships, respectively. However, 7.14% and 14.28% of students reported slight or no satisfaction for the number and quality of their relationships, respectively.

Table 28. Contingency table of state and trait anxiety in freshmen who participated both in T0 and T1

		State Anxiety			
		Not reported		*Reported*	
		n	**% tot**	**n**	**% tot**
Trait Anxiety	*Not reported*	7	25.00	2	7.14
	Reported	4	14.29	15	53.57

Table 29. Contingency table of substance and cannabis abuse in freshmen who participated both in T0 and T1

		Substance abuse			
		Not reported		*Reported*	
		n	**% tot**	**n**	**% tot**
Cannabis abuse	*Not reported*	15	55.56	0	.00
	Reported	5	18.52	7	25.93

		Substance abuse frequency					
		6-7 days a week		*more than 1-2 times a month*		*less than once a month*	
		n	**% tot**	**n**	**% tot**	**n**	**% tot**
Cannabis abuse frequency	*3-5 days a week*	1	25.00	0	.00	0	.00
	more than 1-2 times a month	0	.00	1	25.00	0	.00
	less than once a month	0	.00	0	.00	2	50.00

Regarding the psychological and psychiatric history of our sample (Table 27), 60.71% of them reported previous psychiatric or psychological examinations and 60.61% reported previous psychiatric or psychological treatments, where in 41.18% of cases lasted more than 45 days. 35.71% of students reported previous psychotropic drug consumption, but none of them indicated which type of drug

and the duration of consumption. Students reported to be aware of the availability of university psychological services in 60.71% of cases, and to be interested in 42.86% of cases. Students with at least mild levels of depression were aware of the presence of university psychological services in 57.14% of cases, and to be interested, in 50.00% of cases. Students with state anxiety were aware of the presence of university psychological services in 52.94% of cases, and to be interested in 47.06% of cases. Students with trait anxiety were aware of the presence of university psychological services in 63.16% of cases, and to be interested in 42.11% of cases. Students at risk for suicide were aware and interested in the totality of cases (Table 30).

Table 30. Contingency table of knowledge and interest for university psychological services according to different clinical conditions in freshmen who participated both in T0 and T1

		Knowledge of university psychological services				**Interest in university psychological services**			
		No		*Yes*		*No*		*Yes*	
		n	**% in row**	**n**	**% in row**	**n**	**% in row**	**n**	**% in row**
BDI-II	*No depression*	5	35.71	9	64.29	8	61.54	5	38.46
	At least mild depression	6	42.86	8	57.14	7	50.00	7	50.00
STAI-Y State	*Not reported*	3	27.27	8	72.73	6	60.00	4	40.00
	Reported	8	47.06	9	52.94	9	52.94	8	47.06
STAI-Y Trait	*Not reported*	4	44.44	5	55.56	4	50.00	4	50.00
	Reported	7	36.84	12	63.16	11	57.89	8	42.11
SHSS	*No immediate risk*	11	42.31	15	57.69	15	60.00	10	40.00
	Immediate risk	0	.00	2	100.00	0	.00	2	100.00

4.2.3 Test-retest comparison

Repeated measure t-tests conducted on the total sample did not detect significant differences at the beginning and at the end of their first year of university attendance for most clinical variables: students showed significant differences only in Disinhibition (t = 2.58, p = .016, d = .49, power = .70), that was lower at the retest. No differences were found regarding psychological distress (Table 31).

Table 31. Repeated measures t-test for clinical variables (total sample)

	M	**SD**	**t**	**df**	**p**	**d**	**power**
ASQ C T0	28.79	6.15	-1.72	27	.098	.32	.38
ASQ C T1	31.11	8.49					
ASQ DC T0	39.68	9.12	-.64	27	.526	.12	.10
ASQ DC T1	40.36	8.61					
ASQ RS T0	14.43	4.45	-.82	27	.421	.15	.12

ASQ RS T1	15.07	5.14					
ASQ NA T0	22.61	7.08	-.59	27	.563	.11	.09
ASQ NA T1	23.11	6.18					
ASQ PR T0	29.29	6.99	-.58	27	.566	.11	.09
ASQ PR T1	29.93	6.31					
TAS-20 DIF T0	20.14	7.06	1.41	27	.169	.27	.28
TAS-20 DIF T1	18.79	8.15					
TAS-20 DCF T0	15.29	4.69	.05	27	.963	.01	.05
TAS-20 DCF T1	15.25	5.39					
TAS-20 EOT T0	16.39	5.15	-.43	27	.668	.08	.07
TAS-20 EOT T1	16.75	5.77					
TAS-20 TOT To	51.32	14.85	.28	27	.782	.05	.06
TAS-20 TOT T1	50.79	15.15					
PID-5-BF NA T0	1.49	.74	.26	27	.795	.50	.72
PID-5-BF NA T1	1.46	.63					
PID-5-BF DE T0	.88	.59	.91	27	.370	.17	.14
PID-5-BF DE T1	.79	.67					
PID-5-BF A T0	.62	.45	.27	27	.792	.05	.06
PID-5-BF A T1	.59	.50					
PID-5-BF DI T0	1.21	.63	2.58	27	.016	.49	.70
PID-5-BF DI T1	.99	.60					
PID-5-BF P T0	1.16	.73	1.08	27	.288	.21	.18
PID-5-BF P T1	1.04	.83					
PID-5-BF TOT T0	1.06	.40	1.70	27	.100	.32	.38
PID-5-BF TOT T1	.95	.45					
BDI-II TOT T0	16.32	13.05	.02	27	.982	.01	.05
BDI-II TOT T1	16.29	12.37					
STAI-Y State T0	42.61	11.87	-.27	27	.792	..060	
STAI-Y State T1	43.21	13.51					
STAI-Y Trait T0	48.61	12.58	1.03	27	.314	.19	.16
STAI-Y TraitT1	46.82	11.83					
SHSS TOT T0	2.68	3.36	.39	27	.702	.07	.07
SHSS TOT T1	2.54	3.57					

Repeated measure t-tests conducted on the eight students living with their family of origin did not detect significant differences at the beginning and at the end of their first year of university attendance for most clinical variables: students showed significant differences only in Difficulties in Communicating Feelings ($t = 2.53$, $p = .040$, $d = .89$, power = .58) and Psychoticism ($t = 3.48$, $p = .010$, $d = 1.23$, power = .85), both lower at the retest. No differences were found regarding psychological distress (Table 32).

Table 32. Repeated measures t-test for clinical variables for students living with their family of origin

	M	SD	t	df	p	d	power
ASQ C T0	30.63	7.09	-1.49	7	.181	.53	.25
ASQ C T1	36.75	12.56					
ASQ DC T0	36.00	8.04	-1.04	7	.332	.37	.15
ASQ DC T1	38.00	8.09					
ASQ RS T0	14.50	4.38	.96	7	.369	.34	.13
ASQ RS T1	13.38	4.87					
ASQ NA T0	21.38	5.76	.55	7	.598	.20	.08
ASQ NA T1	20.63	5.26					
ASQ PR T0	28.50	6.23	1.36	7	.216	.48	.22
ASQ PR T1	27.00	8.16					
TAS-20 DIF T0	18.63	9.20	.20	7	.850	.07	.05
TAS-20 DIF T1	18.25	1.17					
TAS-20 DCF T0	16.75	5.57	2.53	7	.040	.89	.58
TAS-20 DCF T1	14.88	6.49					
TAS-20 EOT T0	16.50	4.63	-1.11	7	.304	.39	.16
TAS-20 EOT T1	17.88	4.97					
TAS-20 TOT To	51.88	16.63	.32	7	.755	.12	.06
TAS-20 TOT T1	51.00	17.10					
PID-5-BF NA T0	1.60	.80	1.62	7	.150	.57	.28
PID-5-BF NA T1	1.35	.75					
PID-5-BF DE T0	.85	.61	-.22	7	.836	.08	.05
PID-5-BF DE T1	.88	.83					
PID-5-BF A T0	.66	.42	1.11	7	.304	.04	.05
PID-5-BF A T1	.53	.62					
PID-5-BF DI T0	1.20	.69	1.42	7	.199	.72	.42
PID-5-BF DI T1	.95	.67					
PID-5-BF P T0	1.33	.93	3.48	7	.010	1.23	.85
PID-5-BF P T1	.90	1.06					
PID-5-BF TOT T0	1.12	.50	1.89	7	.101	.67	.37
PID-5-BF TOT T1	.92	.56					
BDI-II TOT T0	16.13	18.98	-.63	7	.550	.22	.08
BDI-II TOT T1	18.13	15.91					
STAI-Y State T0	38.38	1.93	-.72	7	.494	.26	.10
STAI-Y State T1	42.25	13.92					
STAI-Y Trait T0	47.88	14.36	1.06	7	.323	.38	.15
STAI-Y TraitT1	44.38	13.74					
SHSS TOT T0	1.63	3.11	1.53	7	.170	.54	.26
SHSS TOT T1	1.13	2.47					

Regarding commuter students, repeated measure t-tests did not detect any significant differences at the beginning and at the end of their first year of university attendance for any clinical. However, students showed significant differences in state ($t = 3.47$, $p = .008$, $d = 1.16$, power = .86) and trait ($t = 3.92$, $p = .004$, $d = 1.31$, power = .93) anxiety, and both were lower at the retest (Table 33).

Table 33. Repeated measures t-test for clinical variables for commuter students

	M	SD	t	df	p	d	power
ASQ C T0	27.22	5.40	.42	8	.683	.14	.07
ASQ C T1	26.67	5.10					
ASQ DC T0	41.11	7.67	.27	8	.793	.09	.06
ASQ DC T1	40.67	8.75					
ASQ RS T0	13.11	3.89	-1.69	8	.130	.56	.32
ASQ RS T1	15.44	4.90					
ASQ NA T0	25.11	5.71	.06	8	.951	.02	.05
ASQ NA T1	25.00	6.71					
ASQ PR T0	31.11	7.85	.66	8	.530	.22	.09
ASQ PR T1	29.89	6.39					
TAS-20 DIF T0	20.11	6.88	.83	8	.433	.27	.11
TAS-20 DIF T1	18.78	8.69					
TAS-20 DCF T0	14.00	3.50	-1.05	8	.325	.35	.15
TAS-20 DCF T1	15.56	5.81					
TAS-20 EOT T0	14.67	4.85	-.96	8	.367	.32	.14
TAS-20 EOT T1	15.89	7.39					
TAS-20 TOT To	47.22	14.45	-.88	8	.403	.29	.12
TAS-20 TOT T1	50.22	18.32					
PID-5-BF NA T0	1.27	.84	-.92	8	.384	.31	.13
PID-5-BF NA T1	1.38	.70					
PID-5-BF DE T0	.91	.58	.61	8	.560	.20	.08
PID-5-BF DE T1	.80	.73					
PID-5-BF A T0	.44	.48	-1.04	8	.327	.35	.15
PID-5-BF A T1	.64	.55					
PID-5-BF DI T0	1.27	.78	.71	8	.498	.24	.10
PID-5-BF DI T1	1.18	.76					
PID-5-BF P T0	1.20	.73	-.54	8	.602	.18	.08
PID-5-BF P T1	1.29	.83					
PID-5-BF TOT T0	1.03	.42	-.11	8	.919	.04	.05
PID-5-BF TOT T1	1.04	.52					
BDI-II TOT T0	16.22	9.64	.55	8	.596	.18	.08
BDI-II TOT T1	14.44	9.80					
STAI-Y State T0	43.89	11.90	3.47	8	.008	1.16	.86
STAI-Y State T1	37.67	13.50					
STAI-Y Trait T0	51.67	11.75	3.92	8	.004	1.31	.93
STAI-Y TraitT1	45.22	9.28					
SHSS TOT T0	3.11	3.30	-.44	8	.669	.15	.07
SHSS TOT T1	3.56	4.48					

Repeated measure t-tests conducted on non-resident students not living in a residence hall did not detect any significant differences at the beginning and at the end of their first year of university attendance in any clinical variable. Moreover, no differences were found regarding psychological distress (Table 34).

Table 34. Repeated measures t-test for clinical variables for non-resident students not living in a residence hall

	M	SD	t	df	p	d	power
ASQ C T0	28.73	6.23	-1.85	10	.094	.56	.39
ASQ C T1	30.64	4.46					
ASQ DC T0	41.18	1.83	-.33	10	.752	.10	.06
ASQ DC T1	41.82	9.28					
ASQ RS T0	15.45	5.03	-.40	10	.696	.12	.07
ASQ RS T1	16.00	5.67					
ASQ NA T0	21.45	8.81	-1.46	10	.176	.44	.26
ASQ NA T1	23.36	6.28					
ASQ PR T0	28.36	7.13	-1.87	10	.091	.57	.40
ASQ PR T1	32.09	4.01					
TAS-20 DIF T0	21.27	5.85	1.29	10	.228	.39	.21
TAS-20 DIF T1	19.18	6.79					
TAS-20 DCF T0	15.27	4.96	.00	10	1.000	.00	.05
TAS-20 DCF T1	15.27	4.65					
TAS-20 EOT T0	17.73	5.76	.69	10	.504	.21	.10
TAS-20 EOT T1	16.64	5.22					
TAS-20 TOT To	54.27	14.47	.91	10	.384	.27	.13
TAS-20 TOT T1	51.09	12.08					
PID-5-BF NA T0	1.58	.64	-.08	10	.939	.03	.05
PID-5-BF NA T1	1.60	.51					
PID-5-BF DE T0	.87	.63	.83	10	.425	.26	.12
PID-5-BF DE T1	.73	.52					
PID-5-BF A T0	.73	.44	.84	10	.418	.26	.12
PID-5-BF A T1	.60	.40					
PID-5-BF DI T0	1.18	.48	2.07	10	.065	.62	.46
PID-5-BF DI T1	.87	.37					
PID-5-BF P T0	1.00	.57	.31	10	.762	.10	.06
PID-5-BF P T1	.93	.66					
PID-5-BF TOT T0	1.04	.35	1.10	10	.296	.33	.17
PID-5-BF TOT T1	.90	.33					
BDI-II TOT T0	16.55	11.54	.05	10	.963	.01	.05
BDI-II TOT T1	16.45	12.38					
STAI-Y State T0	44.64	12.78	-1.05	10	.318	.32	.16
STAI-Y State T1	48.45	12.37					
STAI-Y Trait T0	46.64	12.63	-1.09	10	.301	.33	.17
STAI-Y TraitT1	49.91	12.61					
SHSS TOT T0	3.09	3.70	.84	10	.420	.25	.12
SHSS TOT T1	2.73	3.41					

4.3 Discussion

The present study was aimed at exploring the development of psychological distress in a sample of university freshmen in Turin, considering their housing conditions. However, we did not reach our target sampling: only a small number of freshmen agreed to be tested at the time of their enrollment and less than half of them completed their assessment after attending a full academic year of lessons. None of the students enrolled were living in a residence hall, and we failed to include each housing

condition for an equal number of students attending courses pertaining to the three ERC research domains. Considering the high number of dropouts, first, we decided to explore potential differences between freshmen who completed their retest and those who did not. No statistically significant differences were found for what concerns socio-demographic and clinical characteristics except for a higher disinhibition and a lower percentage of previous psychiatric or psychological treatments in students who dropped out. Disinhibition is characterized by impulsive behavior connected to current thoughts, feelings, and external stimuli, with reduced concerns for judgment of others and future consequences (American Psychiatric Association, 2013). Disinhibition and related externalizing factors were found to impede access to mental health services and interventions, and to lead to higher rates of prematurely dropping out (Rodriguez-Seijas et al., 2017; 2020). However, since we have no data on students who did not complete their retest, other issues could have influenced their choices. For example, we do not know if they were still attending higher education or not, if something occurred in their personal life and so on.

Regarding the 28 students who completed both the assessments, the majority of the sample was unemployed and financially dependent on his/her family of origin, which is consistent with data on emerging adults (Albertini & Kohli, 2013; Cherlin et al., 1997; Seiffe-Krenke, 2006, Seiffge-Krenke, 2013).

At the time of enrollment, freshmen showed a prevalence of no severe personality disorders in the student sample (Abdi & Pak, 2019; Duroy et al., 2018). However, they showed lower levels of confidence than the normative data for the Italian sample. Concerning alexithymia, freshmen's mean scores suggested borderline alexithymia, indicating some difficulties in the emotion regulation process (Fang et al., 2019; Loftis et al., 2019; Shabahang et al., 2019; Swart et al., 2009). Consistent with literature, freshmen seemed satisfied with the number and quality of their social relationships (Ashwin, 2003; Dennis et al., 2005; Pittman & Richmond, 2008). Moreover, consistent with previous studies on emerging adults (Çebi & Demir, 2019; Cusack & Merchant, 2013; Oksanen et al., 2017; Palmeroni et al., 2020; Piumatti et al., 2018; Shankland et al., 2018; Véron et al., 2019; Wängqvist & Frisén, 2011), freshmen showed concerning levels of distress. They seemed characterized by higher levels of both trait and state anxiety compared with adult workers and high school students in the Italian normative sample (Atkinson et al., 2019; Kabacoff et al., 1997; Pedrabissi & Santinello, 1996). However, to our knowledge, there are no normative Italian data on emerging adults. Consistent with previous studies

(Alim et al., 2015; Alvi et al., 2010; Asif et al., 2020; Chen et al., 2013; Chun et al., 2013; Bayram & Bilgel, 2008; Islam et al., 2020; Reyes-Rodríguez et al., 2013; Villatte et al., 2017), freshmen showed high percentages of anxiety and depression. Regarding suicide, we detected a risk for suicidal behaviors in 7.14% of the sample, which is alarming data, even if it is lower than that detected in previous studies (Akram et al., 2020; Mortier et al., 2018). Consistent with previous studies (Oberleitner et al., 2011; Poorolajal et al., 2017), our sample seemed to be characterized by notable levels of substance and cannabis abuse: 25.93% of students reported both, and 18.52% of them reported only cannabis abuse. With regards to the psychological and psychiatric history of our sample, 60.71% of them reported previous psychiatric or psychological examinations, 60.61% reported previous psychiatric or psychological treatments, and 35.71% reported previous psychotropic drug consumption. These data seem to be in contrast with previous research, suggesting that young adults are generally reluctant to refer to mental health services (Spence et al., 2016).

Interestingly, even if they have not yet started their attendance, freshmen reported to be aware of the availability of university psychological services in 60.71% of cases, and to be interested in 42.86% of cases. Even if previous research indicated that many students did not have access to student psychological services because they were not aware of their availability (Montagni et al., 2017), our results suggested that the majority of them collected information about student consulting services at the time of their enrollment.

Regarding test-retest comparisons, our total sample did not show significant differences at the beginning and at the end of their first year of university attendance concerning psychological distress, which is consistent with previous research, suggesting that students' mental health problems persist over time, indicating a considerable consistency in the level of distress experienced (Bore et al., 2016; Zivin et al., 2009). Such findings were also found in students living with their family of origin and in non-resident students not living in a residence hall. On the contrary, commuter students showed significant differences in state and trait anxiety, both lower at the retest. These results are consistent with those detected in our cross-sectional study (Cfr. 2.2.4), suggesting that for our sample commuting could be an asset for psychological well-being (Humphreys et al., 2013; Martin et al., 2014; Roberts et al., 2011) and not the source of intermittent chronic stress (Evans & Carrère, 1991; Wener et al., 2003). Of course, these results could be connected to our small and non-representative sample and suggested the need for further investigation in larger samples, focusing on the connection between housing

conditions, baseline mental health, personality traits, perceived need for psychological interventions and the evolution of students' psychological well-being over time (Bore et al., 2016; Zivin et al., 2009).

4.4 Limitations and future directions

The present research has some critical limitations. First of all, the generalizability of the results is limited by our extremely small, Italian-only sample from only one university, by the unsuccessful sampling process, and by the very high level of dropouts at retest. Moreover, psychological variables were assessed through self-report measures and, as a result, further studies should also consider clinical and observational data. Furthermore, other longitudinal studies on larger samples of students are needed to explore the development of university students' distress over time and its association with other clinical and social variables.

4.5 Clinical implications

Despite these limitations, this study is the first attempt to investigate the development of Italian university students' distress over time. As suggested before (Cfr. 3.5), the difficulties students face are a matter of public concern, and our data underlines the need to improve preventative and therapeutic interventions. Moreover, they suggest the need for further investigation on clinical, demographical and contextual risk and protective factors for students' psychological distress.

Study 3

A Comparative Study on Psychological Services for Students in European Higher Education Institutions

Chapter 5

PSYCHOLOGICAL INTERVENTIONS ADDRESSED TO HIGHER EDUCATION STUDENTS: A SYSTEMATIC LITERATURE REVIEW

To gain a wider perspective on psychological intervention addressed to students, we conducted a systematic literature review on the topic, focusing on higher education students in European tertiary education institutions.

5.1 Materials and methods

5.1.1 Search strategies

The systematic review was conducted in accordance with the PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analyses – guidelines for search, systematization, and report of systematic reviews (Moher et al., 2009). Studies were identified by searching the following databases: Scopus, Web of Science (WoS), MEDLINE/PubMed, ProQuest Psychology Journals, PsychINFO and PsychARTICLES. We used a combination of the keywords ("university student*" OR "campus student*" OR "college student*") AND ((psych* AND (intervention* OR treatment* OR help OR support OR assistance)) OR "mental support" OR "psychological service*" OR "clinical intervention*" OR "psychotherapy" OR "group therapy" OR "group intervention" OR "emotional support" OR counselling OR counseling) AND (Albania* OR Austria* OR Belgi* OR Bosnia* OR Bulgar* OR Croatia* OR Cypr* OR Czech* OR German* OR Hungar* OR Iceland* OR Ital* OR Kosov* OR Latvia* OR Lithuania* OR Luxembourg* OR Macedonia* OR Malt* OR Montenegr* OR Norw* OR Portug* OR Romania* OR Serbia* OR Slovak* OR Slovenia* OR Turk* OR Denmark OR Danish OR Estonia* OR Finland OR Finnish OR France OR FrenchOR Gree* OR Ireland OR Irish OR Latvia* OR Netherlands OR Dutch OR Poland OR Polish OR Spain OR Spanish OR Swed* OR Switzerland OR Swiss OR Engl* OR UK). We decided to include in the review articles published in every country considered

in the European Tertiary Education Register (ETER). We used different search criteria considering the different search fields available in the databases considered. Specifically, keywords connected to psychological intervention were searched into: (1) title, abstract and keywords for what concerns Scopus; (2) all fields for what concerns PubMed; (3) the topic for what concerns WoS; and (4) subject terms through the PsychINFO and PsychARTICLES databases. Other keywords were searched into all fields in every database considered. We chose to include only Journal Articles published in the last decade (January 2010 – April 2020) in English.

5.1.2 Selection criteria

Progressive exclusion was performed by the author and two other judges [MDS[9] and CMA[10]] reading the title, the abstract, and finally, the full text. In case of disagreement, a fourth judge [AG[11]] was consulted.

Inclusion criteria were:

1. Quantitative or qualitative original research.
2. Research making an explicit reference to psychological and psychotherapeutic interventions addressed to higher education students.
3. Publications within the given time interval (January 2010 – April 2020).
4. Articles' language limited to English.

Exclusion criteria were:

1. Studies not reporting original results (reviews, letters, editorials, and comments).
2. Dissertations.
3. A focus on mentoring programs.
4. A focus on self-help interventions and peer education.

Any discrepancy regarding the inclusion/exclusion of articles was discussed within the research group until an agreement was reached. A list of excluded studies, including level and reasons of

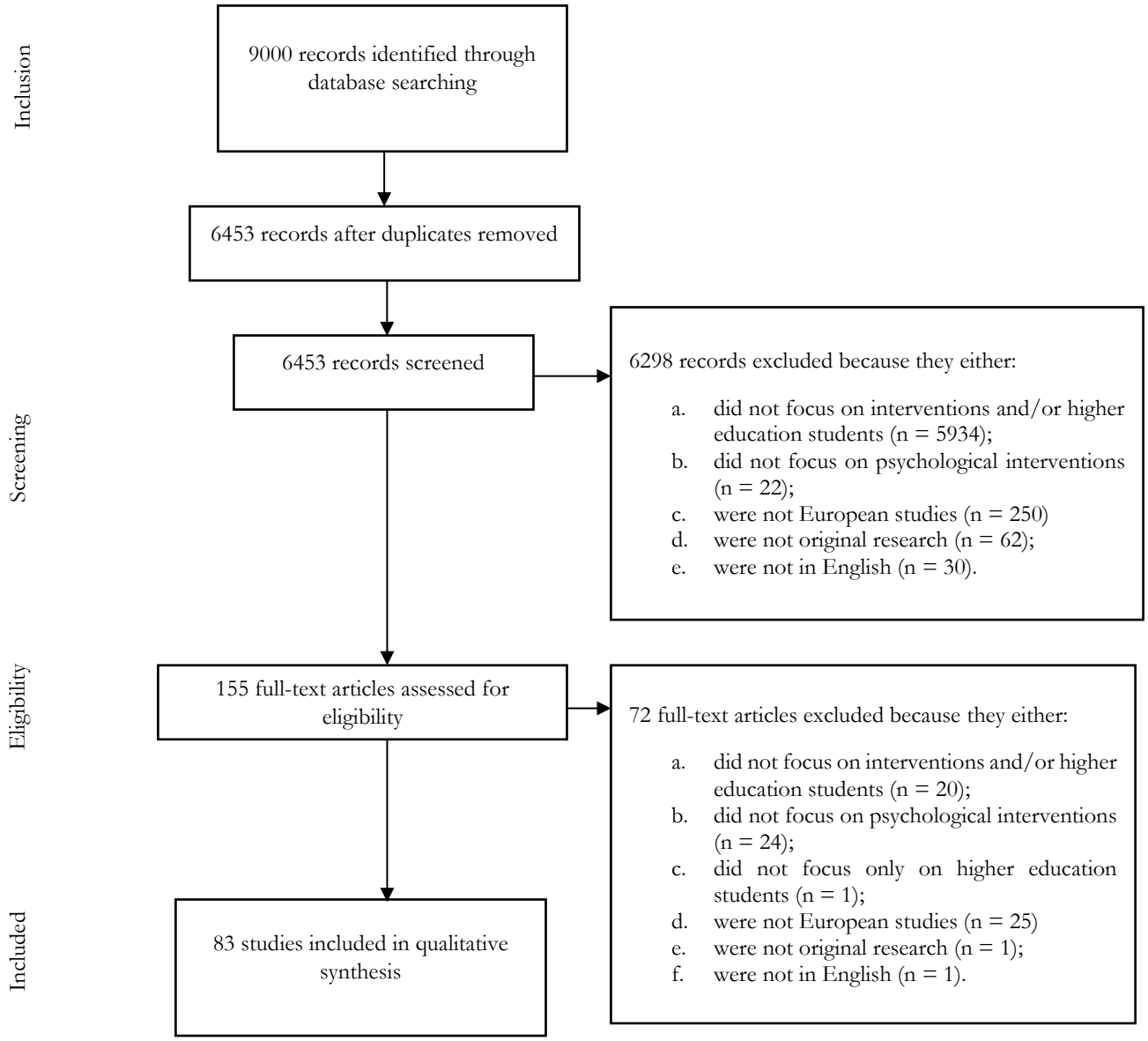
[9] Maria Domenica Sauta, Psy.D. student, Department of Psychology, University of Turin.

[10] Cristiana Maria Avalle, Psy.D., Department of Psychology, University of Turin.

[11] Antonella Granieri, Psy.D., Associate Professor, Department of Psychology, University of Turin.

exclusion, was kept. References of included articles were manually checked for any study not retrieved by the automatic literature search: studies identified in this step underwent the same screening process of the papers retrieved by the database search. The entire procedure is displayed in Figure 8.

Figure 8. Flow of information through the different phases of the review process



5.1.3 Data Analysis

Data analysis was carried out through a standardized data extraction form that included: (1) general details (authors, title, publication source, year of publication); (2) type of study; (3) sample

characteristics (e.g., age, gender, and country); (4) measures; and (5) results.

5.2 Results

The electronic databases search identified 9,000 records. After duplicates were removed, 6,453 articles were identified. 6,298 articles were excluded basing on title and abstract because they either: (a) did not focus on interventions and/or higher education students (n = 5,934); (b) did not focus on psychological interventions (n = 22); (c) were not European studies (n = 250); (d) were not original research (n = 62); or (e) were not in English (n = 30). Another 72 articles were excluded based on full-text evaluation because they either: (a) did not focus on interventions and/or higher education students (n = 20); (b) did not focus on psychological interventions (n = 24); (c) did not focus only on higher education students (n = 1); (d) were not European studies (n = 25); (e) were not original research (n = 1); and (f) were not in English (n = 1). The 83 articles resulting from electronic and manual literature searches underwent data extraction and qualitative analysis.

Articles were classified into seven categories: 1. Counselling and group counselling (8 papers); 2. Psychodynamic interventions (6 papers); 3. Cognitive-behavioral interventions (15 papers); 4. Other psychological interventions (18 papers); 5. Mindfulness (9 papers); 6. Online interventions (17 papers); and 7. App and mobile interventions (10 papers). Table 35 summarizes the results.

Table 35. Results of the systematic review on psychological interventions for higher education students

Year	Authors	Title	Source	Intervention	Results	Country
2020	Bendtsen, M., Müssener, U., Linderoth, C., & Thomas, K.	A Mobile Health Intervention for Mental Health Promotion Among University Students: Randomized Controlled Trial	Jmir Mhealth and Uhealth	Fully automated Mobile health (mHealth) intervention on positive mental health, and anxiety and depression symptomology	At follow-up, positive mental health was significantly higher in the intervention group compared with the control group (IRR = 1.067, 95% CI 1.024-1.112, p = .002). For both depression and anxiety symptomatology, the intervention group showed significantly lower scores at follow-up compared with the control group. Follow-up rates were lower than expected	Sweden
2020	Cerutti, R., Fontana, A., Ghezzi, V., Menozzi, F., Spensieri, V., & Tambelli, R.	Exploring psychopathological distress in Italian university students seeking help: A picture from a university counselling service	Current Psychology	Brief psychodynamic intervention	Results showed an average significant and reliable decrease in all psychopathological syndromes, although the rate of this change was not uniform for all individuals	Italy
2020	Ponzo, S., Morelli, D., Kawadler, J. M., Hemmings, N. R., Bird, G., & Plans, D.	Efficacy of the Digital Therapeutic Mobile App BioBase to Reduce Stress and Improve Mental Well-Being Among University Students: Randomized Controlled Trial	Jmir Mhealth and Uhealth	Mobile app (BioBase) and paired wearable device (BioBeam) vs. waitlist control group, aimed at reducing anxiety and well-being in university students with elevated levels of anxiety and stress	4-week intervention with the BioBase program significantly reduced anxiety and increased perceived well-being, with sustained effects at a 2-week follow-up. Furthermore, a significant reduction in depression levels was found following the 4-week usage of BioBase	United Kingdom
2020	Shuai, R., Bakou, A. E., Hardy, L., & Hogarth, L.	Ultra-brief breath counting (mindfulness) training promotes recovery from stress-induced alcohol-seeking in student drinkers	Addictive Behaviors	Brief training of one component of mindfulness (i.e., breath counting) to reduce drinkers' sensitivity to the effect of noise stress on subjective mood and alcohol-seeking behavior	Results showed that the breath counting versus control intervention improved subjective mood relative to baseline, attenuated the worsening of subjective mood produced by stress induction, and accelerated recovery from a stress induced increase in alcohol-seeking behavior	United Kingdom
2020	Turner, L., Galante, J., Vainre, M., Stochl, J., Dufour, G., & Jones, P. B.	Immune dysregulation among students exposed to exam stress and its mitigation by mindfulness training: findings from an	Scientific reports	8-week mindfulness course vs. support as usual, aimed at studying immune dysregulation in students who were exposed to progressively greater stress as the exam period approached	Results found no evidence that mindfulness training was able to buffer the effects of psychological distress on healthy participants' immune system	United Kingdom

		exploratory randomized trial				
2020	Van der Oord, S., Boyer, B. E., Van Dyck, L., Mackay, K. J., De Meyer, H., & Baeyens, D.	A Randomized Controlled Study of a Cognitive Behavioral Planning Intervention for College Students With ADHD: An Effectiveness Study in Student Counseling Services in Flanders	Journal of Attention Disorders	Short (six session) individual cognitive-behavioral planning intervention for college students with attention-deficit/hyperactivity disorder	Results showed a significant interaction on inattention symptoms: students in the treatment condition improved from pre-test to post-test, whereas students in the waitlist did not. Other measures showed large significant time effects (improved skills and reduction of symptoms in both groups) but no interactions	Belgium
2019	Binder, P. E., Dundas, I., Stige, S. H., Hjeltnes, A., Woodfin, V., & Moltu, C.	Becoming Aware of Inner Self-Critique and Kinder Toward Self: A Qualitative Study of Experiences of Outcome After a Brief Self-Compassion Intervention for University Level Students	Frontiers in Psychology	Brief Self-Compassion Intervention	Results showed a decrease in self-judgment and habitual negative self-directed thinking following the intervention. Participants were more aware of how they treated themselves and managed to stay more supportive and friendlier toward themselves	Norway
2019	Broglia, E., Millings, A., & Barkham, M.	Counseling with Guided Use of a Mobile Well-Being App for Students Experiencing Anxiety or Depression: Clinical Outcomes of a Feasibility Trial Embedded in a Student Counseling Service	Jmir Mhealth and Uhealth	Mobile phone well-being app, offered as an adjunct to face-to-face counseling	At the 6-months follow-up, treatment as usual clients' anxiety increased whereas intervention clients' anxiety decreased, and this group difference was statistically significant	United Kingdom
2019	Bruijniks, S., Sijbrandij, M., & Huibers, M.	The effects of retrieval versus rehearsal of online problem-solving therapy sessions on recall, problem-solving skills and distress in distressed individuals: An experimental study	Journal of Behavior Therapy and Experimental Psychiatry	Four weekly sessions of online Problem-Solving Therapy (PST) aimed at improving memory for the content of therapy sessions	Retrieval led to overall higher recall, but this difference disappeared when controlling for the time spent on retrieval versus rehearsal. Retrieval did not lead to better problem-solving skills or less distress, compared to rehearsal.	Netherlands

2019	Cook, L., Mostazir, M., & Watkins, E.	Reducing Stress and Preventing Depression (RESPOND): Randomized Controlled Trial of Web-Based Rumination-Focused Cognitive Behavioral Therapy for High-Ruminating University Students	Journal of medical Internet research	Web-based Rumination-focused Cognitive Behavioral Therapy (i-RFCBT) aimed at preventing the incidence of major depression vs. usual care	Guided i-RFCBT reduced the risk of depression by 34% compared to usual care. Participants with higher levels of baseline stress benefited most from the intervention. Significant improvements in rumination, worry, and depressive symptoms were found in the short-to-medium term	United Kingdom
2019	Kählke, F., Berger, T., Schulz, A., Baumeister, H., Berking, M., Auerbach, R. P., … Ebert, D. D.	Efficacy of an unguided internet-based self-help intervention for social anxiety disorder in university students: A randomized controlled trial	International journal of methods in psychiatric research	Internet- and mobile-based interventions (IMIs) "StudiCare SAD" waiting list for social anxiety disorder (SAD)	Results showed moderate to large effect sizes in favor of StudiCare SAD compared with waiting list for SAD symptoms. Effects on all secondary outcomes (depression, quality of life, fear of positive evaluation, general psychopathology, and interpersonal problems) were significant and in favor of the intervention group	Germany, Austria and Switzerland
2019	Marksteiner, T., Janke, S., & Dickhäuser, O.	Effects of a brief psychological intervention on students' sense of belonging and educational outcomes: The role of students' migration and educational background	Journal of school psychology	Belonging intervention, aimed at reducing social disparities. It consisted in a brief reading-writing-exercise, teaching that worries about belonging are common among freshmen and diminish over time	For students without a migration background, the intervention had lasting positive effects on belonging, while for students with a migration background the positive effect diminished over time. Students with a migration background reported worse grades in the control condition and similar grades in the intervention condition	Germany
2019	Martín-Pérez, C., Navas, J. F., Perales, J. C., López-Martín, Á., Cordovilla-Guardia, S., Portillo, M., ... Vilar-López, R.	Brief group-delivered motivational interviewing is equally effective as brief group-delivered cognitive-behavioral therapy at reducing alcohol use in risky college drinkers	Plos One	Cognitive-Behavioral Therapy (CBT) and Motivational Interviewing (MI), aimed at reducing alcohol consumption	Alcohol use decreased in both groups at the 3- and 6-months measurement points	Spain
2019	Maselli, M., Gobbi, E., & Carraro, A.	Effectiveness of individual counseling and activity monitors to promote physical activity among university students	Journal of Sports Medicine and Physical Fitness	Individual counselling sessions (based on the social cognitive theory and the transtheoretical model of behavior change) via videoconferencing calls vs. wearable Physical activity (PA)	Students in the individual counselling group increased self-reported energy expenditure between T0 and T1, and maintained this improvement at T2. No significant differences were found neither in the group of students who used the PA monitors nor in the control group	Italy

				monitors designed to motivate to PA vs. no intervention		
2019	Østergård, O. K., Fenger, M., & Hougaard, E.	Symptomatic distress and effectiveness of psychological treatments delivered at a nationwide student counseling service	Counselling Psychology Quarterly	Short-term individual or group counseling focusing on the current problems of the clients	Results showed that the Danish Student Counseling Service was effective in relieving symptomatic distress in highly distressed student clients. Results showed a moderate-to-large pre- to post-intervention (ES = 0.76). In particular, ending counseling by agreement between counselor and client predicted better outcome than ending counseling by client cancellation or failing to appear (n = 64, M gsi = 1.04, p < .001) and referred to or started in another treatment (n = 94, M gsi = 1.15, p < .001).	Denmark
2019	Recabarren, R. E., Gaillard, C., Guillod, M., & Martin-Soelch, C.	Short-Term Effects of a Multidimensional Stress Prevention Program on Quality of Life, Well-Being and Psychological Resources. A Randomized Controlled Trial	Frontiers in Psychiatry	Multidimensional stress prevention program, integrating mindfulness-based activities, cognitive and behavioral strategies, social skills, and emotional regulation exercises	Results showed a significant reduction of psychological symptoms, including anxiety, interpersonal problems, and symptoms of pain; and a significant increase in quality of life, sense of coherence, and self-compassion in students who participated in the intervention program compared to the control group	Switzerland
2019	Reiss, N., Warnecke, I., Tibubos, A. N., Tolgou, T., Luka-Krausgrill, U., & Rohrmann, S.	Effects of cognitive-behavioral therapy with relaxation vs. imagery rescripting on psychophysiological stress responses of students with test anxiety in a randomized controlled trial	Psychotherapy Research: journal of the Society for Psychotherapy Research	Group treatment for test anxiety based on cognitive behavioral therapy, including relaxation techniques (CBT + R) or imagery rescripting (CBT + ImRs) vs. a moderated self-help group (SH)	In all treatment groups, self-reported state anxiety in a stressful socially evaluative situation declined after treatment. No significant reduction of physiological reactivity scores after intervention was found in any of the three groups	Germany
2019	Terp, U., Hjärthag, F., & Bisholt, B.	Effects of a Cognitive Behavioral-Based Stress Management Program on Stress Management Competency, Self-efficacy and Self-esteem Experienced by Nursing Students	Nurse Educator	10-week cognitive-behavioral therapy-based stress management program	Students' perceived stress management competency, self-efficacy, and self-esteem were higher 1 year after the intervention	Sweden

2020	Esposito, G., Marano, D., & Freda, M. F.	Supportive and interpretative interventions in fostering mentalisation during counselling.	British Journal of Guidance & Counselling	Two group counselling interventions designed to promote mentalization in underachieving university student	Results showed that only one group improved in terms of mentalization and academic performance. In the good-outcome group, there were more defence interpretations, especially during the early sessions, and a deeper level of elaboration	Italy
2018	Galante, J., Dufour, G., Vainre, M., Wagner, A. P., Stochl, J., Benton, A., … Jones, P. B.	A mindfulness-based intervention to increase resilience to stress in university students (the Mindful Student Study): a pragmatic randomised controlled trial	Lancet Public Health	8 weeks mindfulness courses, the "Mindfulness Skills for Students" aimed at improving students' resilience to stress	The mindfulness course reduced distress scores during the examination period compared with support as usual	United Kingdom
2018	Harrer, M., Adam, S. H., Fleischmann, R. J., Baumeister, H., Auerbach, R., Bruffaerts, R., … Ebert, D. D.	Effectiveness of an internet- and app-based intervention for college students with elevated stress: Randomized controlled trial	Journal of Medical Internet Research	Internet- and mobile-based stress intervention with feedback on demand vs. waitlist	Results indicated significant effects of the intervention for stress, anxiety, depression, college-related productivity, academic work impairment and other outcomes after 7 weeks (post-treatment). Response rates for stress symptoms were significantly higher for the intervention group compared with the waitlist control group at post-test (7 weeks). Effects were sustained at 3-month follow-up, and similar findings emerged in students with symptoms of depression	Germany
2018	Haukaas, R. B., Gjerde, I. B., Varting, G., Hallan, H. E., & Solem, S.	A Randomized Controlled Trial Comparing the Attention Training Technique and Mindful Self-Compassion for Students With Symptoms of Depression and Anxiety	Frontiers in Psychology	Attention Training Technique (ATT) vs. Mindful Self-Compassion (MSC). ATT is a 12-minutes auditory exercise designed to strengthen attentional control and promote external focus of attention, while MSC uses guided meditation and exercises designed to promote self-compassion	Participants in both groups showed significant reductions in symptoms of anxiety and depression, accompanied by significant increases in mindfulness, self-compassion, and attention flexibility post-intervention. These results were maintained at 6-month follow-up	Norway
2018	Krispenz, A., & Dickhäuser, O.	Effects of an Inquiry-Based Short Intervention on State Test Anxiety in Comparison to Alternative Coping Strategies	Frontiers in Psychology	Inquiry-based short intervention to reduce students' test anxiety	After the intervention as well as 2 days later, individuals demonstrated significantly lower test anxiety than participants from the pooled control groups	Germany

2018	Lynch, S., Gander, M., Nahar, A., Kohls, N., & Walach, H.	Mindfulness-Based Coping With University Life: A Randomized Wait-List Controlled Study	Sage Open	8-week program of Mindfulness-Based Coping With University Life (MBCUL), aimed at helping students bring mindful awareness to their academic work, stress management, approach to communication and relationships, and health	A significant decrease in anxiety, depression, and perceived stress was found in the MBCUL group compared with controls	United Kingdom
2018	McCarthy, B., Trace, A., O'Donovan, M., O'Regan, P., Brady-Nevin, C., O'Shea, M., … Murphy, M.	Coping with stressful events: A pre-post-test of a psycho-educational intervention for undergraduate nursing and midwifery students	Nurse Education Today	Psycho-educational intervention "Coping with Stressful Events"	Restraint and mental disengagement showed lower post-intervention scores, while use of emotional and instrumental social support showed higher scores	Ireland
2018	Noone, C., & Hogan, M. J.	A randomised active-controlled trial to examine the effects of an online mindfulness intervention on executive control, critical thinking and key thinking dispositions in a university student sample	BMC Psychology	Mindfulness meditation vs. sham meditation. The intervention content for both groups (experimental and control groups) was delivered through the Headspace online application, an application which provides guided meditations to users	Results showed significant increases in mindfulness dispositions and critical thinking scores were observed in both the mindfulness meditation and sham meditation groups. However, no significant effects of group allocation were observed for either primary or secondary measures	Ireland
2018	Norman, P., Cameron, D., Epton, T., Webb, T. L., Harris, P. R., Millings, A., & Sheeran, P.	A randomized controlled trial of a brief online intervention to reduce alcohol consumption in new university students: Combining self-affirmation, theory of planned behaviour messages, and implementation intentions	British Journal of Health Psychology	Participants were randomly assigned to 3 different conditions: a two session of self-affirmation intervention; two sessions of Theory of Planned Behavior (TPB)-based messages; or two session focused on intention implementation	Participants who received the TPB messages had significantly less favorable cognitions about binge drinking (except perceived control), consumed fewer units of alcohol, engaged in binge drinking less frequently, and had less harmful patterns of alcohol consumption during their first 6 months at university.	United Kingdom
2018	Otermin-Cristeta, S., & Hautzinger, M.	Developing an intervention to overcome procrastination	Journal of Prevention & Intervention in the Community	Six meetings workshop based on behavioral and cognitive techniques, paradox intervention, and psychoeducation, aimed at overcoming general procrastination	Interventions resulted to be effective in reducing procrastination sustainably	Germany

2018	Pérez-Jorge, D., Barragán-Medero, F., Gutiérrez-Barroso, J., & Castro-León, F.	A synchronous tool for innovation and improvement of university communication, counseling and tutoring: The WhatsApp experience	Eurasia Journal of Mathematics, Science and Technology Education	Mobile-learning (learning across multiple contexts, through social and content interactions, using personal electronic devices) in academic monitoring, counseling and tutoring of university students	Results showed important improvements in those competences related to time efficiency, planning and organization, active learning, decision making and motivation	Spain
2018	Rose, A., McIntyre, R., & Rimes, K. A.	Compassion-Focused Intervention for Highly Self-Critical Individuals: Pilot Study	Behavioural and Cognitive Psychotherapy	Six-session intervention including different methods, from compassion-focused therapy to reduce self-criticism	There were statistically significant improvements between pre- and post-intervention for self-criticism, functional impairment, mood, self-esteem and maladaptive perfectionism, with medium to large effect sizes at both post-intervention and follow-up. Gains were maintained or increased between post-treatment and 2-month follow-up	United Kingdom
2018	Rozental, A., Forsström, D., Lindner, P., Nilsson, S., Mårtensson, L., Rizzo, A., … Carlbring, P.	Treating Procrastination Using Cognitive Behavior Therapy: A Pragmatic Randomized Controlled Trial Comparing Treatment Delivered via the Internet or in Groups	Behavior Therapy	8 weeks self-guided CBT via the Internet (ICBT) vs. group CBT to reduce procrastination	Results showed large within-group effect sizes on procrastination, and small to moderate benefits for depression, anxiety, and well-being. No differences between conditions were observed after the treatment period; however, participants in group CBT continued or maintained their improvement at follow-up, while participants in self-guided ICBT showed some signs of deterioration	Sweden
2018	Saleh, D., Camart, N., Sbeira, F., & Romo, L.	Can we learn to manage stress? A randomized controlled trial carried out on university students	Plos One	4-sessions internet-based cognitive-behavioral program	Self-esteem scores of the control group were significantly higher than those of the experimental group at the pre-intervention stage, but this difference disappeared at the post-intervention and follow-up stages. Effects were observed in the experimental group at both the post-intervention and follow-up stages for self-esteem, perceived stress, satisfaction in studies, and in the somatic symptoms, anxiety and insomnia and severe depression. No effects were observed in the control group	France
2018	Ştefan, C. A., Căpraru, C., & Szilágyi, M.	Investigating effects and mechanisms of a mindfulness-based stress reduction	Mindfulness	6-week mindfulness-based stress reduction (MBSR) program in students at risk for social anxiety	MBSR participation led to significant reductions in social anxiety and perceived stress. Significant post-intervention differences in favor of the MBSR group compared to the wait list control	Romania

		intervention in a sample of college students at risk for social anxiety			group were found for self-compassion and acceptance, but not for positive reinterpretation	
2018	Tello, N., Bocage-Barthélémy, Y., Dandaba, M., Jaafari, N., & Chatard, A.	Evaluative conditioning: A brief computer-delivered intervention to reduce college student drinking	Addictive Behaviors	Brief computer-delivered intervention based on evaluative conditioning (EC)	Results showed that EC did not change the implicit evaluation of alcohol, d = .01, 95% CI [-.35, .35]. However, the EC reduced drinking behavior, d = .37, 95 %CI [.01, 0.72]. This effect was independent of hazardous drinking behavior, but it was especially pronounced among participants with the most positive implicit evaluation of alcohol before the intervention	France
2018	Thorisdottir, A. S., Tryggvadottir, A., Saevarsson, S. T., & Bjornsson, A. S.	Brief report: sudden gains in cognitive-behavioral group therapy and group psychotherapy for social anxiety disorder among college students	Cognitive Behaviour Therapy	Cognitive-behavioral group therapy (CBGT) vs. group psychotherapy (GPT; designed to incorporate only non-specific factors) for social anxiety disorder	The 22.2% participants experienced large symptoms improvements between adjacent treatment sessions: improvements appeared at similar rates across both treatments, but were associated with greater improvements at post-treatment and follow-up in GPT group compared to CBGT group	Iceland
2018	Wood, E., Ohlsen, S., Thompson, J., Hulin, J., & Knowles, L.	The feasibility of brief dog-assisted therapy on university students stress levels: the PAwS study	Journal of Mental Health	Unstructured group interventions with a Guide Dog	Stress showed a statistically significant reduction immediately after the intervention	United Kingdom
2017	Amodeo, A. L., Picariello, S., Valerio, P., Bochicchio, V., & Scandurra, C.	Group psychodynamic counselling with final-year undergraduates in clinical psychology: A clinical methodology to reinforce academic identity and psychological well-being	Psychodynamic Practice	Group psychodynamic counselling	Students showed that the intervention made students feel more capable of managing their lives and more open to new experiences. Moreover, it encouraged them to perceive their relationships as more positive and satisfying, to believe that their life was meaningful, and to achieve greater self-acceptance	Italy
2017	Biasi, V., Patrizi, N., Mosca, M., & De Vincenzo, C.	The effectiveness of university counselling for improving academic outcomes and well-being	British Journal of Guidance & Counselling	Counselling treatment aimed at enhancing students' academic success	Results showed a statistically significant decrease in internalizing and externalizing problems, distress symptoms and relationship difficulties. Compared with the control group, students who received counselling exhibited a significant recovery regarding their progress with their studies	Italy

2017	Biolcati, R., Agostini, F., & Mancini, G.	Analytical psychodrama with college students suffering from mental health problems: Preliminary outcomes	Research in Psychotherapy-Psychopathology Process and Outcome	Analytical psychodrama	Results showed that analytical psychodrama was a suitable treatment for college students, as it actually reduced young adults' symptoms of depression and anxiety	Italy
2017	Gajecki, M., Andersson, C., Rosendahl, I., Sinadinovic, K., Fredriksson, M., & Berman, A. H.	Skills training via smartphone app for university students with excessive alcohol consumption: A randomized controlled trial.	International Journal of Behavioral Medicine	Web-based app consisting of a main menu with two parts: (a) registration of alcohol consumption in standard glasses for each day of the past week, resulting in brief feedback and information on guidelines for hazardous drinking, and (b) a relapse prevention skills training menu offering two options: "say no to alcohol" or "feel better without alcohol"	The proportion of participants with excessive alcohol consumption decreased in both the intervention and the waitlist groups, compared to controls, at first and second follow-ups. Secondary analyses showed reductions for the intervention group in quantity of drinking at first follow-up and in frequency of drinking at both follow-ups	Sweden
2017	Grajfoner, D., Harte, E., Potter, L. M., & McGuigan, N.	The Effect of Dog-Assisted Intervention on Student Well-Being, Mood, and Anxiety	International journal of Environmental Research and Public Health	Short, 20 min, dog-assisted intervention	Results showed that dog presence led to significant improvements in mood, well-being, and anxiety. The presence of a handler alongside the dog appeared to have a negative, and specific, effect on participant mood, with greater positive shifts when participants interacted with the dog alone, than when interacting with both the dog and the handler	UK
2017	Matteucci, M. C.	Attributional retraining and achievement goals: An exploratory study on theoretical and empirical relationship	European Review of Applied Psychology	Attributional Retraining (AR) intervention	Results highlighted the effectiveness of AR treatment in restructuring self-defeating stable attributional explanations	Italy
2017	McClatchey, K., Boyce, M., & Dombrowski, S. U.	Alcohol Brief Intervention in a university setting: A small-scale experimental study	Journal of Health Psychology	Alcohol Brief Intervention (ABI) vs. information leaflet	Results showed no differences between the group that received the Alcohol Brief Intervention and the group that received an information leaflet	United Kingdom
2017	Reiss, N., Warnecke, I., Tolgou, T., Krampen, D., Luka-Krausgrill, U., & Rohrmann, S.	Effects of cognitive behavioral therapy with relaxation vs. imagery rescripting on test anxiety: A randomized controlled trial	Journal of Affective Disorders	Intervention program comprising elements of cognitive-behavioral treatments and skill-focused techniques, additionally supplemented by relaxation techniques	Results showed a significant reduction of test anxiety from baseline to six-month follow-up	Germany

2017	Vescovelli, F., Melani, P., Ruini, C., Ricci Bitti, P. E., & Monti, F.	University Counseling Service for Improving Students' Mental Health	Psychological Services	Individual cognitive-behavioral psychotherapy vs. psychodynamic psychotherapy	At post-treatment, all students improved in terms of both well-being and distress	Italy
2017	Victor, P. P., Teismann, T., & Willutzki, U.	A Pilot Evaluation of a Strengths-Based CBT Intervention Module with College Students	Behavioural and Cognitive Psychotherapy	"Personal Model of Resilience" (PMR) intervention, focused on resilience strategies the person already possesses	Compared with the control group, the PMR group showed significant improvements in distress, protective factors and quality of life with medium to large effect sizes	Germany
2016	Kvillemo, P., Brandberg, Y., & Bränström, R.	Feasibility and Outcomes of an Internet-Based Mindfulness Training Program: A Pilot Randomized Controlled Trial	Jmir Mental Health	8-week Internet-based mindfulness training program vs Internet-based 4-week expressive writing program	There was no statistically significantly intervention effect for the mindfulness intervention compared to the active control intervention	Sweden
2016	Larsson, A., Hooper, N., Osborne, L. A., Bennett, P., & McHugh, L.	Using Brief Cognitive Restructuring and Cognitive Defusion Techniques to Cope with Negative Thoughts	Behavior Modification	Cognitive restructuring and a cognitive defusion techniques aimed at coping with a personally relevant negative thought	Findings indicated that defusion lowered believability, increased comfort and willingness to have the target thought, and increased positive affect significantly more than the control and cognitive restructuring. Within groups, cognitive restructuring also made significant gains in target thought discomfort, negativity, and "willingness to have" in the same direction as defusion, but the no-instruction control did not. Negative thought frequency was reduced in the defusion group, maintained in the restructuring group, and increased in the no-instruction control group	United Kingdom
2016	Marrero, R. J., Carballeira, M., Martín, S., Mejías, M., & Hernández, J. A.	Effectiveness of a positive psychology intervention combined with cognitive behavioral therapy in university students	Anales De Psicologia/ Annals of Psychology	Positive intervention combined with cognitive-behavioral therapy to enhance subjective and psychological well-being	The intervention group reported greater social support after the intervention period than the waiting-list control group. Within-group differences were found for happiness, self-acceptance, positive relations with others, optimism, and self-esteem in the intervention group	Spain
2016	Monti, F., Tonetti, L., & Ricci Bitti, P. E.	Short-term effectiveness of psychotherapy treatments delivered at a university counselling service	British Journal of Guidance & Counselling	Psychodynamic psychotherapy or cognitive-behavioral psychotherapy	Significant improvements were observed both after treatment and at the 6-months follow-up. Furthermore, no significant differences were observed between the end of psychotherapy and the follow-up	Italy

2016	Müssener, U., Bendtsen, M., Karlsson, N., White, I. R., McCambridge, J., & Bendtsen, P.	Effectiveness of Short Message Service Text-Based Smoking Cessation Intervention Among University Students A Randomized Clinical Trial	Jama Internal Medicine	NEXit core program, comprising a 1- to 4-weeks motivational phase during which participants can choose to set a stop date. The intervention group then received 157 text messages based on components of effective smoking cessation interventions for 12 weeks. The control group received 1 text every 2 weeks thanking them for participating in the study, with delayed access to the intervention	Primary outcome data were available for 783 (94.7%) of the intervention group and 719 (94.2%) of the control group. At baseline, participants were smoking a median (range) of 63 (1-238) and 70 (2-280) cigarettes per week, respectively. Eight-week prolonged abstinence was reported by 203 participants (25.9%) in the intervention group and 105 (14.6%) in the control group; 4-week point prevalence of complete cessation was reported by 161 (20.6%) and 102 (14.2%) participants, respectively, a mean (SD) of 3.9 (0.37) months after the quit date. The adjusted odds ratios (95% CIs) for these findings were 2.05 (1.57-2.67) and 1.56 (1.19-2.05), respectively	Sweden
2016	Räsänen, P., Lappalainen, P., Muotka, J., Tolvanen, A., & Lappalainen, R.	An online guided ACT intervention for enhancing the psychological wellbeing of university students: A randomized controlled clinical trial	Behaviour Research and Therapy	Online Acceptance and Commitment Therapy intervention (iACT)	The iACT participants showed significantly higher gains in wellbeing, life satisfaction, and mindfulness skills. Moreover, iACT participants' self-reported stress and s depression were significantly reduced compared to the participants in the control group. These benefits were maintained over a 12-months follow-up period	Finland
2016	Richards, D., Timulak, L., Rashleigh, C., McLoughlin, O., Colla, A., Joyce, C., … Anderson-Gibbons, M.	Effectiveness of an internet-delivered intervention for generalized anxiety disorder in routine care: A randomised controlled trial in a student population	Internet interventions	Internet-delivered CBT intervention, Calming Anxiety	Both treatment and waiting list conditions displayed significant decreases in anxiety symptoms post-treatment, but there was no significant between-group effect	Irish
2015	Strepparava, M., Bani, M., Zorzi, F., Corrias, D., Dolce, R., & Rezzonico, G.	Cognitive counselling intervention: treatment effectiveness in an Italian university centre	British Journal of Guidance & Counselling	Cognitive-relational intervention focused on the development of reappraisal skills and problem-solving strategies to manage difficult situations	Results showed a significant pre- and post-intervention reduction in self-reported psychopathological symptoms as well as in general levels of distress. Moreover, results showed a significant increase in reappraisal levels	Italy
2015	Cameron, D., Epton, T., Norman, P., Sheeran, P., Harris,	A theory-based online health behaviour intervention for new university students	Trials	The intervention consisted of a self-affirmation manipulation, health messages based on the theory of planned behaviour and implementation	Intention-to-treat analyses indicated that the intervention had a non-significant effect on the primary outcomes, although the effect of the	United Kingdom

	P. R., Webb, T. L., … Shah, I.	(U@Uni:LifeGuide): results from a repeat randomized controlled trial		intention tasks. Participants were followed-up 1 and 6 months after starting university. Also see the intervention at the following link	intervention on fruit and vegetable intake was significant in the per-protocol analyses	
2015	Canale, N., Vieno, A., Santinello, M., Chieco, F., & Andriolo, S.	The efficacy of computerized alcohol intervention tailored to drinking motives among college students: a quasi-experimental pilot study	The American Journal of Drug and Alcohol Abuse	Computer-delivered intervention aimed at preventing alcohol abuse and its adverse consequences	Results showed a significant interaction between intervention condition and hazardous drinkers at baseline. For hazardous drinkers at baseline, the alcohol intervention results showed a significant decrease in frequency and quantity of alcohol use at follow-up, while no differences were observed between intervention conditions for non-hazardous drinkers at baseline.	Italy
2015	Clarke, N. C., Field, M., & Rose, A. K.	Evaluation of a Brief Personalised Intervention for Alcohol Consumption in College Students	Plos One	Alcohol Brief Personalized Intervention (BPI), aimed at encouraging students to lower their drinking levels	RCT results showed a significant main effect of time, $F (1, 101) = 5.7$, $p = .02$, $\eta p^2 = .05$, although post hoc t-tests indicated that the RTC increased between baseline and follow-up in the active control group, $t(1, 51) = 2.05$, $p = .05$, but not the BPI group, $t(1, 51) = -.97$, $p = .34$. However, the main effect of group, $F(1, 101) = 1.38$, $p = .24$, and the group x time interaction, $F(1, 101) = 1.06$, $p = .30$, were not statistically significant	UK, US
2015	Hofmann, F. H., Sperth, M., & Holm-Hadulla, R. M.	Methods and effects of integrative counseling and short-term psychotherapy for students	Mental Health and Prevention	Comprehensive model of counseling integrating practically relevant approaches	The integrative counseling is effective in reducing psychopathology and distress as well as in restoring satisfaction with life and studies	Germany
2015	Gallego, J., Aguilar-Parra, J. M., Cangas, A. J., Langer, Á. I., & Mañas, I.	Effect of a mindfulness program on stress, anxiety and depression in university students	The Spanish Journal of Psychology	Mindfulness training vs. physical education vs. no intervention	Students in the mindfulness group showed higher reduction of depression, anxiety and stress, than students in the physical education group and in the control group	Spain
2015	Halland, E., De Vibe, M., Solhaug, I., Friborg, O., Rosenvinge, J. H., Tyssen, R., … Bjørndal, A.	Mindfulness training improves problem-focused coping in psychology and medical students: Results from a randomized controlled trial	College Student Journal	7-week mindfulness-based stress reduction (MBSR) program	Students receiving mindfulness training increased their use of problem-focused coping, compared to the control group. In addition, students with high scores on neuroticism benefitted from the intervention in terms of reduced avoidance-focused coping, and an increase in seeking social support, compared to the control group	Norway

2015	McKenzie, K., Murray, K. R., Murray, A. L., & Richelieu, M.	The effectiveness of university counselling for students with academic issues	Counselling and Psychotherapy Research	Counselling	Results suggested that counselling resulted in reliable clinically significant change for 40% of students reporting academic issues	United Kingdom
2015	Pinto, J. C., Loureiro, N., & Taveira, M.	Psychological Intervention in Portuguese College Students: Effects of Two Career Self-Management Seminars	Journal of College Student Development	Career Self Management Seminar, Version A, for undergraduate students, and Version B for postgraduate students, aimed at supporting students in career exploration, goal setting, design and implementation of action plans, and decision-making.	Results showed a significant increase in most of the cognitive, behavioral, and affective career exploration dimensions among both groups.	Portugal
2015	Thorgeirsdottir, M. T., Bjornsson, A. S., & Arnkelsson, G. B.	Group Climate Development in Brief Group Therapies: A Comparison Between Cognitive-Behavioral Group Therapy and Group Psychotherapy for Social Anxiety Disorder	Group Dynamics-Theory Research and Practice	Brief cognitive- behavioral group therapy (CBGT) vs. brief group psychotherapy (GPT) for students with a primary diagnosis of social anxiety disorder (SAD)	Similar patterns were found in both treatment conditions: engagement increased throughout the sessions, avoidance decreased, and conflict was overall low	Iceland
2014	Bendtsen, M., & Bendtsen, P.	Feasibility and User Perception of a Fully Automated Push-Based Multiple-Session Alcohol Intervention for University Students: Randomized Controlled Trial	Jmir Mhealth And Uhealth	Fully automated, push-based, multiple-sessions alcohol intervention delivered either by SMS or by email	Approximately 15% in both the SMS (19/136) and email groups (15/104) would have preferred the other mode of delivery. On the other hand, more students in the SMS group (46/229, 20.1%) stopped participating in the intervention during the 4-week period compared with the email group (10/193, 5.2%). In addition, 83.1% (113/136) in the SMS group stated that they read all or almost all the messages, compared with only 63.5% (66/104) in the email group	Sweden
2014	Bernhardsdottir, J., Champion, J. D., & Skärsäter, I.	The experience of participation in a brief cognitive behavioural group therapy for psychologically distressed female university students	Journal of Psychiatric and Mental Health Nursing	Cognitive-behavioral group therapy for psychological distress in female university students	Participants reported positive outcomes, especially a more balanced thinking, more self-confidence and an improvement in depth reflections skills	Iceland
2014	Epton, T., Norman, P., Dadzie, A. S.,	A theory-based online health behaviour intervention for new	Bmc Public Health	Theory-based online health behavior intervention, based on self-affirmation	The intervention had a statistically significant effect on smoking status at 6-month follow-up,	United Kingdom

	Harris, P. R., Webb, T. L., Sheeran, P., … Shah, I.	university students (U@Uni): results from a randomised controlled trial		theory, Theory of Planned Behaviour and implementation intentions	with fewer smokers in the intervention arm (8.7%) than in the control arm (13.0%)	
2014	Härkäpää, K., Junttila, O., Lindfors, O. & Jarvikoski, A.	Changes in studying abilities as perceived by students attending psychotherapy	British Journal Oof Guidance & Counselling	Rehabilitative psychotherapy: short-term solution-focused therapy, short-term psychodynamic psychotherapy and long-term psychodynamic psychotherapy with the aim to support the study process	The results of this study showed many kinds of positive changes in the psychological resources and studying ability of students participating in psychotherapy; when psychotherapy is arranged with the aim to support the study process, good connections between psychotherapy, study tutoring and career guidance are needed	Finland
2014	Monti, F., Tonetti, L., & Ricci Bitti, P. E.	Comparison of cognitive-behavioural therapy and psychodynamic therapy in the treatment of anxiety among university students: an effectiveness study	British Journal of Guidance & Counselling	Cognitive-behavioral (CBT) and psychodynamic (PDT) therapies in the treatment of anxiety	Results showed that both treatments led to a significant decrease in students' anxious symptomatology	Italy
2014	Ouweneel, E., Le Blanc, P. M., & Schaufeli, W. B.	On Being Grateful and Kind: Results of Two Randomized Controlled Trials on Study-Related Emotions and Academic Engagement	Journal of Psychology	Two positive interventions aimed at increasing general happiness, modified for the academic context. These interventions focused on thoughts of gratitude and acts of kindness, respectively	The gratitude intervention showed a significant positive effect on daily positive emotions only, while the kindness intervention showed a positive influence on both positive emotions and academic engagement, though not in the long run. Results showed no effects on negative emotions in either of the two interventions	Netherlands
2013	Bernhardsdottir, J., Vilhjalmsson, R., & Champion, J. D.	Evaluation of a brief Cognitive Behavioral Group Therapy for Psychological Distress among Female Icelandic University Students	Issues in Mental Health Nursing	Four sessions cognitive-behavioral group therapy	Students in the intervention group experienced significantly lower levels of depression and anxiety symptoms compared to the control group post-test	Iceland
2013	Bewick, B. M., West, R. M., Barkham, M., Mulhern, B., Marlow, R., Traviss, G., & Hill, A. J.	The effectiveness of a Web-based personalized feedback and social norms alcohol intervention on United Kingdom university students: randomized controlled trial	Journal of Medical Internet Research	Web-based intervention, providing instant personalized feedback on alcohol consumption	Participants who completed assessments showed a reduced alcohol consumption. Further reductions were found for those allocated to receive the intervention, and additional reductions were predicted as the number of visits to the intervention website increased	UK

2013	Ciucur, D.	A Transactional Analysis Group Psychotherapy Programme for Improving the Qualities and Abilities of Future Psychologists	Procedia Social and Behavioral Sciences	Transactional Analysis Group Psychotherapy Programme, aimed at improving psychology students' abilities connected to their profession	The implementation of the Programme contributed to increase psychology students' qualities and abilities necessary for working as psychologists. Statistically significant differences were also found within other psychological traits, which were not initially included among the specific qualities and abilities of the profession of psychologist: Self Acceptance (z=-2.062, p .05, (p=.039) and Creativity (z=-2.355, p .05, (p=.019)	Romania
2013	Horgan, A., McCarthy, G., & Sweeney, J.	An evaluation of an online peer support forum for university students with depressive symptoms	Archives of Psychiatric Nursing	Depression peer-support Web site	Results showed no statistical significance between pre-/post-test	Ireland
2013	Monti, F., Tonetti, L., & Ricci Bitti, P. E.	Effectiveness of psychological treatments delivered at a counseling service for students	Psychological Reports	Four sessions of psychological consultation, follow by a psychotherapeutic treatment if needed	Significant improvements were observed after therapy in depression, somatization, and hostility-irritability	Italy
2013	Sharry, J., Davidson, R., McLoughlin, O., & Doherty, G.	A Service-Based Evaluation of a Therapist-Supported Online Cognitive Behavioral Therapy Program for Depression	Journal of Medical Internet Research	Online, therapist-supported, cognitive-behavioral program for depression. The program was specifically designed to address engagement issues, most notably by integrating online therapist support and communication within the platform	Results showed a statistically significant ($p < .001$) decrease in self-reported depressive symptomatology from pre-intervention (BDI-II mean = 25.47) to post-intervention (BDI-II mean = 15.53) with a large effect size (d=1.17)	Ireland
2012	Ostafin, B. D., & Palfai, T. P.	When wanting to change is not enough: automatic appetitive processes moderate the effects of a brief alcohol intervention in hazardous-drinking college students	Addiction Science & Clinical Practice	Single-session intervention designed to increase motivation to reduce alcohol consumption	Compared with the control group, those in the intervention condition showed higher readiness to change drinking at the end of the baseline session but did not show decreased drinking quantity at follow-up. Automatic alcohol-approach associations moderated the effects of the intervention on change in drinking quantity. Among participants in the intervention group, those with weak automatic alcohol-approach associations showed greater reductions in the amount of alcohol consumed per occasion at follow-up compared with those with strong automatic alcohol-approach associations	Netherlands

2012	Richards, D., Timulak, L., & Hevey, D.	A comparison of two online cognitive-behavioural interventions for symptoms of depression in a student population: The role of therapist responsiveness	Counselling and Psychotherapy Research	8-weekly sessions of a self-administered online cognitive-behavioral treatment (cCBT; n = 51) and a therapist-assisted email cognitive-behavioral treatment for student with symptoms of depression. Psychological evaluation was completed at weeks 2, 4, and 6	For both groups, pre-post within group effect sizes reported were large for depression and clinical outcomes, and these were maintained at follow-up. Perception of working alliance was similar in each group, but bond was significantly stronger for the eCBT condition. Working alliance correlated more positively with the outcome on depression for those in the eCBT condition than the cCBT condition, but not significantly	Ireland
2012	Vázquez, F. L., Torres, A., Blanco, V., Díaz, O., Otero, P., & Hermida, E.	Comparison of relaxation training with a cognitive-behavioural intervention for indicated prevention of depression in university students: a randomized controlled trial	Journal of Psychiatric Research	Relaxation training (RT) vs. cognitive-behavioral program (CBT) aimed at preventing depression in students with elevated depressive symptoms	Anxiety symptoms were significantly improved by both interventions at 3-months follow-up and by CBT also at 6-months follow-up. In the medium term (3–6 months), RT produced similar reductions in depressive and anxiety symptoms as a more complex CBT program	Spain
2012	Vassilopoulos, S. P., & Brouzos, A.	A pilot person-centred group counselling for university students: Effects on social anxiety and self-esteem.		Cognitive-behavioral and psychodynamic counselling	At post treatment, all students improved both in terms of well-being and distress, regardless of the type of psychotherapy received. This improvement emerged both by students' self-reported and clinicians' evaluations	Italy
2011	Lindenberg, K., Moessner, M., Harney, J., McLaughlin, O., & Bauer, S.	E-health for individualized prevention of eating disorders	Clinical Practice and Epidemiology in Mental Health	Internet-based program aimed at preventing eating disorders (ED) in college students	Results showed that support could be matched to individual requirements by providing Internet-delivered stepped-care modules that encouraged the user to seek support according to their personal preferences and needs	Ireland
2011	Schuck, K., Keijsers, G. P., & Rinck, M.	The effects of brief cognitive-behaviour therapy for pathological skin picking: A randomized comparison to wait-list control	Behaviour Research and Therapy	Four-sessions cognitive-behavioral treatment for college students suffering from pathological skin picking	Participants in the treatment condition showed a significantly larger reduction on all measured variables in comparison to the waiting-list condition. The obtained effect sizes for the outcome measures were large, ranging from .90 to 1.89. Treatment effects were maintained at follow-up	Netherlands
2010	Bewick, B. M., West, R., Gill, J., O'May, F., Mulhern, B.,	Providing web-based feedback and social norms information to reduce student alcohol	Journal of Medical Internet Research	Web-based intervention for student alcohol use	Results showed an effect of assessment across time, as students who completed at least 2 assessments more likely reduced their drinking. Moreover, being assigned to an intervention arm showed an effect that increased across time.	UK

	Barkham, M., & Hill, A. J.	intake: a multisite investigation			Being male or being assigned to an intervention arm increased the odds of not completing all assessments. The number of units of alcohol consumed over the last week at registration, age, university educational institution, and readiness to change were not predictive of completion	
2010	Koutra, A., Katsiadrami, A., & Diakogiannis, G.	The effect of group psychological counselling in Greek university students' anxiety	European Journal of Psychotherapy and Counselling Counselling and Health	Eight, two-hour weekly sessions group psychological counselling program based on Cognitive-Behavioral Group Therapy on university students' anxiety, depression, and self-esteem	Results showed meaningful differences in state and trait anxiety, depression and self-esteem from pre-treatment to post-treatment	Greece

5.2.1 Counselling and group counselling

Hofmann and colleagues (2015) suggested that integrative counseling is effective in reducing psychopathology and distress as well as in restoring satisfaction with life and studies. Moreover, a study conducted by Strepparava and colleagues (2015) explored the effectiveness of cognitive-relational intervention administered in an Italian university counselling service, considering a sample of 45 undergraduate students, which showed a significant pre- and post-intervention reduction in self-reported psychopathological symptoms as well as in general levels of distress. The effectiveness of counseling programs was confirmed by McKenzie and colleagues (2015) in students with self-reported academic issues. Counselling was found to result in clinically significant change for 40% of those students reporting academic issues. Biasi and colleagues (2017) explored the effectiveness of counselling intervention in enhancing students' academic success. Students were randomly assigned to either an experimental group (66 students) or a waitlist comparison group (44 students). Such intervention led to a statistically significant decrease in internalizing and externalizing problems, distress symptoms and relationship difficulties. Compared with the control group, students who completed counselling exhibited a significant recovery regarding their progress with their studies. Consistently, Østergård and colleagues (2019) found that the Danish Student Counseling Service was effective in decreasing symptomatic distress in highly distressed student clients. Counseling seemed to be effective even with improving mentalization in university students: Esposito and colleagues (2020) explored two group counselling interventions aimed at promoting mentalization in underachieving university students, and found improvements in both mentalization and academic performance. Moreover, Maselli and colleagues (2019) compared students randomly assigned to three intervention groups: (a) individual counselling sessions (based on the social cognitive theory and the transtheoretical model of behavior change) via videoconferencing calls; (b) wearable Physical activity (PA) monitors designed to motivate to PA; and (c) no intervention. Students in the individual counselling group increased self-reported energy expenditure between T0 and T1, and maintained this improvement at T2. On the contrary, no significant differences were found in the group of students who used the PA monitors as well as in the control group. Finally, Vassilopoulos and Brouzos (2012) investigated a person-centered group counselling intervention as a setting in which students could experience an accepting and safe environment, where they could risk being themselves and talk about their concerns without fear of ridicule or rejection. As a result, students reported feeling better about themselves and establishing more healthy relationships with students' family members and other important people in their lives.

5.2.2 Psychodynamic interventions

The effectiveness of psychodynamic interventions on university students was investigated only in six Italian studies. Vescovelli and colleagues (2017) investigated and compared the feasibility and clinical utility of cognitive-behavioral and psychodynamic psychotherapy in improving students' mental health, using self-report and observer-report measures. At post-treatment, all students improved in well-being and distress regardless of the type of psychotherapy received. This improvement emerged both in self-report measures and in clinicians' evaluations. Consistently, Monti and colleagues (2014) compared the effectiveness of cognitive-behavioral (CBT) and psychodynamic (PDT) therapies for students' anxiety, finding lower distress at the end of treatment regardless of the type of intervention. Moreover, Monti and colleagues (2013) evaluated the effectiveness of psychodynamic psychotherapy in 226 students, assessing their distress before and after the treatment. Specifically, significant improvements were observed on depression and anxiety. Another study conducted by Monti and colleagues (2016) evaluated the short-term effectiveness of psychodynamic psychotherapy through a single group longitudinal study including a six-month follow-up. Compared to pre-treatment, significant improvements were observed both after therapy and at the six-month follow-up. Furthermore, no significant differences were observed between the end of psychotherapy and the follow-up. Likewise, Cerutti and colleagues (2020) explored the effectiveness of a brief psychodynamic intervention. First, they found that students who dropped out at the follow-up had slightly higher baseline scores regarding thoughts, intrusive feelings, and rule-breaking behavior, especially concerning aggressivity. Moreover, students reporting higher somatic complaints, depressive symptoms, and withdrawal at T1 showed a steeper decrease of such scores at the follow-up. For the group regarding psychodynamic consultation, Amodeo and colleagues (2017) found that a six-session intervention helped final-year undergraduates in clinical psychology courses feel more capable of managing their lives and more open to new experiences. The intervention also encouraged them to experience their relationships as more positive and satisfying, to believe that their life was meaningful, and to achieve greater self-acceptance. Group psychodynamic intervention also reinforced students' educational choice.

5.2.3 Cognitive-behavioral interventions

Many articles focused on cognitive-behavioral individual or group psychotherapy (CBT). Rozental and colleagues (2018) explored the effects of eight weeks of self-guided CBT via the Internet (ICBT) vs. eight weeks of group CBT in reducing students' procrastination. Their results showed

large within-group effects on procrastination, and small to moderate benefits for depression, anxiety, and well-being. In total, the 33.7% of participants showed symptoms of improvement at post-treatment, and 46.7% at the follow-up. No differences between interventions were observed after the treatment period; however, participants in the CBT group continued or maintained their improvement at the follow-up, while participants in self-guided ICBT showed some signs of deterioration. Likewise, Bernhardsdottir and colleagues (2013) compared a group of students receiving four sessions of cognitive-behavioral group therapy delivered by two advanced practice psychiatric nurses to a control group. They found that students in the intervention group experienced significantly lower levels of depression and anxiety compared to the control group at post-test. Reiss and colleagues (2019) explored group treatment for test anxiety, considering cognitive-behavioral therapy including relaxation techniques, cognitive-behavioral therapy including imagery rescripting, and a moderated self-help group (SH). Each intervention comprised three-hour weekly group sessions over a period of five weeks. In all treatment groups, self-reported state anxiety in a stressful socially evaluative situation decreased after treatment. Yet, another study conducted by Reiss and colleagues (2017) evaluated an intervention program comprising elements of cognitive-behavioral treatments and skill-focused techniques, additionally supplemented by relaxation techniques. The randomized controlled design comprised three groups that received test anxiety treatment in three-hour weekly sessions over a period of five weeks. Results revealed a significant reduction of test anxiety from baseline to six-month follow-up in all three treatment groups. The trial conducted by Vázquez and colleagues (2012) compared the results of a group relaxation training (RT) with that of a cognitive-behavioral group intervention aimed at preventing depression in university students with high depressive symptoms. Both programs were administered to groups of five or six participants in eight 90-minute weekly sessions. The intervention type had no significant effect on either depression or anxiety. Moreover, anxiety and depression were lower at the follow-up compared to pre-intervention scores. In particular, anxiety symptoms were significantly improved by both interventions at the three-month follow-up, and by only CBT at the six-month follow-up. However, in the medium term (three to six months), RT produced similar reductions in depressive and anxiety symptoms as CBT. Thorgeirsdottir and colleagues (2015) explored the differences in group climate development in brief cognitive-behavioral group therapy (CBGT) and brief group psychotherapy (GPT) for students with a primary diagnosis of social anxiety disorder, randomly assigned to either of the two treatment conditions. Each intervention consisted of eight 2-hour weekly sessions. Results showed that throughout the sessions, engagement increased, avoidance decreased, and conflict was overall low. There was less conflict in the CBGT group compared with the GPT group. Bernhardsdottir and

colleagues (2014) described the experience of a four-session cognitive-behavioral group therapy focused on distress for female university students. Participants reported positive outcomes, especially regarding more balanced thinking, more self-confidence, and an improvement in depth reflections skills. Koutra and colleagues (2010) investigated the effect of a group psychological counselling program on university students' anxiety, depression, and self-esteem. The intervention was based on Cognitive-Behavioral Group Therapy (CBGT) and included cognitive and behavioral techniques in eight two-hour weekly sessions. Results indicated that the program was effective in significantly decreasing participants' state and trait anxiety and depressive symptoms as well as in increasing their self-esteem. Martín-Pérez and colleagues (2019) showed that brief group-delivered Motivational Intervention (MI) is as effective as brief-group CBT in reducing alcohol use among college students. Students with risky alcohol use were assigned to two groups receiving three sessions of either brief group-delivered MI or CBT. Alcohol use decreased in both groups at the three- and six-month measurement points compared to baseline. Moreover, the study of Thorisdottir and colleagues (2018) examined sudden gains (i.e., large symptom improvements between adjacent treatment sessions) and their association with treatment outcome in a randomized controlled trial comparing cognitive-behavioral group therapy with group psychotherapy for social anxiety disorder. Sudden gains appeared at similar rates across both treatments but were associated with greater improvements at post-treatment and follow-up in group psychotherapy compared to cognitive-behavioral group therapy. Marrero and colleagues (2016) designed positive intervention combined with cognitive-behavioral therapy to enhance subjective and psychological well-being in a convenience sample compared to no-treatment waiting-list controls. The intervention group reported greater social support after the treatment period than the waiting-list control group. In the intervention group, within-group differences were found for happiness, self-acceptance, positive relations with others, optimism, and self-esteem. CBT proved to also be effective in reducing stress. Terp and colleagues (2019) evaluated a 10-week CBT-based stress management program, showing a positive effect of the training program compared to a control group. Students' perceived stress management competency, self-efficacy, and self-esteem were higher one year after the intervention. Moreover, Larsson and colleagues (2016) compared cognitive restructuring and cognitive defusion techniques aimed at coping with a personally relevant negative thought. Findings indicated that defusion lowered believability, increased comfort, and willingness to have the target thought, and increased positive affect significantly more than control and cognitive restructuring. Within groups, cognitive restructuring also made significant gains in target thought discomfort, negativity, and willingness to have in the same direction as defusion, but the no-instruction control did not. Negative thought frequency was

reduced in the defusion group, maintained in the restructuring group, and increased in the no-instruction control group. Van der Oord and colleagues (2020) tested the effectiveness of a six-session individual cognitive-behavioral planning intervention for college students with attention-deficit/hyperactivity disorder. Specific treatment effects were found only for what concerned inattention. Finally, one study focused on students with dermatologic issues. Schuck and colleagues (2011) explored the effectiveness of a four-session cognitive-behavioral treatment on college students suffering from pathological skin picking. Participants in the treatment condition showed a significantly larger reduction on all measured variables compared to the waiting-list condition. Treatment effects were maintained at follow-up.

5.2.4 Other psychological interventions

Biolcati and colleagues (2017) assessed the therapeutic efficacy of analytical psychodrama groups for college students with psychological problems. Results demonstrated the efficacy of a 40-week session intervention in terms of symptom decrease and improvement of patients' well-being. After the treatment, patients showed a statistically significant reduction in clinical outcome scores compared with pre-treatment scores. Ouweneel and colleagues (2014) examined the potential of positive psychological interventions (gratitude intervention vs. kindness intervention) to enhance study-related positive emotions and academic engagement, and to reduce study-related negative emotions. Results revealed that the gratitude intervention had a significant positive effect on daily positive emotions only, while the kindness intervention had a positive influence on both positive emotions and academic engagement, though not in the long run. McCarthy and colleagues (2018) focused on coping skills and supported the effectiveness of the psycho-educational intervention, "Coping with Stressful Events", with first-year undergraduate nursing and midwifery students. Moreover, Victor and colleagues (2017) evaluated the "Personal Model of Resilience" (PMR) intervention, finding that, compared with the control group, the PMR group showed a significant decrease in distress and significant improvements in protective factors and quality of life. Krispenz and Dickhäuser (2018) described an inquiry-based short intervention focused on individual worries. After the intervention, two days later, participants demonstrated significantly lower test anxiety than participants from the pooled control group. Rose and colleagues (2018) evaluated the feasibility and acceptability of a six-session intervention based on compassion-focused therapy to reduce self-criticism. Twenty-three participants with high levels of self-criticism received six individual weekly treatment sessions and a two-month follow-up appointment. Results showed

statistically significant improvements between pre- and post-intervention for self-criticism, functional impairment, mood, self-esteem and maladaptive perfectionism, with medium to large effect sizes at both post-intervention and follow-up. Gains were maintained or increased between post-treatment and two-month follow-up. Moreover, Binder and colleagues (2019) investigated a three-session self-compassion course. Participants experienced that they were more supportive and friendlier toward themselves when things were difficult or painful, having begun a process of treating themselves better in everyday life. As part of this process, they became more aware of how harshly they used to treat themselves in difficult situations. Many participants also described that their experience of painful emotions changed, both finding more relief in the fact that suffering is part of the human condition, and increasing their acceptance of uncomfortable feelings. As a result, many participants also felt more stable, peaceful, and better able to cope with the everyday pressures and challenges in their student and personal lives. Moreover, Matteucci (2017) evaluated the effectiveness of an Attributional Retraining (AR) technique aimed at restructuring college students' dysfunctional causal explanations of poor performance and to explore whether achievement goals predicted the use of adaptive causal attributions. Results confirmed the effectiveness of AR treatment in restructuring self-defeating stable attributional explanations and suggested that achievement goals are implicated in the adoption of adaptive causal dimensions. Marksteiner and colleagues (2019) examined the effectiveness of a brief psychological intervention aimed at reducing social disparities in the sense of belonging. The intervention consisted of a brief reading-writing exercise, teaching that worries about belonging are common among freshmen and diminish over time. For students without a migration background, the intervention had lasting positive effects on belonging, while for students with a migration background, the positive effect diminished over time, and students in the intervention group experienced less fluctuation and lower levels of depression symptoms than in the control group. Moreover, Pinto and colleagues (2015) explored the Career Self-Management Seminar, considering the versions for both undergraduate students and postgraduate students. Results demonstrated a significant increase in most of the cognitive, behavioral, and affective career exploration dimensions in both groups. Otermin-Cristeta and Hautzinger (2018) developed a six-meetings intervention based on behavioral and cognitive techniques, paradox intervention, and psychoeducation aimed at overcoming general procrastination in college students. Results showed a significant improvement after the intervention; after three months, the average score was still significantly lower than in the pretest, whereas the score of the control group remained unchanged. Likewise, a qualitative study (Härkäpää et al., 2014) underlined that students in psychotherapy showed many positive changes in their psychological resources and studying ability. Ciucur (2013) assessed if a 12-session

Transactional Analysis Group Psychotherapy Programme would improve psychology students' tolerance, psychological mindedness, emotional self-control, empathy, sociability, amicability, and self-satisfaction. Only self-satisfaction and psychological mindedness increased after the intervention. Regarding alcohol use, Ostafin and Palfai (2012) examined the efficacy of a single-session intervention designed to increase motivation to reduce alcohol consumption. Compared with the control group, those in the intervention condition showed higher readiness to change their drinking consumption at the end of the baseline session, but did not show decreased drinking quantity at follow-up. Likewise, McClatchey and colleagues (2017) explored whether an Alcohol Brief Intervention would be effective in reducing hazardous alcohol consumption compared to an alcohol information leaflet. Participants assessed as higher risk drinkers were randomly assigned to receive an Alcohol Brief Intervention or an information leaflet. Alcohol consumption and alcohol use disorders significantly decreased in both groups post-intervention, with no differences between the groups. Clarke and colleagues (2015) investigated the effect of a 10-minute personalized feedback intervention (BPI), compared to an active control intervention, on alcohol consumption, frequency of binge drinking, and readiness to change. At a two-week follow-up, both groups significantly reduced their alcohol consumption and frequency of binge drinking, but there were no significant group differences in either of these measures. Finally, two studies investigated intervention involving animals. Grajfoner and colleagues (2017) investigated the effect of a short, 20-minute dog-assisted intervention on students' well-being, mood, and anxiety. Participants in the experimental condition interacted with both the dogs and their handlers, whereas the control groups interacted with either the dog only or the handler only. Conditions in which a dog was present led to significant improvements in mood and well-being as well as a significant reduction in anxiety. Moreover, Wood and colleagues (2018) found a significant reduction of stress and blood pressure immediately after pet therapy.

5.2.5 Mindfulness

Research widely explored the benefits of mindfulness for a variety of clinical and nonclinical populations, and there is a growing interest in the potential of mindfulness in higher education. Galante and colleagues (2018) assessed whether the provision of mindfulness courses to university students would improve their resilience to stress. Findings showed that provision of mindfulness training adapted for university students (Mindfulness Skills for Students) could be an effective component of a wider student mental health strategy. In line with this study, Lynch and colleagues

(2018) explored the effectiveness of the Mindfulness-Based Coping with University Life (MBCUL) intervention, an adaption of the Mindfulness-Based Stress Reduction (MBSR) intervention, specifically targeted to university students. Results showed a significant decrease in anxiety, depression, and perceived stress in the MBCUL group compared to controls. Consistently, Ştefan and colleagues (2018) investigated the effectiveness of a six-week MBSR program in a sample of college students at risk for social anxiety. Results showed that MBSR led to significant reductions in social anxiety and perceived stress. In addition, significant post-intervention differences in favor of the MBSR group compared to the waitlist control group were found for self-compassion and acceptance, but not for positive reinterpretation. Another study focused on stress reduction on university students (Halland et al., 2015) found that students receiving a seven-week MBSR program increased their use of problem-focused coping compared to the control group. Moreover, students with high scores on neuroticism benefitted from the intervention in terms of reduced avoidance-focused coping and an increase in seeking social support compared to the control group. Gallego and colleagues (2015) investigated whether mindfulness training could lead to significant changes in depression, anxiety, and stress compared to a physical activity program and a control group. Results indicated greater effects for the mindfulness group than for the physical education group and for the control group. Other studies investigated interventions including only some aspects of mindfulness. Shuai and colleagues (2020) tested whether a brief training in one component of mindfulness (i.e., breath counting) would reduce drinkers' sensitivity to the effect of noise stress on subjective mood and alcohol-seeking behavior. Results showed that compared to the control group, breath counting improved subjective mood, attenuated the worsening of subjective mood produced by stress induction, and accelerated recovery from a stress induced increase in alcohol-seeking behavior. Moreover, Haukaas and colleagues (2018) compared a three-session Attention Training Technique (ATT) intervention and a three-session Mindful Self-Compassion (MSC) intervention. More specifically, ATT is a 12-minute auditory exercise aimed at strengthening attentional control and promoting external attention focus, while MSC uses guided meditation and exercises aimed at promoting self-compassion. Participants in both groups showed significant reductions in symptoms of anxiety and depression, accompanied by significant increases in mindfulness, self-compassion, and attention flexibility post-intervention. These results were maintained at the six-month follow-up. Improvement in attention flexibility was the only significant predictor of treatment response. Finally, Recabarren and colleagues (2019) investigated the short-term effects of a multidimensional stress prevention program on students' quality of life, psychological symptoms and resources, and resilience factors against stress. The intervention group participated in a multidimensional stress prevention program, integrating mindfulness-based

activities, cognitive and behavioral strategies, social skills, and emotional regulation exercises. Students who participated in the intervention program compared to the control group showed significant reduction of psychological symptoms, including anxiety, interpersonal problems, and symptoms of pain as well as a significant increase in quality of life, sense of coherence, and self-compassion. No significant results were found for symptoms of depression, social anxiety, self-efficacy, and social support.

5.2.6 Online interventions

Universities are challenged more than ever to provide services that are easily accessible as well as cost-effective and that meet the broad range of needs of student populations with both a preventative and therapeutic scope. In recent years, online interventions have been increasing due to easy accessibility and cost-effectiveness. Räsänen and colleagues (2016) examined the effectiveness of online Acceptance and Commitment Therapy (iACT) aimed at enhancing the well-being of university students. Results showed that iACT participants had significantly higher gains in well-being, life satisfaction and mindfulness skills than the control group in a waiting list control condition. A study by Turner and colleagues (2020) showed that self-reported stress and symptoms of depression were significantly reduced in iACT participants compared to the control group. A randomized controlled pilot trial conducted by Kvillemo and colleagues (2016) explored the feasibility, usability, acceptability, and outcomes of an eight-week Internet-based mindfulness training program. Participants were randomly assigned to either an intervention or an active control condition. There was no statistically significant stronger intervention effect for the mindfulness intervention compared to the active control intervention. However, those completing the mindfulness program reported high satisfaction with the program. Consistently, Epton and colleagues (2014) assessed the efficacy of a theory-based online health behavior intervention among freshmen. The intervention showed a statistically significant effect on smoking status at the six-month follow-up, with fewer smokers in the intervention arm. A research conducted by Cameron and colleagues (2015) indicated that such intervention had significant effects on having smoked at a university (self-report) and on a biochemical marker of alcohol use. Lindenberg and colleagues (2011) examined an online forum that allows peer support among participants and chat sessions with an online counselor. Results suggested that support could be matched to individual requirements by providing internet-delivered stepped-care modules that encouraged the user to seek support according to their personal preferences and needs. Moreover, Richards and colleagues (2016) examined the impact of an internet-delivered CBT intervention called Calming Anxiety.

Both treatment and waiting list conditions displayed significant decreases in anxiety symptoms post-treatment, but did not have a significant between-group effect. Significant within-group differences from pre to post time points were observed for depression as well as work and social functioning, and between-group differences were also significant for depression and functioning. Likewise, Cook and colleagues (2019) tested whether guided Web-based Rumination-focused Cognitive Behavioral Therapy (i-RFCBT) would prevent the incidence of major depression compared to usual care. Guided i-RFCBT reduced the risk of depression compared to usual care, and participants with higher levels of baseline stress benefited most from the intervention. In addition, significant improvements in rumination, worry, and depressive symptoms were found in the short- to medium-term. Consistently, Sharry and colleagues (2013) focused on an online, therapist-supported, CBT-based program for depression. After the intervention, a statistically significant decrease in depressive symptomatology was observed. Moreover, Saleh and colleagues (2018) examined the efficacy of a four-session Internet-based stress management program based on cognitive-behavioral therapy. Results revealed significant effects of the intervention over time in the experimental group. Effects were observed at both the post-intervention and follow-up stages for self-esteem, perceived stress, satisfaction in studies, and in the somatic symptoms, anxiety and insomnia and severe depression. On the contrary, research conducted by Horgan and colleagues (2013) explored an online peer support intervention for students experiencing depressive symptoms, showing no statistically significant differences between pre- and post-intervention. Kählke and colleagues (2019) focused on social anxiety and evaluated the efficacy of an unguided nine-session Internet- and mobile-based intervention (IMI), "StudiCare SAD", for university students with social anxiety disorder. Results indicated moderate to large effect sizes in favor of StudiCare SAD compared to waitlist controls. In addition, Bruijniks and colleagues (2019) investigated whether four weekly sessions of online Problem-Solving Therapy (PST) could improve memory for the content of therapy sessions, which might increase the effects of psychological interventions. Results showed that retrieval led to overall higher recall, but this difference disappeared when controlling for the time spent on retrieval versus rehearsal. Retrieval did not lead to better problem-solving skills or less distress, compared to rehearsal. Moreover, many studies focused on unhealthy alcohol use, an important cause of concern for educational institutions, especially since help-seeking behavior for alcohol use is low among students. Canale and colleagues (2015) described the development and initial pilot testing of computer-delivered intervention tailored to drinking motives, aimed at preventing alcohol abuse and its adverse consequences among university students in general and among baseline hazardous drinkers specifically. For hazardous drinkers at baseline, the intervention showed a significant decrease in frequency and

quantity of alcohol use at follow-up, while no difference was observed between intervention conditions for non-hazardous drinkers at baseline. Likewise, Bewick, West and colleagues (2010) evaluated the effectiveness of web-based intervention for students' alcohol use, finding that delivering electronic personalized feedback intervention to students via the Internet can be effective in reducing weekly alcohol consumption. Thus, in another research, Bewick (2013) evaluated the effectiveness of Unitcheck, a web-based intervention providing instant personalized feedback on alcohol consumption and found that self-monitoring was an active component in web-based personalized feedback. Moreover, a study conducted by Tello and colleagues (2018) tested a brief computer-delivered intervention based on evaluative conditioning (EC). EC reduced drinking behavior, and this effect was especially pronounced among participants with the most positive implicit evaluation of alcohol before the intervention. Finally, Norman and colleagues (2018) investigated whether (1) messages that target key beliefs that underlie binge drinking based on the theory of planned behavior (TPB), (2) a self-affirmation manipulation to reduce defensive processing, and (3) implementation intentions reduced alcohol consumption in the first six months of higher education. Students who received TPB messages showed significantly less favorable cognitions about binge drinking, consumed fewer units of alcohol, engaged in binge drinking less frequently, and had less harmful patterns of alcohol consumption during their first six months at university.

5.2.7 App and mobile interventions

During the last years, there was an increasing number of app and mobile phone interventions. Broglia and colleagues (2019) explored the guided use of a mobile phone well-being app introduced into a student counseling service and offered as an adjunct to face-to-face counseling. The trial used a two-arm, parallel non-randomized design comparing counseling alone (treatment as usual, or TAU) vs. counseling supplemented with guided use of a mobile phone well-being app (intervention) for 38 university students experiencing moderate anxiety or depression. Both groups demonstrated reduced clinical severity by the end of counseling, especially for depression, social anxiety, and hostility, whereby clients moved from elevated clinical to low clinical, or from low clinical to nonclinical by the end of the intervention. By the six-month follow-up, TAU clients' anxiety had increased whereas intervention clients' anxiety continued to decrease. A similar decrease in students' levels of depression was found at the six-month follow-up. In line with this data, a randomized controlled trial conducted by Harrer and colleagues (2018) evaluated the

efficacy of an app-supported stress management intervention. Findings indicated significant effects of the intervention compared with the waitlist control group for stress, anxiety, depression, college-related productivity, and academic work impairment at post-treatments. Effects were maintained at three-month follow-up. Ponzo and colleagues (2020) tested the efficacy of a mobile app (BioBase) and a paired wearable device (BioBeam) compared with a waitlist control group on anxiety and well-being among university students with elevated levels of anxiety and stress. Results showed that a four-week intervention with the BioBase program significantly reduced anxiety and increased perceived well-being, with sustained effects at two-week follow-up. Furthermore, a significant reduction in depression levels was found following the four-week usage of BioBase. Richards and colleagues (2012) investigated the efficacy of eight weekly sessions of a self-administered online CBT compared to a therapist-assisted email CBT. Results showed no significant differences between the two online treatments, both in reducing depressive symptoms and improving general functioning. Similarly, at post-treatment and follow-up, clinical improvement and recovery was found in both groups equally. Moreover, Pérez-Jorge and colleagues (2018) evaluated the effects of the use of mobile learning communication using WhatsApp in the academic monitoring, counseling, and tutoring of university students. Results showed an improvement in time efficiency, planning and organization as well as in active learning, decision making and motivation. Bendtsen and colleagues (2020) estimated the effect of a fully automated mobile intervention (mHealth) on positive mental health, anxiety, and depression. At follow-up, positive mental health was significantly higher in the intervention group compared with the control group, while depression and anxiety were significant. Noone and Hogan (2018) tested the effects of online mindfulness intervention on executive function, critical thinking skills and associated thinking dispositions. Participants recruited were randomly allocated to either a mindfulness meditation group or a sham meditation group, and both interventions were delivered through the Headspace application, which provides guided meditations to users. Both groups were requested to complete 30 guided meditation sessions over a six-week period. Significant increases in mindfulness dispositions and in critical thinking scores were observed in both the mindfulness meditation and sham meditation groups. However, no significant effects of group allocation were observed. App psychological intervention also focused on alcohol consumption. Gajecki and colleagues (2017) evaluated the effects of a skills training app on excessive alcohol consumption. TeleCoach is a web-based app comprised of a main menu with two branches: (a) registration of alcohol consumption in standard glasses for each day of the past week, resulting in brief feedback and information on guidelines for hazardous drinking, and (b) a relapse prevention skills training menu. Results showed reductions in quantity of drinking at first follow-up and in frequency of

drinking at both follow-ups. Finally, Bendtsen and Bendtsen (2014) explored a fully automated, push-based, multiple-session alcohol intervention in a nontreatment-seeking group of university students, comparing two modes of delivering such intervention: by SMS text messaging or by email. No difference was found regarding satisfaction with the length and frequency of the intervention regardless of the mode of delivery. Approximately 15% in both the SMS and the email groups would have preferred the other mode of delivery. However, most students in both groups expressed satisfaction with the content of the messages and would recommend the intervention to a fellow student in need of reducing drinking. SMS interventions were also addressed to smoking cessation. Müssener and colleagues (2016) explored the effectiveness of a SMS Text-Based smoking cessation intervention, finding self-reported prolonged abstinence (not having smoked more than five cigarettes over the past eight weeks) and four-week point prevalence of complete smoking cessation shortly after the completion of the intervention (approximately four months after the quit date).

5.3 Discussion

In this changing world, higher education students have to face new challenges and develop new strategies in order to stay current with new demands. A notable amount of these young adults seek help, and over time, the provision of students' psychological services becomes an important professional issue throughout the world (Holm-Hadulla & Koutsoukou-Argyraki, 2015). Previous research underlined the effectiveness of counselling interventions (Benton et al., 2003) that often represent the first contact with a mental health service for students who would otherwise come to clinical attention much later. Students' counselling services are increasingly emerging as one of the most important sources of guidance and support for students and are progressively widening the number of approaches offered (Buchanan et al., 2012). However, only a few studies have focused on psychotherapeutic interventions, and most notably long-term interventions (Amodeo et al., 2020; Cerutti et al., 2020). Among those studies, a strong focus was placed on cognitive behavioral psychotherapy (CBT) (Martín-Pérez et al., 2019; Regehr et al., 2013; Rozental et al., 2018; Thorgeirsdottir et al., 2015, 2018; Van der Oord et al., 2020). On the contrary, only a small portion of studies focused on the effectiveness of psychodynamic psychotherapies, underlining significant improvements on students' depression and anxiety (Monti et al., 2013, 2014; Vescovelli et al., 2017). As it has been observed, university counselling and tutoring are crucial in higher education (Lobato & Guerra, 2014; Neville, 2007). Technological development and education internationalization

promoted the development of technological tools and applications, which gradually have been made available in students consulting services (Albaladejo et al., 2015; García, 2014; Garzozi, 2015; Gómez et al., 2015; Pérez-Jorge et al., 2018; Sanz, 2014). These new interventions have shown their effectiveness, especially in reducing distress, depression, and anxiety (Kvillemo, 2016; Richards et al., 2016; Turner et al., 2020). However, further and more extensive studies are needed to understand if such interventions are effective with different groups of higher education students and if they can lead to an improvement in mental health that lasts in the long term. Moreover, several studies focused on alcohol use among university students. Young adults with heavy alcohol consumption were more likely to experience both current and future alcohol-related problems. Besides, drinking was associated with risky behaviors, leading to negative academic, physical, and social consequences (Andersson et al., 2007; Engs et al., 1996; Heather et al., 2011). Research underlined the effectiveness of brief interventions in reducing blood alcohol concentrations (BAC), number of drinks per sitting, and number of drinks per week (Carey et al. 2007; Clarke et al., 2015; Schaus et al., 2009). Another recent response to the problem of heavy drinking among college students is the development of computer-delivered interventions (CDIs). In this regard, research underlined that feedback-based computerized interventions were effective for hazardous drinking students who were experiencing higher levels of alcohol-related consequences (Palfai et al., 2011). Moreover, computer-delivered interventions addressing drinking motives with the aim of preventing alcohol abuse and its adverse consequences among students were effective in reducing frequency and quantity of alcohol consumption (Bewick, West et al., 2010; Canale et al., 2015; Tello et al., 2018).

Chapter 6

STUDENTS' PSYCHOLOGICAL SERVICES IN EUROPE: A RETROSPECTIVE ANALYSIS

We conducted an explorative, comparative study (Corbetta, 2015a,b) aimed at mapping and comparing different models of clinical intervention addressed to higher education students in European Countries. In particular, we explored (a) the presence or absence of students' psychological services in different European areas; (b) the presence or absence of students' psychological services in different geographical areas, according to an institution's dimension, legal status and category; (c) the effects of an institution's dimension, legal status, category, and geographical area on the likelihood that it will have a student psychological center; and (d) the types of interventions that are provided in these centers.

6.1 Materials and methods

6.1.1 Data collection

To assess the presence of students' psychological centers and the services provided by them across Europe, we used a two-step search strategy. First, we searched the European Tertiary Education Register (ETER) (eter-project.com) to identify tertiary education institutions throughout the European area, including the 28 member states of the European Union (EU) at the time of our search, candidate countries, and potential candidates, as well as other countries in the European geographical area as long as they were featured in the ETER. The search interrogated 2016 and 2017 data, the latest that were available at the time the search was completed (the last search for any updates was carried out on September 1, 2020). A unique database was then created that combined 2016 and 2017 data and eliminated any duplicates.

Next, we searched each of our sample institutions' websites to collect information about the availability of student counseling centers and the services provided. When available, we screened the English version of the websites; otherwise, we screened the national language's version. The

website searches were performed by the author and two other judges [MDS[12] and GC[13]]; each website was independently accessed by two of them, and in cases of disagreement regarding a code, a third author was consulted.

6.1.2 Data analysis

Data analysis was carried out by utilizing a standardized data extraction form. The following data were extracted from the ETER database: ETER ID, national identifier, institution name, English institution name, number of students, legal status (in English), institution category (in English), and institutional website. Data extracted from institutions' websites concerned the availability of students' psychological centers and the services provided. Then, we added a category to cover the subregions of the European area based on the classifications provided by the United Nations geoscheme for Europe: Eastern Europe, Northern Europe, Southern Europe, and Western Europe. Turkey and Cyprus, which are included in the ETER, but are grouped into Western Asia in the United Nations geoscheme, were coded in this study as Middle Eastern Europe. Moreover, we added a category to discriminate between small institutions (up to 10,000 students), medium institutions (from 10,000 to 20,000 students), large institutions (from 20,000 to 40,000 students), and very large institutions (more than 40,000 students), following the categories provided by the Italian Centre for Social Investment Studies.

In addition, data was coded and analyzed using the SPSS Statistics software package (IBM Corp., Armonk, NY, USA), version 26. The statistical significance was set at $p \leq .05$. We performed descriptive statistics on data collected for each country and each European area. Differences in the presence versus absence of students' psychological centers according to an institution's dimension, legal status and category in different geographical areas were assessed through Chi-square tests. A logistic regression was performed to ascertain the effects of an institution's dimension, legal status, category, and geographical area on the likelihood that the institution would have a psychological center.

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6.2 Results

The process of extracting data from the ETER database resulted in 2,985 institutions. Table 36 shows the number of institutions mapped for every country and the countries included in every geographical area. Data will be presented as being grouped by geographical area.

Table 36. Descriptive statistics of the institutions mapped in each country for every geographical area

Geographical Area		***N***	***%***
Northern Europe	Denmark	33	5.97
	Estonia	25	4.52
	Finland	41	7.41
	Iceland	7	1.27
	Ireland	25	4.52
	Latvia	44	7.96
	Lithuania	43	7.78
	Norway	38	6.87
	Sweden	37	6.69
	UK	260	47.02
	Total	*553*	*100.00*
Eastern Europe	Bulgaria	52	9.17
	Czech Republic	65	11.46
	Hungary	53	9.35
	Poland	270	47.62
	Romania	95	16.75
	Slovakia	32	5.64
	Total	*567*	*100.00*
Western Europe	Austria	70	6.90
	Belgium	63	6.21
	France	389	38.33
	Germany	400	39.41
	Liechtenstein	1	.10
	Luxembourg	2	.20
	Netherlands	55	5.42
	Switzerland	35	3.45
	Total	*1015*	*100.00*
Southern Europe	Albania	40	6.22
	Croatia	37	5.75
	Greece	47	7.31
	Italy	216	33.59
	Macedonia	16	2.49
	Malta	2	.31
	Montenegro	10	1.56
	Portugal	95	14.77
	Serbia	46	7.15
	Slovenia	52	8.09
	Spain	82	12.75
	Total	*643*	*100.00*
Middle Eastern Europe	Cyprus	26	12.56
	Turkey	181	87.44
	Total	*207*	*100.00*
Total		**2.985**	**100**

6.2.1 European geographical areas

Our database search obtained 553 tertiary education institutions in Northern Europe, 567 in Eastern Europe, 1,015 in Western Europe, 643 in Southern Europe, and 207 in Middle Eastern Europe, for a total of 2,985 institutions mapped.

Table 37. Institution dimension, institution legal status and institution category distribution in each geographical area

		Dimension									
		Small		Medium		Big		Very big		ND	
		N	row %	N	row %	N	row %	N	row %	N	row %
Geographical Area	Northern Europe	368	66.55	103	18.63	52	9.40	2	.36	28	5.06
	Eastern Europe	398	70.19	42	7.41	24	4.23	2	.35	101	17.81
	Western Europe	530	52.22	87	8.57	82	8.08	19	1.87	297	29.26
	Southern Europe	466	72.47	68	10.58	53	8.24	28	4.35	28	4.35
	Middle Eastern Europe	100	48.31	31	14.98	35	16.91	33	15.94	8	3.86
Tot		*1862*	*62.38*	*331*	*11.09*	*246*	*8.24*	*84*	*2.81*	*462*	*15.48*

		Legal Status							
		Public		Private		Private government-dependent		ND	
		N	%	N	%	N	%	N	%
Geographical Area	Northern Europe	203	36.84	143	25.95	205	37.21	0	.00
	Eastern Europe	295	52.12	244	43.11	17	3.00	10	1.77
	Western Europe	646	64.47	206	20.56	87	8.68	63	6.29
	Southern Europe	339	55.57	248	40.66	22	3.61	1	.16
	Middle Eastern Europe	118	57.00	89	43.00	0	.00	0	.00
Tot		*1601*	*54.53*	*930*	*31.68*	*331*	*11.27*	*74*	*2.52*

		Institution Category							
		University		University of applied sciences		Other		ND	
		N	%	N	%	N	%	N	%
Geographical Area	Northern Europe	233	42.13	131	23.69	189	34.18	0	.00
	Eastern Europe	312	55.12	17	3.00	228	40.28	9	1.59
	Western Europe	454	44.95	359	35.54	133	13.17	64	6.34
	Southern Europe	418	68.52	96	15.74	94	15.41	2	.33
	Middle Eastern Europe	180	86.96	15	7.25	12	5.80	0	.00
Tot		*1597*	*54.21*	*618*	*20.98*	*656*	*22.27*	*75*	*2.55*

6.2.2 Institution dimension

As detailed in Table 37, in Northern Europe, we mapped 368 (66.55%) small institutions, 103 (18.63%) medium institutions, 52 (9.40%) large institutions, and 2 (.36%) very large institutions. In Eastern Europe, we found listings for 398 (70.19%) small institutions, 42 (7.41%) medium institutions, 24 (4.23%) large institutions, and 2 (.35%) very large institutions. Regarding Western Europe, there were records for 530 (52.22%) small institutions, 87 (8.57%) medium institutions, 82 (8.08%) large institutions, and 19 (1.87%) very large institutions. In Southern Europe, there were 466 (72.47%) small institutions, 68 (10.58%) medium institutions, 53 (8.24%) large institutions, and 28 (4.35%) very large institutions, while in Middle Eastern Europe, we mapped 100 (48.31%) small institutions, 31 (14.98%) medium institutions, 35 (16.91%) large institutions, and 33 (15.94%) very large institutions.

6.2.3 Legal statuses

As detailed in Table 37, in Northern Europe, we mapped 203 (36.84%) public institutions, 143 (25.95%) private institutions, and 205 (37.21%) private government-dependent institutions. In Eastern Europe, we found listings for 295 (52.12%) public institutions, 244 (43.11%) private institutions, and 17 (3.00%) private government-dependent institutions. Regarding Western Europe, there were records for 646 (64.47%) public institutions, 206 (20.56%) private institutions, and 87 (8.68%) private government-dependent institutions. In Southern Europe, there were 339 (55.57%) public institutions, 248 (40.66%) private institutions, and 22 (3.61%) private government-dependent institutions, while in Middle Eastern Europe, we mapped 118 (57.00%) public institutions and 89 (43.00%) private institutions.

6.2.4 Institution categories

As also shown in Table 37, in Northern Europe, we mapped institution category for 233 (42.13%) universities, 131 (23.69%) universities of applied sciences, and 189 other types of institutions (34.18%). For Eastern Europe, we found 312 (55.12%) universities, 17 (3.00%) universities of applied sciences, and 228 (40.28%) other types of institutions. In respect of Western Europe, there were listed 454 (44.95%) universities, 359 (35.54%) universities of applied sciences, and 133 (13.17%) other types of institutions. In Southern Europe, we found records for 418 (68.52%)

universities, 96 (15.74%) universities of applied sciences, and 94 (15.41%) other types of institutions. Lastly, in Middle Eastern Europe, there were 180 (86.96%) universities, 15 (7.25%) universities of applied sciences, and 12 (5.80%) other types of institutions.

6.2.5 Availability of counseling centers and services

We found available online data for 2,919 (97.79%) of the 2,985 institutions that we mapped (Table 38). As indicated in Table 39, most European institutions reported having psychological centers or providing associated students psychological services, $\chi^2 = 24.42$, $p < .001$. Nonetheless, there were statistically significant differences regarding the presence of such provision between the European geographical areas, $\chi^2 = 93.84$, $p < .001$. In particular, in Northern Europe, Western Europe and Middle-Eastern Europe, most of the institutions reported having a student psychological center (respectively, $\chi^2 = 69.77$, $p < .001$, $\chi^2 = 26.68$, $p < .001$, and $\chi^2 = 4.37$, $p = .037$). However, most of the Eastern institutions did not report such services on their websites ($\chi^2 = 15.08$, $p < .001$). In Southern Europe, there were equal numbers of institutions that reported and did not report the provision of student psychological services.

Table 38. Online data available for every Institutions in different European geographical areas

		Accessible information		*Not accessible information*	
		n	row %	n	row %
Geographical Area	Northern Europe	545	98.55	8	1.45
	Eastern Europe	549	96.83	18	3.17
	Western Europe	1,008	99.31	7	.69
	Southern Europe	611	95.02	32	4.98
	Middle Eastern Europe	206	99.52	1	.48
Tot		*2,919*	*97.79*	*66*	*2.21*

Table 39. Presence of students' counselling services in different European geographical areas

		Students Counseling Services						
		Not reported		*reported*		***χ2***	***df***	***p***
		n	row %	n	row %			
Geographical Area	Northern Europe	175	32.11	370	67.89	69.77	1	< .001
	Eastern Europe	320	58.29	229	41.71	15.08	1	< .001

	Western Europe	422	41.87	586	58.13	26.68	1	< .001
	Southern Europe	321	52.54	290	47.46	1.57	1	.210
	Middle Eastern Europe	88	42.72	118	57.28	4.37	1	.037
Tot		*1,326*	*45.43*	*1,593*	*54.57*	*24.42*	*1*	*< .001*
$\chi 2 = 93.84$, df = 1, p <.001								

6.2.6 Presence of students' psychological centers according to institution dimension and geographical area

Table 40 summarizes the presence of student counseling services in institutions with different dimensions for the 2,462 institutions with complete information pertaining to both student centers and dimension. Throughout Europe, the percentage of institutions reporting student counseling centers differed according to the institutions' various legal statuses ($\chi^2 = 242.68$, $p < .001$). In particular, the percentage of medium institutions ($\chi^2 = 91.82$, $p < .001$), large institutions ($\chi^2 = 84.49$, $p < .001$), and very large institutions ($\chi^2 = 14.94$, $p < .001$) reporting students' psychological services was higher than the total percentage for Europe, while the percentage of small institutions reporting students psychological services was lower than the total percentage for Europe ($\chi^2 = 48.48$, $p < .001$).

Table 40. Presence of students' psychological centers in institutions with different dimensions in each geographical area

Geographical Area			**Students psychological centers**				**χ2**	**df**	**p**
			Not reported		*reported*				
			n [expected]	row %	n [expected]	row %			
Northern Europe	*Dimension*	Small	152 [110.81]	42.11	209 [250.19]	57.89	22.09	1	< .001
		Medium	5 [31.62]	4.85	98 [71.38]	95.15	32.34	1	< .001
		Large	1 [15.96]	1.92	51 [36.04]	98.08	20.23	1	< .001
		Very large	1 [.61]	50.00	1 [1.39]	50.00	.36	1	.549
	Tot		*159*	*30.69*	*359*	*69.31*			
$\chi 2 = 75.01$, df = 3, p < .001									
Eastern Europe	*Dimension*	Small	255 [238.12]	66.93	126 [142.88]	33.07	3.19	1	.074
		Medium	18 [25.63]	43.90	23 [15.37]	56.10	6.06	1	.014
		Large	7 [15.00]	29.17	17 [9.00]	70.83	11.38	1	.001
		Very large	0 [1.25]	.00	2 [.75]	100.00	3.33	1	.068
	Tot		*280*	*62.50*	*168*	*37.50*			
$\chi 2 = 23.95$, df = 3, p < .001									

Western Europe	*Dimension*	Small	204 [160.47]	38.64	324 [367.53]	61.36	16.96	1	< .001
		Medium	5 [26.44]	5.75	82 [60.56]	94.25	24.98	1	< .001
		Large	8 [24.92]	9.75	74 [57.08]	90.24	16.50	1	< .001
		Very large	0 [5.17]	.00	17 [11.83]	100.00	7.43	1	.006
	Tot		*217*	*30.39*	*497*	*69.61*			
$\chi2 = 65.87$, df = 3, p < .001									
Southern Europe	*Dimension*	Small	274 [224.49]	62.70	163 [212.51]	37.30	22.45	1	< .001
		Medium	11 [34.42]	16.42	56 [32.58]	83.58	32.77	1	< .001
		Large	11 [26.71]	21.15	41 [25.29]	78.85	19.00	1	< .001
		Very large	4 [14.38]	14.29	24 [13.62]	85.71	15.40	1	< .001
	Tot		*300*	*51.37*	*284*	*48.63*			
$\chi2 = 89.64$, df = 3, p < .001									
Middle Eastern Europe	*Dimension*	Small	46 [41.92]	46.00	54 [58.08]	54.00	.68	1	.408
		Medium	14 [12.99]	45.16	17 [18.01]	54.84	.14	1	.713
		Large	11 [14.67]	31.43	24 [20.33]	68.57	1.58	1	.209
		Very large	12 [13.41]	37.50	20 [18.59]	62.50	.26	1	.613
	Tot		*83*	*41.92*	*115*	*58.08*			
$\chi2 = 2.66$, df = 3, p = .448									
All European areas	*Dimension*	Small	931 [762.58]	51.52	876 [1,044.42]	48.48	64.36	1	< .001
		Medium	53 [138.84]	16.11	276 [190.16]	83.89	91.82	1	< .001
		Large	38 [103.39]	15.51	207 [141.61]	84.49	71.55	1	< .001
		Very large	17 [34.18]	20.99	64 [46.82]	79.01	14.94	1	< .001
	Tot		*1,039*	*42.20*	*1,423*	*57.80*			
$\chi2 = 242.68$, df = 3, p < .001									

Regarding the different European geographical areas, in Northern Europe, the percentage of institutions reporting student counseling centers differed according to institutions' dimensions ($\chi^2 = 75.01$, $p < .001$). For example, the percentage of medium ($\chi^2 = 32.34$, $p < .001$) and large ($\chi^2 = 20.23$, $p < .001$) institutions reporting students' psychological centers was higher than the total percentage in that area, while the percentage of small institutions reporting such services wss lower ($\chi^2 = 22.09$, $p < .001$). Likewise, in Western Europe, the percentage of institutions reporting student counseling centers differed according to legal status ($\chi^2 = 65.87$, $p < .001$). In particular, the percentage of medium $\chi^2 = 24.98$, $p < .001$, large ($\chi^2 = 16.50$, $p < .001$), and very large ($\chi^2 = 7.43$, $p = .006$) institutions reporting such services was higher than the total percentage for the area, while the percentage of small institutions reporting such services was lower ($\chi^2 = 16.96$, p <

.001). In Southern Europe, also, the percentage of institutions reporting students' psychological centers differed according to their dimensions ($\chi^2 = 89.64$, $p < .001$). Specifically, the percentage of medium ($\chi^2 = 32.77$, $p < .001$), large ($\chi^2 = 19.00$, $p < .001$) and very large ($\chi^2 = 15.40$, $p < .001$) institutions reporting such services was higher than the total percentage for that area, while the percentage of small institutions reporting such services was lower ($\chi^2 = 22.45$, $p < .001$). In Eastern Europe, the percentage of institutions reporting student counseling centers differed according to an institution's dimension ($\chi^2 = 23.95$, $p < .001$). In particular, the percentage of medium ($\chi^2 = 6.06$, $p = .014$) and large ($\chi^2 = 11.38$, $p = .001$) institutions reporting students' psychological centers was higher than the total percentage in that area. By contrast, though, in Middle Eastern Europe, the percentage of institutions reporting students' psychological services was found not to differ according to an institution's dimension ($\chi^2 = 2.66$, $p = .448$).

6.2.7 Presence of students' psychological centers according to legal status and geographical area

Table 41 summarizes the presence of student counseling services in institutions with different legal statuses within each European geographical area for the 2,826 institutions with complete information pertaining to both student centers and dimensions. Throughout Europe, the percentage of institutions reporting student counseling centers differed according to the institutions' various legal statuses ($\chi^2 = 154.88$, $p < .001$). In particular, the percentage of public ($\chi^2 = 5.66$, $p = .017$) and private government-dependent ($\chi^2 = 77.94$, $p < .001$) institutions reporting students psychological services was higher than the total percentage for Europe, while the percentage of private institutions reporting such services was lower ($\chi^2 = 71.28$, $p < .001$).

Table 41. Presence of students' psychological centers in institutions with different legal status in each geographical area

Geographical Area			**Students psychological centers**				**χ2**	**df**	**p**
			Not reported		*reported*				
			n [expected]	row %	n [expected]	row %			
Northern Europe	*Legal status*	Public	71 [64.78]	35.32	130 [136.22]	64.68	.88	1	.348
		Private	91 [44.80]	65.47	48 [94.20]	34.53	70.30	1	< .001
		Private government-dependent	13 [65.42]	6.40	190 [137.58]	93.60	61.98	1	< .001
	Tot		*175*	*32.23*	*368*	*67.77*			
χ2 = 133.18, df = 2, p < .001									

	Legal status	Public	156 [168.18]	53.79	134 [121.82]	46.21	2.10	1	.147
Eastern Europe		Private	143 [134.54]	61.64	89 [97.46]	38.36	1.27	1	.261
		Private government-dependent	13 [9.28]	81.25	3 [6.72]	18.75	3.55	1	.060
	Tot		*312*	*57.99*	*226*	*42.01*			
$\chi2 = 6.92$, df = 2, p = .031									
	Legal status	Public	218 [249.33]	33.85	426 [394.67]	66.15	6.42	1	.011
Western Europe		Private	112 [78.98]	54.90	92 [125.02]	45.10	22.53	1	< .001
		Private government-dependent	32 [33.68]	36.78	55 [53.32]	63.22	.14	1	.712
	Tot		*362*	*38.72*	*573*	*61.28*			
$\chi2 = 29.09$, df = 2, p < .001									
	Legal status	Public	151 [175.26]	45.07	184 [159.74]	54.93	7.04	1	.008
Southern Europe		Private	157 [129.23]	63.56	90 [117.77]	36.44	12.52	1	< .001
		Private government-dependent	8 [11.51]	36.36	14 [10.49]	63.64	2.25	1	.134
	Tot		*316*	*52.32*	*288*	*47.68*			
$\chi2 = 21.81$, df = 2, p < .001									
Middle Eastern Europe	*Legal status*	Public	61 [50.41]	51.69	57 [67.59]	48.31	3.88	1	.049
		Private	27 [37.59]	30.68	61 [50.41]	69.32	5.21	1	.023
	Tot		*88*	*42.72*	*118*	*57.28*			
$\chi2 = 9.860$, df = 1, p = .002									
	Legal status	Public	657 [704.09]	41.37	931 [883.91]	58.63	5.66	1	.017
All European areas		Private	530 [403.48]	58.24	380 [506.52]	41.76	71.28	1	< .001
		Private government-dependent	66 [145.43]	20.12	262 [182.57]	79.88	77.94	1	< .001
	Tot		*1,253*	*44.34*	*1,573*	*55.66*			
$\chi2 = 154.88$, df = 2, p < .001									

Regarding the different European geographical areas, in Northern Europe, the percentage of institutions reporting students' psychological centers differed according to the institutions' legal status (χ^2 = 133.18, p < .001). For example, the percentage of private institutions reporting students' psychological centers was lower than the total percentage in that geographical area (χ^2 = 70.30, p < .001), while the percentage of private government-dependent institutions reporting such services was higher (χ^2 = 61.98, p < .001). Likewise, in Western Europe, the percentage of institutions reporting students' psychological centers differed according to legal status (χ^2 = 29.09, p < .001). In particular, the percentage of public institutions reporting such provision was higher than the total percentage for the area overall (χ^2 = 6.42, p = .011), while the percentage of private

institutions was lower ($\chi^2 = 22.53$, $p < .001$). A similar pattern can be seen in Southern Europe where the percentage of institutions reporting students' psychological centers also differed according to legal status ($\chi^2 = 21.81$, $p < .001$). Specifically, the percentage of private institutions reporting students' psychological centers was lower than the total percentage for that area ($\chi^2 = 12.52$, $p < .001$), while the percentage of public institutions reporting such services was higher ($\chi^2 = 7.04$, $p = .008$). In Middle Eastern Europe, also, the percentage of institutions reporting students' psychological centers differed according to the institutions' legal status ($\chi^2 = 9.10$, $p < .001$). However, in this area, the percentage of private institutions reporting students' psychological centers was higher than the total percentage of the area ($\chi^2 = 5.21$, $p = .023$), while the percentage of public institutions reporting them was lower than the total percentage ($\chi^2 = 3.88$, $p = .049$). In Eastern Europe, the percentage of institutions reporting students' psychological centers differed according to legal status ($\chi^2 = 6.92$, $p = .031$); however, no statistically significant differences were found for what concerns each legal status.

6.2.8 Presence of students' psychological centers according to institution category and geographical area

Table 42 reports the presence of students' psychological services across different institution categories within each European geographical area for the 2,835 institutions featuring complete information pertaining to both student centers and institution category. We found that throughout Europe, the percentage of institutions reporting students' psychological centers differed according to the institution category ($\chi2 = 130.17$, $p < .001$). In particular, the percentage of universities and universities of applied sciences reporting students' psychological centers was higher compared to the general European percentage (respectively, $\chi2 = 9.90$, $p = .002$, and $\chi2 = 24.61$, $p < .001$), while the percentage of other institutions reporting students' psychological centers was lower ($\chi2 = 95.68$, $p < .001$).

Table 42. Presence of students' psychological services in different institution category in each geographical area

Geographical Area	**Students psychological centers**				**χ2**	**df**	**p**
	Not reported		*reported*				
	n [expected]	row %	n [expected]	row %			

	Institution Category	University	21 [74.50]	9.05	211 [157.50]	90.95	56.59	1	< .001
Northern Europe		University of applied sciences	54 [40.46]	42.86	72 [85.54]	57.14	6.67	1	.010
		Other	100 [60.05]	53.48	87 [126.95]	46.52	39.15	1	< .001
	Tot		*175*	*32.11*	*370*	*67.89*			
χ2 = 102.42, df = 2, p < .001									
	Institution Category	University	146 [177.70]	47.71	160 [128.30]	52.29	13.49	1	< .001
Eastern Europe		University of applied sciences	8 [8.71]	53.33	7 [6.29]	46.67	.14	1	.710
		Other	159 [126.59]	72.94	59 [91.41]	27.06	19.79	1	< .001
	Tot		*313*	*58.07*	*226*	*41.93*			
χ2 = 33.41, df = 2, p < .001									
	Institution Category	University	210 [174.75]	46.56	241 [276.25]	53.44	11.61	1	.001
Western Europe		University of applied sciences	83 [138.72]	23.18	275 [219.28]	76.82	36.54	1	< .001
		Other	72 [51.53]	54.14	61 [81.47]	45.86	13.28	1	< .001
	Tot		*365*	*38.75*	*577*	*61.25*			
χ2 = 61.41, df = 2, p < .001									
	Institution Category	University	191 [217.84]	45.80	226 [199.16]	54.20	6.92	1	.009
Southern Europe		University of applied sciences	58 [49.63]	61.05	37 [45.37]	38.95	2.96	1	.086
		Other	66 [47.54]	72.53	25 [43.46]	27.47	15.01	1	< .001
	Tot		*315*	*52.24*	*288*	*47.76*			
χ2 = 24.89, df = 2, p < .001									
	Institution Category	University	72 [76.47]	40.22	107 [102.53]	59.78	.46	1	.499
Middle Eastern Europe		University of applied sciences	6 [6.41]	40.00	9 [8.59]	60.00	.05	1	.831
		Other	10 [5.13]	83.33	2 [6.87]	16.67	8.08	1	.005
	Tot		*88*	*42.72*	*118*	*57.28*			
χ2 = 8.59, df = 1, p = .014									
	Institution Category	University	640 [702.21]	40.38	945 [882.79]	59.62	9.90	1	.002
All European areas		University of applied sciences	209 [269.81]	34.32	400 [339.19]	65.68	24.61	1	< .001
		Other	407 [283.98]	63.49	234 [357.02]	36.51	95.68	1	< .001
	Tot		*1,256*	*44.30*	*1,579*	*55.70*			
χ2 = 130.17, df = 2, p < .001									

Focusing on the individual geographical areas, in Northern Europe, the percentage of institutions reporting students' psychological centers differed according to institution category ($\chi^2 = 102.42$, p

< .001). In particular, the percentage of universities of applied sciences and other institutions reporting students' psychological centers was lower compared to the total percentage in that area (respectively, $\chi^2 = 6.67$, $p = .010$, and $\chi^2 = 39.15$, $p < .001$), while the percentage of universities reporting such services was higher ($\chi2=56.59$; $p<.001$). In Eastern Europe, also, the percentage of institutions reporting students' psychological centers differed according to the institution category ($\chi^2 = 33.41$, $p < .001$). Specifically, the percentage of universities reporting students' psychological centers was higher compared to the total percentage in that area ($\chi^2 = 13.49$, $p < .001$), while the percentage of other institutions reporting students' psychological centers was lower ($\chi^2 = 19.79$, $p < .001$). Regarding Western Europe, the percentage of institutions reporting students' psychological centers differed according to the institution category as well ($\chi^2 = 61.41$, $p < .001$). Here, the percentage of universities of applied sciences reporting students' psychological centers was higher than the total percentage in Western Europe overall ($\chi^2 = 36.54$, $p < .001$), while the percentage of universities and other institutions reporting students' psychological centers was lower than the total percentage (respectively, $\chi^2 = 11.61$, $p = .001$, and $\chi^2 = 13.28$, $p < .001$). In respect of Southern Europe, the percentage of institutions reporting students' psychological centers also differed according to institution category ($\chi^2 = 24.89$, $p < .001$). In this case, the percentage of universities reporting students' psychological centers was higher compared to the total percentage found in the area ($\chi^2 = 6.92$, $p = .009$), while the percentage of other institutions reporting students' psychological centers was lower than the total percentage ($\chi^2 = 15.01$, $p < .001$). Finally, in Middle Eastern Europe, the percentage of institutions reporting students' counseling centers differed according to an institutions' category ($\chi^2 = 8.59$, $p = .014$). Of particular note in this instance was the observation that the percentage of other institutions reporting students' psychological centers was lower than the total percentage for that area ($\chi^2 = 8.08$, $p = .005$).

6.2.9 Predictors of the presence of students' psychological centers

Table 43 shows the results of the logistic regression analysis. The logistic regression model was found to be statistically significant, $\chi^2 = 485.56$, $p < .001$. The model explained 24% (Nagelkerke's R^2) of the variance in the presence of students' psychological centers and correctly classified 69.19% of cases. Regarding dimensions, medium institutions showed a higher probability of reporting students' psychological centers than small institutions, OR = 4.22, 95% CI [3.03, 5.88], $p < .001$, as well as large institutions, OR = 4.50, 95% CI [3.07, 6.61], $p < .001$, and very large institutions, OR = 4.22, 95% CI [2.37, 7.53], $p < .001$. Concerning legal status, private government-

dependent institutions showed a higher probability of reporting students' psychological centers than public institutions, OR = 2.48, 95% CI [1.75, 3.51], p < .001. Regarding the category of institution, other institutions exhibited a lower likelihood of reporting students' psychological centers than universities, OR = .47, 95% CI [.36, .60], p < .001. With respect to geographical areas, Eastern European institutions demonstrated a lower probability toward reporting students' psychological centers than Northern European institutions, OR = .37, 95% CI [.27, .50], p < .001, as well as Southern European institutions, OR = .41, 95% CI [.31, .55], p < .001, and Middle Eastern European institutions, OR = .42, 95% CI [.28, .62], p < .001.

Table 43. Effect estimates of independent variables on the availability of students' psychological centers

	B	S.E.	Wald	df	OR	95% CI		p
						lower	lower	
Dimension: small			124.66	3.00	ref			< .001
Dimension: medium	1.44	.17	72.37	1.00	4.22	3.03	5.88	< .001
Dimension: big	1.50	.20	59.14	1.00	4.50	3.07	6.61	< .001
Dimension: very big	1.44	.30	23.76	1.00	4.22	2.37	7.53	< .001
Legal status: Public			27.75	2.00				< .001
Legal status: Private	.00	.11	.00	1.00	1.00	.81	1.24	.988
Legal status: Private government-dependent	.91	.18	26.19	1.00	2.48	1.75	3.51	< .001
Institution Category: University			39.79	2.00	ref			< .001
Institution Category: University of applied sciences	-.10	.13	.64	1.00	.90	.70	1.16	.424
Institution Category: Other	-.76	.13	36.57	1.00	.47	.36	.60	< .001
Geographical Area: Northern Europe			94.91	4.00	ref			< .001
Geographical Area: Eastern Europe	-.99	.15	41.24	1.00	.37	.27	.50	< .001
Geographical Area: Western Europe	.11	.14	.62	1.00	1.12	.85	1.48	.430
Geographical Area: Southern Europe	-.89	.15	35.06	1.00	.41	.31	.55	< .001
Geographical Area: Middle Eastern Europe	-.88	.21	17.93	1.00	.42	.28	.62	< .001
Costant	.57	.14	15.97	1.00	1.76			< .001

Model $\chi^2 = 485.56$, $p < .001$
Nagelkerke $R^2 = .24$
Accuracy (%) = 69.19%

6.2.10 Types of interventions

As shown in Table 44, we found that European tertiary education institutions provide a variety of levels and types of counseling and/or support for their students. Many institutions reported offering otherwise unspecified psychological services (n = 285; 17.44%), counseling services (n = 906, 55.45%), career counseling services (n = 576, 32.25%), counseling for disabled students (n = 682; 41.74%) or counseling for learning specific disabilities (n = 254, 15.54%). Other types of services reported were, for example, psychotherapy (n = 41; 2.51%), psychiatric services (n = 20; 1.22%), group counseling (n = 11; .67%), and psychoeducational counseling (n = 17; 1.04%).

In terms of the different European geographical areas, psychological services were reported by 23 institutions in Northern Europe (6.20%), 34 in Eastern Europe (14.72%), 154 in Western Europe (15.17%), 63 in Southern Europe (21.14%), and 11 in Middle Eastern Europe (9.32%). Counseling services were found to be available in 293 institutions in Northern Europe (78.98%), 110 in Eastern Europe (47.62%), 271 in Western Europe (43.99%), 153 in Southern Europe (51.34%), and 79 in Middle Eastern Europe (33.95%). Career counseling was reported in 109 institutions in Northern Europe (29.38 %), 127 in Eastern Europe (54.98%), 237 in Western Europe (38.47%), 79 in Southern Europe (26.51%), and 24 in Middle Eastern Europe (11.59%). Group counseling was only available in five institutions in Northern Europe (1.34), two in Eastern Europe (.87%), one in Western Europe (.16%), one in Southern Europe (.34%), and two in Middle Eastern Europe (1.69%). Psychotherapy was provided by nine institutions in Northern Europe (2.43%), three in Eastern Europe (1.30%), 21 in Western Europe (3.41%), seven in Southern Europe (2.35%), and by just one university in Middle Eastern Europe (.85%%). Psychiatric services were found to be available in six institutions in Northern Europe (1.62%), two in Eastern Europe (.87%), nine in Western Europe (1.46%), two in Southern Europe (.67%), and only one in Middle Eastern Europe (.85%).

Table 44. Service offered by students' counselling centers in different European areas

		Psychological Service		Counseling		Psychotherapy		Psychiatric Services		Career Counseling	
Geographical Area		***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***
Northern Europe	Not reported	348	93.80	78	21.02	361	97.57	365	98.38	262	70.62
	Reported	23	6.20	293	78.98	9	2.43	6	1.62	109	29.38
Eastern Europe	Not reported	197	85.28	121	52.38	228	98.70	229	99.13	104	45.02
	Reported	34	14.72	110	47.62	3	1.30	2	.87	127	54.98
Western Europe	Not reported	462	45.52	345	26.01	595	96.59	607	98.54	379	61.52
	Reported	154	15.17	271	43.99	21	3.41	9	1.46	237	38.47
Southern Europe	Not reported	235	78.86	145	48.66	291	97.65	296	99.33	219	73.49
	Reported	63	21.14	153	51.34	7	2.35	2	.67	79	26.51
Middle Eastern Europe	Not reported	107	90.68	39	33.05	117	99.15	117	99.15	94	45.41
	Reported	11	9.32	79	66.95	1	.85	1	.85	24	11.59
All European areas	Not reported	1349	82.56	728	44.55	1592	97.43	1614	98.78	1058	64.75
	Reported	285	17.44	906	55.45	41	2.51	20	1.22	576	35.25

		Group Counseling		Counselling for Disabled students		Psychoeducational Counseling		Counseling for Foreign Students		Sport Psychology Counseling		Spiritual Counseling	
Geographical Area		***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***
Northern Europe	Not reported	366	69.66	133	35.85	371	100	370	99.73	371	100	371	100
	Reported	5	1.34	238	64.15	0	.00	1	.27	0	.00	0	.00
Eastern Europe	Not reported	229	99.13	179	77.49	230	99.57	228	98.70	230	99.57	230	99.57
	Reported	2	.87	52	22.51	1	.43	3	1.30	1	.43	1	.43
Western Europe	Not reported	615	99.84	399	64.77	616	100	613	99.51	615	99.86	615	99.84
	Reported	1	.16	217	35.23	0	.00	3	.49	1	.16	1	.16
Southern Europe	Not reported	297	99.66	175	58.72	282	94.63	294	98.66	298	100	298	100
	Reported	1	.34	123	41.28	16	5.37	4	1.34	0	.00	0	.00
Middle Eastern Europe	Not reported	116	98.31	66	55.93	118	100	118	100	118	100	118	100
	Reported	2	1.69	52	44.07	0	.00	0	.00	0	.00	0	.00
All European areas	Not reported	1623	99.33	952	58.26	1617	98.96	1623	99.33	1632	99.88	1632	99.88
	Reported	11	.67	682	41.74	17	1.04	11	.67	2	.12	2	.12

		Social Counseling		Health Counseling		Sexual Counseling		Counseling for Learning Specific Disabilities		Phone Counseling		Language Counseling	
Geographical Area		***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***
Northern Europe	Not reported	369	99.46	369	99.46	371	100	217	39.24	370	99.73	371	100
	Reported	2	.54	2	.54	0	.00	154	27.85	1	.27	0	.00
Eastern Europe	Not reported	231	100	231	100	231	100	229	99.13	231	100	230	99.57
	Reported	0	.00	0	.00	0	.00	2	.87	0	.00	1	.43
Western Europe	Not reported	605	98.21	615	99.84	615	99.84	594	96.43	615	99.84	615	99.84
	Reported	11	1.08	1	.16	1	.16	22	3.57	1	.16	1	.16
Southern Europe	Not reported	298	100	298	100	297	99.66	225	75.50	298	100	298	100
	Reported	0	.00	0	.00	1	.34	73	24.50	0	.00	0	.00
Middle Eastern Europe	Not reported	118	100	118	100	118	100	115	97.46	118	100	118	100
	Reported	0	.00	0	.00	0	.00	3	2.54	0	.00	0	.00
All European areas	Not reported	1621	99.20	1631	99.82	1632	99.88	1380	84.46	1632	99.88	1632	99.88
	Reported	13	.80	3	.18	2	.12	254	15.54	2	.12	2	.12

6.3 Discussion

University students' distress is an issue of increasing concern for public health because of its adverse effects on affected individuals' personal development and academic performance (Biasi et al., 2017; Hohenshil et al., 2013; Hunt & Eisenberg, 2010; Stallman, 2010; Storrie et al., 2010; Vivekananda et al., 2011). Several prior studies highlighted an intensified demand for student counseling in recent years (Holm-Hadulla & Koutsoukou-Argyraki, 2015; Royal College of Psychiatrists Report, 2011; Storrie et al., 2010; Watkins et al., 2012). According to an annual report of the Center for Collegiate Mental Health (2019), the number of students who have requested access to university counseling services for psychopathological symptoms and emotional disturbances (e.g., anxiety and depression) has increased by 1.0% since 2001. Similarly, a 2018 World Health Organization survey of students in eight countries found that roughly one out of three students screened positive for a mental health disorder (Auerbach et al., 2018).

Yet, our data showed that only nearly half of European tertiary education institutions offered students' psychological services. In a recent "Trends" report, The European University Association (2018) underlined how the proposed increase in individual academic counseling has not occurred and that "*students still rate academic counseling as one of the weakest aspects of their programs*" (Amundsen & Haakstad, 2017). Consistently, Black (2020) underlined that student support, psychological services, and student mental well-being are the most prevalent areas of discussion among student officers and institutions, but at the same time, the traditional approaches currently employed by institutions to tackle these areas are no longer suitable.

Our data also indicates that different dimensions, legal statuses, and categories of institution report varying percentages concerning the presence of students' psychological centers. In particular, compared to small institutions, all other institutions showed a higher likelihood of reporting students' psychological centers. Moreover, compared to public institutions, private government-dependent institutions showed a higher probability of having such services. Moreover, compared to universities, other institutions were less likely to report providing such centers. The percentage of students' psychological centers reported also differed according to geographical area. Compared to Northern Europe, Eastern Europe, Southern Europe, and Middle Eastern Europe, they all had a lower likelihood of reporting having students' psychological centers. In Northern Europe, Western Europe and Middle Eastern Europe, most of the institutions reported having a student psychological center. However, most of the Eastern institutions did not report such services on their websites, and in Southern Europe there were equal numbers of institutions that reported and

did not report the provision of students' psychological services. Overall, between the different European geographical areas, there were found to be differences concerning the presence of students' psychological services in institutions according to differing dimensions, legal statuses and institutional categories compared to the general European data. Such results underline an urgent need to promote international data sharing with respect to students' psychological centers, so that a broad range of professionals and departments (e.g., academic departments, administrative offices, and institutions) can cooperate both nationally and internationally to attain a wider integration of tertiary education services based on the sharing of experiences, expertise, training, and policies.

Regarding the specific services offered by each institution, most of them reported counseling services, career counseling services, or not otherwise specified psychological services. Previous research has demonstrated the efficacy of these interventions, while the sustained growth in the number of students entering higher education has challenged student counseling services to demonstrate the effectiveness of the support offered (Randall & Bewick, 2016). Connell and colleagues (2008) highlighted the effectiveness of university counseling services in the United Kingdom. Moreover, regarding the issues that such support can help to address, a Danish research has found that counseling is mostly offered to students with personal problems, such as low self-esteem, anxiety and depression, and study-related problems (e.g., exam anxiety and difficulties in writing a thesis), and issues concerning social security laws (Østergård et al., 2019). In our study, only a small number of European institutions reported on their websites that they offer more specialized services, such as psychotherapies or psychiatric treatments.

It is important to underline that in the current work, only a few institutions in Europe reported offering psychotherapies despite the widely established effectiveness of these types of counseling support for tertiary education students. Notable among such research are the findings that, following psychotherapy, students show increased levels of well-being and reduced levels of distress, affirming the feasibility of psychotherapy in improving students' mental health regardless of the approach utilized (Beiter et al., 2015; Corazzini, 1997; Kim et al. 2016; Minami et al., 2009; Monti et al., 2014; Mukuria et al., 2013; Pistorello et al., 2012; Rapinesi et al., 2018; Vonk & Thyer, 1999). Currently, though, mental health services and support in tertiary education institutions typically follow an approach that gives priority to first-level interventions, with only small subsets of students receiving assistance (Conley et al., 2015). Just 20% to 40% of students who experience mental health problems seek treatment while attending tertiary education, and this rate is even lower for students in public institutions (Ashwood et al., 2015; Conley et al., 2015). Thus, many students who need mental health services are not getting them and cannot receive them within

their tertiary education institution (Czyz et al., 2013). Increasing the provision of psychotherapy services could engage a larger number of students during a critical phase of their life, thereby addressing a significant public health problem among late adolescents and emerging adults (Cleary et al., 2011).

Students with psychiatric disorders, both treated and untreated, have been shown to have lower performance levels and higher dropout rates than their peers (Eisenberg et al., 2009). Correspondingly, prior research illustrated the effectiveness of psychological services in assisting students with psychiatric disabilities through higher education (Best et al., 2008; Collins & Mowbray, 2008; Manthey et al., 2015; Schindler et al., 2015). However, it is a cause for concern that, as we found in our study, only a small number of tertiary education institutions in Europe provide specific psychiatric care. Given that the duration of an untreated mental illness affects prognosis and social functioning in relation to other mental diseases (e.g., depression, bipolar disorder, and obsessive-compulsive disorder), the lack of psychiatric services provided for tertiary education students represents an issue in respect of which the consequences cannot be underestimated (Altamura et al., 2010; 2015; Ghio et al., 2014; Kessler & Walters, 1998; Oguchi et al., 2014).

There should also be improved counseling in relation to disability and learning-specific difficulties. Indeed, learning-difficulty-related symptoms impact academic performance and college completion levels (Cortiella & Horowitz, 2014) as well as psychosocial functioning within post-secondary education (Kreider et al., 2015). Moreover, with respect to students who are disabled, prior research has demonstrated that providing appropriate support and services on campus can improve their mental health as well as their academic outcomes (Emerson et al., 2009; Stumbo et al., 2009). Such findings should be taken into account, especially when considering that, compared to other students, students with disabilities report greater levels of anxiety and academic-related distress as well as higher rates of suicide ideation, suicide attempts, and non-suicidal self-injury (Coduti et al., 2016).

6.4 Limitations and future directions

This study has some critical limitations to be considered. First, the data available online was either not exhaustive, or else we could not find available data, especially on non-English websites.

Moreover, there can be discrepancies in the use of some specific words (e.g., counseling) between the various countries surveyed.

Future research is needed to overcome these limitations and to deepen our understanding of the specific characteristics of the services provided throughout Europe. It is of importance to contact each tertiary education institution directly in order to assess the effective presence or absence of students' psychological centers and the services provided as well as some additional, detailed information, such as how many practitioners are involved in the service's staff, their qualifications, how many sessions are provided for each intervention, and the most common issues that they have to face.

Chapter 7

MENTAL HEALTH INTERVENTIONS FOR HIGHER EDUCATION STUDENTS ACROSS EUROPE: A QUALI-QUANTITATIVE ANALYSIS OF IN-DEPTH INTERVIEWS WITH PERSONNEL WORKING IN STUDENTS' PSYCHOLOGICAL SERVICES

The aim of the present study was to gain a detailed understanding on the activities provided in students' psychological centers across Europe. In particular, we conducted a web-based semi-structured survey aimed at assessing: (i) the effective presence or absence of students' psychological centers, (ii) the services provided, their theoretical orientation and their duration, (iii) qualification and number of practitioners involved, (iv) most common issues reported by students, and (v) most common issues that these services have to face from an organizational point of view.

7.1 Materials and methods

7.1.1 Survey instrument

A semi-structured web-based survey was developed to assess the presence of students' psychological centers, the services provided, the personnel involved, the most common issues reported by students, and the most common organizational issues. The first page of the web survey provided study details, and informed consent was obtained by ticking the box "agree".

The questionnaire consisted of 17 questions and comprised two sections. The first section comprised information on the answering institution and/or department and the availability of students' psychological services (yes/no answer). If the respondent stated that his/her institution did not provide psychological services, then the survey ended, and an acknowledgement statement was displayed. On the contrary, if the respondent reported the presence of such services, then

he/she was directed to the second section, comprising four multiple-choice questions and 10 open-ended questions. Multiple-choice questions explored the institutional framework of the service (including an "Other-specify" option), eventual charges (yes/no answer, including an "Other-specify" option), the population to whom it was addressed (including an "Other-specify" option), and service providers (including an "Other-specify" option). Open-ended questions explored service's staff (number of people involved, qualifications and roles); services/interventions provided; eventual intervention differences according to the specific difficulties experienced by students; number of sessions offered for each available intervention; the theoretical orientation/s of the interventions; number of accesses per year; most common problems referred by students; eventual addressment to other services at the end of the interventions offered; main organizational issues in managing the service; and personal remarks.

The survey was administrated in Italian (for Italian institutions) and in English (for all the other counties).

7.1.2 Survey administration

First, we searched the websites of each European tertiary education institution previously identified (Cfr. Chapter 6) in order to collect emails and/or other contact information for what concerns students' counseling centers or, if not available, institution student services or rectorates. Next, through email and/or available contact forms, we contacted each institution regardless of whether our previous retrospective analysis on their websites identified the presence of students' psychological services or not. We sent them a presentation of the research aims and the link to a semi-structured web-based survey. When we were notified that our message was not delivered, we used other institutional contacts until at least one of our messages was successfully delivered. The survey was conducted through Google Forms, a survey administration app that is included in the Google Drive office suite.

7.1.3 Participants

Through email and/or contact forms, we successfully contacted 2,806 (94.00%) of the 2,985 institutions identified through our previous retrospective analysis (Cfr. Chapter 6). Most of the

institutions answering our emails were institutions that decided to take part in the survey. However, two institutions answered stating their intention not to participate in the survey, another two explained that they would otherwise participate, but they could not because of a shortage of staff and time (even if one of them actually participated in the survey, some months later), and one institution answered stating that they chose not to participate because they had internal projects and research on the same topic. The survey was open from October 8th, 2019 to February 29th, 2020. One hundred and twenty-one institutions completed the survey between October 9th, 2019 and February 2nd, 2020. Throughout Europe, the percentage of institutions not participating in the survey was higher than the percentage of those participating ($\chi^2 = 2520.62$, $p < .001$), and the percentage of institutions answering the survey differed according to the institutions' geographical area ($\chi^2 = 13.51$, $p = .009$). In particular, in Southern Europe, the percentage of participating institutions was higher than the total percentage of Europe ($\chi^2 = 7.77$, $p = .005$) perhaps because the research team belonged to the same area (Table 45). The total sample of our survey consisted of 121 institutions: 33.06% from Southern Europe, 26.45% from Western Europe, 19.01% from Northern Europe and from Eastern Europe, and only 2.48% from Middle Eastern Europe (Table 46).

Table 45. Contingency table of percentage of institutions participating or not in the survey in each geographical area

Geographical Area	**Survey participation**				**χ2**	**df**	**p**
	No		Yes				
	n [expected]	row %	n [expected]	row %			
Northern Europe	530 [530.58]	95.84	23 [22.42]	4.16	.016	1	.901
Eastern Europe	544 [544.02]	95.94	23 [22.98]	4.06	.00	1	.997
Western Europe	983 [973.86]	96.85	32 [41.14]	3.15	2.12	1	.146
Southern Europe	603 [616.94]	93.78	40 [26.06]	6.22	7.77	1	.005
Middle Eastern Europe	204 [198.61]	98.55	3 [8.39]	1.45	3.61	1	.058
Tot	*2,864*	*95.95*	*121*	*4.05*	*2520.62*	*1*	*< .001*

$\chi2 = 13.51$, $df = 4$, $p = .009$

Table 46. Total survey sample in different geographical area

	n	**%**
Northern Europe	23	19.01
Eastern Europe	23	19.01
Western Europe	32	26.45

Southern Europe	40	33.06
Middle Eastern Europe	3	2.48
Tot	*121*	*100.00*

7.1.4 Ethics

The study was reviewed and approved by the Institutional Review Board (IRB) of the University of Turin (protocol number 162317 dated 4/19/2018). All participants were given a complete description of the study, and provided informed and written consent before entering the study.

7.1.5 Data analysis

Data analysis was carried out utilizing a standardized data extraction form. Multiple-choice questions were coded attributing one code to each possible answer. "Other-specify" answers were collected in the data extraction form. Regarding open-ended questions, they were independently coded by the author and a second judge [MDS[14]]. In case of disagreement, a fourth judge [AG[15]] was consulted. First, the judges generated initial codes, identifying the main themes emerging in the answers to each question. When a new code was created, it was applied to previous answers. Final codes were discussed among the three judges. Texts of the "Other-specify" answers were collected in the data extraction form.

In addition, coded data were exported and analyzed through the SPSS Statistics software package (IBM Corp., Armonk, NY, USA), version 26. The statistical significance was set at $p \leq .05$. We performed descriptive statistics on data collected for each institution. Differences were assessed through Chi-square tests, and Pearson correlations were conducted to gain an overview of the data. One-way Welch ANOVAs were conducted to determine if the number of students per year and the number of staff involved in the service were different for institutions with different dimensions.

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7.2 Results

7.2.1 Availability of psychological services

As reported in Table 47, 103 (85.12%) of the institutions that participated in the survey reported to have students' psychological services.

Table 47. Availability of psychological services among participating institutions

Availability of psychological services	n	%
No	18	14.88
Yes	103	85.12
Tot	*121*	*100.00*

The total percentage of participating institutions reporting psychological services was higher than the percentage of those without such services (χ^2 = 79.71, p < .001), and the percentage of participating institutions reporting psychological services did not differ according to different geographical areas (χ^2 = 243, p = .657) (Table 48).

Table 48. Contingency table of psychological services available in each geographical area

Geographical Area	Availability of psychological services: No		Availability of psychological services: Yes		χ2	df	p
	n [expected]	row %	n [expected]	row %			
Northern Europe	2 [3.42]	8.70	21 [19.58]	91.30	.63	1	.405
Eastern Europe	5 [3.42]	21.74	18 [19.58]	78.26	.86	1	.355
Western Europe	4 [4.76]	12.50	28 [27.24]	87.50	.14	1	.706
Southern Europe	7 [5.95]	17.50	33 [34.05]	82.50	.22	1	.641
Middle Eastern Europe	0 [.45]	.00	3 [2.55]	100.00	.53	1	.467
Tot	*18*	*14.88*	*103*	*85.12*	*79.71*	*1*	*< .001*

$\chi2$ = 2.43, df = 4, p = .657

No differences in the percentage of institutions reporting psychological services were found according to the institutions' dimension (χ^2 = 7.20, p = .066) (Table 49), the institutions' legal status (χ^2 = 1.07, p = .784) (Table 50), and the institution category (χ^2 = 3.97, p = .265) (Table 51).

Table 49. Contingency table of psychological services available in institutions with different dimension

Institution dimension	**Availability of psychological services**				**χ2**	**df**	**p**
	No		Yes				
	n [expected]	row %	n [expected]	row %			
Small	13 [8.56]	19.76	53 [57.44]	80.30	2.65	1	.104
Medium	1 [1.94]	6.67	14 [13.06]	93.33	.52	1	.470
Large	0 [2.72]	.00	21 [18.28]	100.00	3.13	1	.077
Very large	0 [.78]	.00	6 [5.22]	100.00	.90	1	.344
Tot	*14*	*12.96*	*94*	*87.04*			
χ2 = 7.20, df = 3, p = .066							

Table 50. Contingency table of psychological services available in institutions with different legal status

Institution Legal Status	**Availability of psychological services**				**χ2**	**df**	**p**
	No		Yes				
	n [expected]	row %	n [expected]	row %			
Public	8 [9.03]	11.27	63 [61.97]	88.73	.14	1	.714
Private	4 [2.92]	17.39	19 [20.08]	82.61	.46	1	.499
Private government-dependent	3 [2.67]	14.29	18 [18.33]	85.71	.05	1	.829
Consortium	0 [.38]	.00	3 [2.62]	100.00	.44	1	.510
Tot	*15*	*12.71*	*103*	*87.29*			
χ2 = 1.07, df = 3, p = .784							

Table 51. Contingency table of psychological services available in institutions with different category

Institution category	**Availability of psychological services**				**χ2**	**df**	**p**
	No		Yes				
	n [expected]	row %	n [expected]	row %			
University	8 [10.42]	9.76	74 [71.58]	90.24	.64	1	.422
University of applied sciences	3 [2.29]	16.67	15 [15.71]	83.33	.25	1	.616
Other institution	4 [1.91]	26.67	11 [13.09]	73.33	2.62	1	.106
Consortium	0 [.38]	.00	3 [2.62]	100.00	.44	1	.510

Tot	*15*	*12.71*	*103*	*87.29*	
$\chi2 = 3.97$, df = 3, p = .265					

Moreover, we found statistically significant differences between the presence of psychological services reported by the institutions in our survey and those that were reported online ($\chi^2 = 12.49$, $p < .001$). 82.52% (n = 85) of services reporting psychological services in the survey also reported them online, while 17.48% (n = 18) of them did not report the presence of such services online. Moreover, 55.56% (n = 10) of the institutions not reporting psychological services in the survey did not report psychological services online, while 44.44% (n = 8) of them reported the presence of such services online (Table 52).

Table 52. Contingency table of data reported online and survey answers for what concerns the availability of psychological services

Availability of psychological services	**Psychological services reported online**				
	No		Yes		
	n	row %	n	row %	*Tot*
No	10	55.56	8	44.44	*18*
Yes	18	17.48	85	82.52	*103*
Tot	*28*	*23.14*	*93*	*76.86*	*121*
$\chi2 = 12.49$, df = 1, p < .001					

7.2.2 Characteristics of the service

Regarding the institutional framework of students' psychological services, 64.08% (n = 66) of them was administered by the institution, 10.68% (n = 11) was in partnership with other institutions, 9.71% (n = 10) was departmental, another 9.71% (n = 10) was completely provided by other institutions, and 1.94% (n = 2) was conducted on behalf of third parties (Table 53). Four (3.88%) institutions chose the "Other" option, specifying that the service was provided by: (a) a non-profit organization; (b) the Institution for the Right to Education; (c) the higher education institution, but with some services in partnership with other health services; and (d) a students' peer system with training and supervision provided by a social work department.

Table 53. Service institutional framework

	n	**%**
Administered by the institution	66	64.08
Departmental	10	9.71
In partnership with other institution	11	10.68

Totally provided by other institution	10	9.71
On behalf of third parties	2	1.94
Other	4	3.88

Interventions were provided by structured staff in 60.19% of cases (n = 62), by contract staff in 27.19% (n = 28), and by interns in 4.85% (n = 5) (Table 54). Seven (6.80%) institutions chose the "Other" option, specifying that interventions were provided by: (a) structured staff, contract staff and interns (n = 3); (b) freelance professionals (n = 2); and (c) structured and contract staff (n = 1).

Table 54. Service providers

	n	**%**
Structured staff	62	60.19
Contract staff	28	27.19
Interns	5	4.85
Other	7	6.80
ND	1	.97

Psychological services were free in 92.23% of cases (n = 95) (Table 55). Two (.97%) institutions chose the "Other" option, specifying that the service was (a) free for serious cases, not free for other students; or (b) free only for what concerned the first session.

Table 55. Service fees

	n	**%**
Payment requested	6	5.83
Free service	95	92.23
Other	2	.97

Table 56. Service clients

	n	**%**
Students only	63	61.17
Students and employees	29	28.16
Students employees and external users	7	6.80
Other	4	3.88

Interventions were addressed to students only in 61.17% of cases (n = 63), to students and employees in 28.16% (n = 29), and to students, employees and external users in 6.80% (n = 7) (Table 56). Four (3.88%) institutions chose the "Other" option, specifying that the service was addressed to students and high school students.

The mean number of students accessing the service per year was 395.74 (DS = 669.77), in a range from five to 4,000. In small institutions, the mean number of students accessing the service per year was 205.68 (DS = 353.22), in a range from five to 2,000; in medium institutions, the mean number of students accessing the service per year was 671.73 (DS = 1,152.02), in a range from 25 to 4,000; in large institutions, the mean number of students accessing the service per year was 471.53 (DS = 540.11), in a range from 46 to 2,300; while in very large institutions, the mean number of students accessing the service per year was 725.00 (DS = 992.59), in a range from five to 2,840 (Table 57). The mean percentage of students enrolled in an institution accessing students' psychological services was 4.94% (DS = 7.62), ranging from .15% to 41.39%.

Table 57. Number of patients/year

	Patients/year					
	M	**DS**	**Range**	**tot enrolled students % M**	**% DS**	**% Range**
Institution dimension						
Small (n =38)	205.68	353.22	5-2,000	7.00	9.15	.38-41.39
Medium (n = 1 1)	671.73	1,152.02	25-4,000	4.33	6.59	.15-55.84
Large (n = 17)	471.53	540.11	46-2,300	1.71	1.86	.19-7.78
Very large (n = 4)	725.00	917.88	200-2,100	.80	.52	.43-1.56
Total (n = 70)	*395.74*	*669.77*	*5-4,000*	*4.94*	*7.62*	*.15-41.39*

A one-way Welch ANOVA was conducted to determine if the number of students per year was different for institutions with different dimensions. The assumption of homogeneity of variances was violated, as assessed by Levene's test for equality of variances (p = .008). There were no statistically significant differences in the number of students per year between different institution dimensions, Welch's F(3, 10.73) = 1.76, p = .214.

However, the number of students enrolled in an institution positively and significantly correlated with the number of students accessing the service every year (r = .375, p = .001).

7.2.3 Service staff

The mean number of professionals involved in each service was 5.49 (DS = 6.39), in a range from one to 35. In small institutions, the mean number of professionals involved was 3.98 (DS = 4.31), in a range from one to 17; in medium institutions, the mean number of professionals involved was 8.00 (DS = 10.26), in a range from one to 35; in large institutions, the mean number of professionals involved was 5.29 (DS = 4.24), in a range from one to 18; while in very large institutions, the mean number of professionals involved was 13.83 (DS = 11.37), in a range from one to 31 (Table 58).

Table 58. Number of personnel involved

	Personnel involved					
	M	DS	Range	SE	95% CI	
					Lower Bound	Upper Bound
Institution dimension						
Small (n =40)	3.98	4.31	1-17	.69	2.59	5.36
Medium (n = 10)	8.00	10.26	1-35	3.25	.66	15.34
Large (n = 17)	5.29	4.24	1-18	1.03	3.11	7.47
Very large (n = 6)	13.83	11.37	1-31	4.64	1.90	25.77
Total (n = 73)	*5.64*	*6.66*	*1-35*	.78	4.09	7.20

A one-way Welch ANOVA was conducted to determine if the number of personnel involved was different for institutions with different dimensions. The assumption of homogeneity of variances was violated, as assessed by Levene's test for equality of variances (p = .001). There were no statistically significant differences in the number of students per year between different institution dimensions, Welch's F(3, 15.02) = 1.94, p = .167.

However, the mean number of professionals involved positively and significantly correlated with both the number of students enrolled in each institution (r = .397, p = .001) and the number of students accessing the service every year (r = .394, p = .001).

Considering personnel's qualification, 57 institutions (55.34%) had at least one psychologist in their staff, 31 (30.10%) had at least one psychotherapist and 13 (12.62%) had at least one counselor. Moreover, training psychologists and psychotherapists were involved in three (2.91%) and seven (6.80%) institutions only, respectively. Psychiatrists were involved in six (5.83%) services (Table 59).

Table 59. Service staff

	n	%
Counselors	13	12.62
Psychologists	57	55.34
Training psychologists	3	2.91
Psychotherapists	31	30.10
Training psychotherapists	7	6.80
Psychiatrists	6	5.83
Social science professionals	1	.97
Social workers	1	.97
Youth workers	1	.97
Professors_providing interventions	5	4.85
Professors_supervising interventions	4	3.88
Researchers	1	.97
Students	4	3.88
Medical doctors	5	4.85
Nutritionists	3	2.91
Neurologists	1	.97
Nurses	8	7.77
Interns	3	2.91
Mentors	2	1.94
Trainers	1	.97
Teachers	2	1.94
Mental health advisors	2	1.94
Pastors	1	.97
Administrative personnel	8	7.77
PR	1	.97
Not qualified staff	1	.97
ND	10	9.71
Other	8	7.77

Eight (13.59) institutions' other staff included officers with expertise on addictions; officers with expertise on smoking cessation, physician psychoanalysts, sophrologists, special education specialists, specialists in online communication, volunteer supervisors, and youth workers.

7.2.4 Interventions

In the majority of cases (n = 78, 75.73%), interventions differed according to students' specific needs (Table 60).

Table 60. Interventions available

	n	%
Only one kind of intervention	25	24.27
Different interventions	78	75.73

The number of sessions for each intervention was variable in most cases (n = 78, 75.73%), while it was predetermined in 12 cases (11.65%) and predetermined, but with exceptions, in three (2.91) institutions (Table 61).

Table 61. Number of sessions for each intervention

	n	%
Predetermined	12	11.65
Variable	78	75.73
Predetermined, but with exceptions if needed	3	2.91
ND	10	9.71

The maximum number of sessions for each intervention was not predetermined in most cases (n = 36, 34.95%). In 22 services (21.36%), interventions comprised from six to 10 sessions, 17 institutions (16.50%) one to five sessions, and 10 services (9.71%) more than 10 sessions (Table 62). Moreover, the maximum number of sessions for each intervention did not correlate with the number of students enrolled (r = .200, p = .178), the number of students accessing the service every year (r = .263, p = .088), and the number of personnel involved (r = .239, p = .128).

Table 62. Maximum number of sessions for each intervention

	n	%
1-5	17	16.50
6-10	22	21.36
10+	10	9.71
Not predetermined	36	34.95
ND	18	17.48

Considering specific intervention provided, counselling was the most widely provided intervention (n = 81, 78.64%). We considered brief counselling interventions, psychological counseling, social counseling, legal counseling, and long-term counselling interventions in the "counseling" group interventions. Moreover, considering different linguistic customs in different European areas, we

considered as "counselling" interventions defined as consultation, intake, one-to-one examination, prevention, psychological support, and psychological consultation (Table 63).

Table 63. Intervention provided

	n	%
Counseling	81	78.64
Group intervention	25	24.27
Family intervention	2	1.94
Pedagogical/educational counseling	6	5.83
Career counseling	20	19.42
Psychotherapy	21	20.39
Short-term psychotherapy	4	3.88
Self-help	2	1.94
Peer-to-peer intervention	4	3.88
Telephone line	2	1.94
Assessment	7	6.80
Autogenic training	2	1.94
Stress management interventions	5	4.85
Crisis interventions	6	4.85
Interventions for disabled students	3	2.91
Interventions with learning difficulties	4	3.88
Interventions for special education needs	4	3.88
Mindfulness	2	1.94
Advice and information	6	5.83
Psychiatric consultation	3	2.91
Relaxation sessions	2	1.94
Training	5	4.85
Workshops, presentations, lectures, and education	22	21.36
Referral to other services	3	2.91
Medical consultations	2	1.94
ND	8	7.77
Other	11	10.68

Twenty-five (24.27%) institutions offered group interventions to their students, 22 (21.36%) offered workshops, presentations, lectures, and education to their students, 21 (20.39%) offered psychotherapy, and 20 (19.42%) offered career counseling (Table 63). We coded as "Other" interventions those reported by only one institution, such as applied improvisation, festive habits and anti-harassment interventions, health promotion actions, summer internship programs, supervisions, and support by social workers.

Focusing on psychotherapy, no differences in the percentage of institutions reporting psychotherapeutic interventions were found according to the institutions' geographical area (χ^2 = 4.12, p = .390) (Table 64), and dimension (χ^2 = 3.68, p = .299) (Table 65).

Table 64. Contingency table of services offering psychotherapy in each geographical area

Geographical Area	Psychotherapy				χ2	df	p
	No		Yes				
	n [expected]	row %	n [expected]	row %			
Northern Europe	19 [16.72]	90.48	2 [4.28]	9.52	1.53	1	.217
Eastern Europe	16 [14.33]	88.89	2 [3.67]	11.11	.96	1	.329
Western Europe	21 [22.29]	75.00	7 [5.71]	25.00	.37	1	.545
Southern Europe	24 [26.27]	72.73	9 [6.73]	27.27	.96	1	.327
Middle Eastern Europe	2 [2.39]	66.67	1 [.61]	33.33	.31	1	.576
Tot	*82*	*79.61*	*21*	*20.39*			

$\chi2 = 4.12$, $df = 4$, $p = .390$

Table 65. Contingency table of services offering psychotherapy in institutions with different dimensions

Institution dimension	Psychotherapy				χ2	df	p
	No		Yes				
	n [expected]	row %	n [expected]	row %			
Small	44 [42.29]	83.02	9 [10.71]	16.98	.34	1	.559
Medium	11 [11.17]	78.57	3 [2.83]	21.43	.01	1	.910
Large	17 [16.76]	80.95	4 [4.24]	19.05	.02	1	.896
Very large	3 [4.79]	50.00	3 [1.21]	50.00	3.32	1	.069
Tot	*75*	*79.79*	*19*	*20.21*			

$\chi2 = 3.68$, $df = 3$, $p = .299$

Moreover, no significant differences were found in the percentage of institutions offering psychotherapy according to the institution's legal status ($\chi^2 = 5.14$, $p = .162$), even if consortium institutions responding to our survey (comprising institutions with different legal statuses) showed a significant higher percentage of services offering psychotherapeutic interventions ($\chi^2 = 3.98$, $p = .046$) (Table 66).

Table 66. Contingency table of services offering psychotherapy in institutions with different legal status

Institution Legal Status	**Psychotherapy**				**χ2**	**df**	**p**
	No		Yes				
	n [expected]	row %	n [expected]	row %			
Public	50 [50.16]	79.37	13 [12.84]	20.63	.00	1	.960
Private	17 [15.13]	89.47	2 [3.87]	10.53	1.14	1	.287
Private government-dependent	14 [14.33]	77.78	4 [3.67]	22.22	.04	1	.847
Consortium	1 [2.39]	33.33	2 [.61]	66.67	3.98	1	.046
Tot	*82*	*79.61*	*21*	*20.39*			

χ2 = 5.14, df = 3, p = .162

Finally, we found statistically significant differences in the percentage of services offering psychotherapy to their students according to institution category ($\chi^2 = 9.17$, p = .027). In particular, consortium institutions responding to our survey (comprising institutions with different categories) showed a significant higher percentage of services offering psychotherapeutic interventions ($\chi^2 = 3.98$, p = .046) (Table 67).

Table 67. Contingency table of services offering psychotherapy in institutions with different category

Institution category	**Psychotherapy**				**χ2**	**df**	**p**
	No		Yes				
	n [expected]	row %	n [expected]	row %			
University	62 [58.91]	83.78	12 [15.09]	16.22	.80	1	.373
University of applied sciences	9 [11.94]	60.00	6 [3.06]	40.00	3.55	1	.060
Other institution	10 [8.76]	90.91	1 [2.24]	9.09	.86	1	.353
Consortium	1 [2.39]	33.33	2 [.61]	66.67	3.98	1	.046
Tot	*82*	*79.61*	*21*	*20.39*			

χ2 = 9.17, df = 3, p = .027

At the end of the intervention offered by the psychological service, if needed, students were addressed to other services in 84.47% (n = 87) of cases (Table 68).

Table 68. Addressment to other services

	n	%
No	16	15.53
Yes	87	84.47

7.2.5 Theoretical orientation of interventions offered

21.36% of institutions (n = 22) stated that their interventions followed only a specific theoretical orientation, while 37.86% (n = 39) were composed by professionals of different theoretical orientations (Table 69).

Table 69. Plurality of theoretical orientations

	n	%
Only one	22	21.36
More than one	39	37.86
ND	42	40.78

Most services offered cognitive-behavioral interventions (n = 38, 36.89%), while psychodynamic interventions were offered in 12 (11.65%) institutions (Table 70). We coded as "Other" approaches those reported by only one institution, such as client-centered interventions, comparative interventions, dialectical behavioral interventions, occupational psychology, educational approach to learning problems, metacognitive approach, motivational interviewing, relational dialogical interventions, and symbol therapy.

Table 70. Theoretical orientations

	n	%
Psychodynamic approach	12	11.65
Cognitive-behavioral approach	38	36.89
Other cognitive approaches	3	2.91
Humanistic approach	2	1.94
Systemic-relational approach	6	5.83
Gestalt approach	4	3.88
Integrative approach	6	5.83
Mindfulness approach	2	1.94
Person centered approach	6	5.83
Self-help approach	2	1.94
Acceptance and commitment	2	1.94
EMDR	4	3.88
Health promotion or health psychology	2	1.94
Positive psychology	2	1.94
Relaxation and other non-verbal methods	2	1.94
Solution focused approach	3	2.91
Sport and performance psychology	2	1.94

Trauma processing and therapy	3	2.91
Eclectic approach	2	1.94
ND	31	30.10
Other	19	18.45

7.2.6 Students' psychological problems

Regarding psychological problems reported by students accessing psychological services, in the opinion of services' staff, students mostly reported anxiety (n = 57, 55.34%), social and relational problems (n = 40, 38.83%), academic issues (n = 37, 35.92%), and mood disorders (n = 37, 35.92%). Moreover, students asking for help seemed to be characterized by stress and overload (n = 23, 22.33%), family problems (n = 18, 17.48%), and adaptation/integration difficulties (n = 13, 12.62) (Table 71). We coded as "Other" problems reported by only one institution, such as sleep disorders, physical health problems and financial problems, difficult choices, eating disorders, mourning, and personality disorders.

Table 71. Students' psychological problems

	n	**%**
Academic issues	37	35.92
Doubts about future career	3	2.91
Concentration/motivation problems	6	5.83
Learning disabilities	3	2.91
Adaptation/integration difficulties	13	12.62
Cultural problems	2	1.94
Homesickness	5	4.85
Anxiety	57	55.34
Mood disorders	37	35.92
Suicidal ideation	2	1.94
Psychiatric issues	8	7.77
Addictions	3	2.91
Stress/overload	23	22.33
Social/relational problems	40	38.83
Family problems	18	17.48
Emotional problems	4	3.88
Identity crisis	5	4.85
Stage of life related issues	5	4.85
Problems in self-confidence/self-esteem	7	6.80
Autonomy difficulties	2	1.84
Procrastination	2	1.94
ND	9	8.74
Other problems	20	19.42

7.2.7 Organizational issues

Regarding organizational issues reported by psychological services staff, shortage of staff was the most frequently reported (n = 25, 24.27%), followed by a high number of requests (n = 22, 21.36%). Eight (7.77%) institutions stated they perceived no problems in their services (Table 72). We coded as "Other" issues those reported by only one institution, such as not enough qualified staff, difficulties in identifying serious cases, difficulties in estimating the needed human resources, high number of absences at the first interview, lack of a psychiatrist, lack of care for disabled students, lack of supervision with more experienced psychotherapists, and maintaining confidentiality.

Table 72. Organizational issues

	n	%
Shortage of staff	25	24.27
Inadequate spaces	6	5.83
Funding problems	9	8.74
Number of requests/waitlists	22	21.36
Problems in addressing students to help services	6	5.83
Poor knowledge of the service within the institution	2	1.94
Coordination problems	4	3.88
Problems in time schedule	3	2.91
Difficulties in addressing students to public health services	2	1.94
Lack of interventions for foreign students	2	1.94
Students with more complex conditions	3	2.91
No problems perceived	8	7.77
No answer	24	23.30
Other	27	26.21

7.2.8 Personal remarks

Only 11 institutions answered the question about personal remarks. Five of them focused on further difficulties than the ones they highlighted in the question about organizational issues, i.e., offering only a low-level service, increase in demands, increase in students with personality problems, difficulties in working with different cultures, and difficulties in valuing psychology in non-psychological institutions. Four of them suggested services implementations, i.e., developing good cooperation between institutions involved in the management of the service, developing interventions for international students, offering mindfulness interventions, offering interventions for alcohol and drug addictions, and increasing the number of sessions for free. One institution apologized for not having more detailed data, but their services were quite recent, and one commented that a little touch can change a lot.

7.3 Discussion

The present study aimed at gaining a detailed understanding on the activities provided in students' psychological centers across Europe through a web-based semi-structured survey. Through email and/or contact forms, we successfully contacted 2,806 (94.00%) of the 2,985 institutions identified through our previous retrospective analysis (Cfr. Chapter 6), but only 121 institutions (4.05% of total European institutions) participated in the survey. Throughout Europe, the percentage of institutions answering the survey differed according to the institutions' geographical area. Notably, in Southern Europe, the percentage of participating institutions was higher than the total percentage of Europe perhaps because the research team belonged to the same geographical area. 33.06% of our total sample came from Southern Europe, 26.45% from Western Europe, 19.01% from Northern Europe and from Eastern Europe, and only 2.48% from Middle Eastern Europe. Survey questions focused on the effective presence or absence of students' psychological centers, the services provided, their theoretical orientation and their duration, the qualification and number of practitioners involved, the most common issues reported by students, and the most common issues these services had to face from an organizational point of view.

Regarding the availability of students' consulting services, 85.12% of participating institutions reported psychological services, suggesting a higher interest in international data sharing among institutions providing care to their students.

Contrary to the results of our previous study (Cfr. Chapter 6), the percentage of participating institutions reporting psychological services did not differ according to different geographical areas, dimensions, legal statuses, and categories. This could be connected to the poor representativity of our sample. However, we should also consider that such differences could be influenced by statistically significant differences between data on psychological services detected in our survey and those reported online. These results confirmed the importance of a wider and deeper investigation of European students' psychological services, so that we can gain a realistic overview on services offered; thus, overcoming problems connected to English barriers and online data availability.

Regarding the institutional framework of students' psychological services, most of them were administered by the higher education institution and were provided by structured staff, underlining a strong investment in students' mental health from not only health-related, but also educational-related institutions.

In most cases, interventions were addressed to students only and they were mostly free. This meets the needs of students' population, mainly consisting of unemployed emerging adults who are financially dependent on their family of origin (Albertini & Kohli, 2013; Cherlin et al., 1997; Seiffe-Krenke, 2006, Seiffge-Krenke, 2013).

The number of students accessing consulting services per year was very heterogeneous: from five to 4,000. The mean percentage of students enrolled in an institution accessing students' psychological services was 4.94% (DS = 7.62), ranging from .15% to 41.39%. This variability could relate to the fact that, as expected, the number of students enrolled in an institution positively and significantly correlated with the number of students accessing the service every year. However, such correlation seems not to fully explain heterogeneous accesses. Indeed, previous research underlined that the help-seeking behavior of emerging adults is hampered by a preference for self-reliance and stigma and favorited by positive past experiences of mental health service (Gulliver et al., 2010; Rickwood et al., 2007; Spence et al., 2016). Thus, further investigation on help-seeking behavior in European higher education students and their access to students' consulting services is needed.

The mean number of professionals involved in each service was 5.49 (DS = 6.39), in a range that varied from one to 35. The mean number of professionals involved positively and significantly correlated with the number of students enrolled in the institution and the number of students accessing the services every year. These data require further investigation. Indeed, a higher number of students asking for psychological intervention can lead an institution to invest more extensively in its consultant psychological services as well as in their personnel, but at the same time, if a service can count on more professionals, then more psychological interventions for more students can be activated. Moreover, a higher number of personnel involved implies a higher economical effort, which only wider institutions with a higher number of students enrolled can possibly afford.

Interventions were most commonly administrated by psychologists, psychotherapists and counselors. Counselling was the most widely provided intervention, followed by group interventions, workshops, psychotherapy, and career counseling. The maximum number of sessions for each intervention was variable and not predetermined in most cases, but among institutions providing interventions with a predetermined duration, only 9.71% offered interventions lasting more than 10 sessions. These data are in line with our previous results (Cfr. Chapter 6), underlining that students mental health services gives priority to first-level interventions

(Conley et al., 2015), even though there is a need to increase the provision of psychotherapy services (Cleary et al., 2011).

At the end of the intervention offered by higher education psychological services, if needed, students could be addressed in other services in 84.47% of cases. Thus, a worthwhile collaboration between different education and health institutions is needed because only through such collaboration between educational- and health-based institutions, students' needs can be addressed in an integrated and interdisciplinary way (Ghilardi et al., 2017).

Consistent with previous literature (Beiter et al., 2015; Darling et al., 2007; Jaisoorya et al., 2017; Karyotaki et al., 2020; Larcombe et al., 2016; McIntyre et al., 2018; Oyekcin et al., 2017; Tang et al., 2018; Tran et al., 2017; Villatte et al., 2017), in the opinion of services' staff, students mostly reported anxiety, social and relational problems, academic issues, and mood disorders. Finally, regarding organizational issues reported, shortage of staff was the most frequently reported, followed by a high number of requests, suggesting a higher demand for clinical interventions that not always received adequate responses on an institutional level.

7.4 Limitations and future directions

The present study has some important limitations. First of all, the small and non-representative sample size does not allow the generalizability of the results. Moreover, except for Italy, the survey was conducted in English, which was not the mother tongue of the majority of the respondents. Thus, potential misunderstandings of the questions and misuse of the language in the answers can occur, leading to connected biases.

Future research is needed to deepen our understanding of students' psychological services throughout Europe as well as their activities, and a more systematic and comprehensive collaboration is needed to gain a reliable overview of international data.

7.5 Clinical implications

Studies presented in Chapter 5, Chapter 6 and Chapter 7 are first attempts to underline the importance of mapping the student counseling centers and services available in European tertiary education institutions, and also to promote international data sharing of these important insights. This would enable systematic and continuous monitoring of students' mental health, allowing tertiary education institutions to identify their students' mental health needs as well as assess and improve the efficacy of their existing counseling programs. Moreover, such an approach would reinforce the collaboration between counseling staff and other bureaus (academic departments, administrative offices, and institutions) in order to attain a wider integration of university services (Güneri et al., 2003).

CONCLUSIONS

In recent years, adulthood started being considered as an ongoing process characterized by continuous disequilibrium that can be faced relying on the environment as well as on one's internal structures. The notion of "*emerging adulthood*" (Arnett, 2000; Arnett et al., 2014) has been introduced, referring to a phase of development between adolescence and adulthood in which young people try to gain their independence from their families of origin, develop their own values, and try to figure out who they are and who they want to be (Bonovitz, 2018) (Cfr. 1.1).

Many emerging adults have to also face tasks connected to entering higher education, such as relocation, performance demands, changes in living conditions and lifestyles, and dealing with changes in their social and educational contexts (Schulenberg & Schoon, 2012; Settersten & Ray, 2010). Research outlined high levels of psychological distress in higher education students, most notably depression, anxiety, suicide risk, and alcohol and substances abuse (Beiter et al., 2015; Chun et al., 2013; Cranford et al., 2009; Deb et al., 2016; Oberleitner et al, 2011; Peltzer et al, 2013; Poorolajal et al., 2017; Schofield et al., 2016) (Cfr 1.2).

Moreover, higher education students seemed to be characterized by higher psychological distress compared to the general population (Ibrahim et al., 2013) and to their working peers (Stallman, 2010; Ibrahim et al., 2013; Leahy et al., 2010). A preliminary study conducted among Italian emerging adults underlined higher levels of anxiety and depression, lower levels of poor perceived health and a greater risk of low mental health in tertiary education students compared to their working peers (Franzoi, D'Ovidio et al., *under review*) (Cfr. 1.3).

Besides, previous research underlined that students' psychological distress is influenced not only by academic challenges, but also by other relational, demographical, economical and contextual conditions (Alsubaie et al., 2019; Bukhari & Azfal, 2017; Friedlander et al., 2007; Hicks & Heastie, 2008; Larcombe et al., 2016; Mahmoud et al., 2012; Mikolajczyk et al., 2008; Richardson & Elliott, 2011; Vungkhanching et al., 2017). A systematic literature review underlined that living arrangements were particularly relevant for students' mental health. Living alone and in poor housing conditions were significant predictors of depressive symptoms (Kono et al., 2015; Ran et al., 2016) while higher levels of anxiety emerged in students living alone or not being satisfied with their housing conditions (McIntyre et al., 2018; Tran et al., 2017). Moreover, a variety of health and health-related issues seemed to be connected to different housing conditions. Specifically, living with parents resulted in a protective factor for alcohol consumption and risky sexual behaviors

(Hallett et al., 2013) while living in a dormitory or with peers was associated with excessive substance use (Boot et al., 2010; Rogowska, 2018) (Cfr. 1.4).

Consistent with previous studies from other European universities (Çebi & Demir, 2019; Oksanen et al., 2017; Shankland et al., 2018; Piumatti et al., 2018; Véron et al., 2019), our descriptive, cross-sectional study aimed at investigating mental health in students attending the University of Turin underlined concerning levels of distress (Cfr. Chapter 2). Students showed high levels of trait and state anxiety, and a remarkable presence of moderate and severe depression (Chen et al., 2013; Chun et al., 2013; Reyes-Rodríguez et al., 2013; Villatte et al., 2017). The percentage of students at risk for suicide was lower than the one detected in previous studies, but still deserves attention (Chesin & Jelic, 2012; Oyekcin et al., 2017; Poorolajal et al., 2017; Torres et al., 2017). Contrary to previous research (Alsubaie et al., 2019; Bukhari & Azfal, 2017; Larcombe et al., 2016; Mikolajczyk et al., 2008; Richardson & Elliott, 2011; Vungkhanching et al., 2017), we did not find an overall effect of housing conditions on psychological distress. We only found a significant negative correlation between depression and being a non-resident student, while being a commuter vs all other living conditions resulted as a predictor of lower trait anxiety.

A moderated mediation model of negative affectivity, alexithymia and housing conditions on anxiety and depression supported our hypothesis that alexithymia mediates the association between negative affectivity, state and trait anxiety and depression, while controlling for age and gender. However, the results did not confirm our hypothesis that students' housing conditions have a significant impact on anxiety and depression (Biasi et al., 2018; Stroebe et al., 2015) (Cfr. Chapter 3).

These data shed light on higher education students' distress, focusing on their connections with both clinical facets (i.e., negative affectivity and emotional regulation) and contextual facets (i.e., student housing conditions), but little is known about the longitudinal evolution of mental health problems and psychological distress in higher education students (Zivin et al., 2009).

An explanatory, longitudinal study with a "pre-post" design aimed at exploring the development of distress over time and its association with other clinical, contextual and demographic variables in students attending the University of Turin did not find significant differences in distress at the beginning and at the end of their first year of university attendance (Cfr. Chapter 4). Only commuter students showed significant differences over time in state and trait anxiety, both lower at the retest. However, such results have to be taken cautiously since only a small number of

freshmen agreed to be tested at the time of their enrollment, and less than half of them completed their assessment after attending a full academic year of lessons.

In a time when educational systems all over the world have recently increased their concern for the mental health and emotional well-being of university students (Cvetkovski et al., 2018), our results suggest the importance of stable clinical variables in students' distress, not just focusing on contextual facets of their daily lives. Indeed, these characteristics can be of extreme importance both in targeting interventions and in training health professionals who administer those interventions.

In this context, students' psychological services are essential in providing care and support for emerging adults (Buchanan et al., 2012; Gallagher, 2009), helping students face ongoing issues affecting their performance, and also allowing students with stable psychopathology access to mental health services (Biasi et al., 2017).

A systematic literature review of psychological and psychotherapeutic intervention offered to higher education students in European tertiary education institutions underlined the prevalence and the effectiveness of counseling programs, cognitive-behavioral and psychodynamic interventions, and mindfulness (Bernhardsdottir et al. 2013; Bjornsson & Arnkelsson, 2015; Galante et al., 2018; Lynch et al., 2018; Thorgeirsdottir et al., 2015; Vescovelli et al., 2017). Moreover, recent research has paid increasing attention to online and mobile interventions (Broglia et al., 2019; Harrer et al., 2018; Kvillemo et al., 2016; Ponzo et al., 2020; Saleh et al., 2018; Turner et al., 2020) (Cfr. Chapter 5).

An explorative, comparative study aimed at mapping data available online on clinical intervention addressed to higher education students showed that nearly half of European tertiary education institutions offered students psychological services. Institutions with different geographical areas, dimensions, legal statuses, and categories reported varying percentages concerning the presence of students' psychological centers. Regarding the specific services offered by each institution, most of them reported counseling services, career counseling services, and not otherwise specified psychological services. Only a few institutions in Europe reported offering psychotherapies on their websites despite the widely established effectiveness of these types of counseling support for tertiary education students (Cfr. Chapter 65.2.1).

A web-based semi-structured survey conducted with personnel working in these services throughout Europe showed that the majority of them was a service administered by the institution

and provided by structured staff. Staff was mostly composed of psychologists, psychotherapists and counselors. Moreover, the number of students accessing these services per year was very heterogeneous, and interventions offered were mostly brief. Counselling was the most widely provided, followed by group interventions, workshops, psychotherapy, and career counseling. In the opinion of services' staff, students accessing those services mostly reported anxiety, social and relational problems, academic issues and mood disorders. Regarding organizational issues, shortage of staff was the most frequently reported, followed by a high number of requests (Cfr. Chapter 7).

It is crucial that more comprehensive services are provided in order to support students with mental health concerns, and innovative institutional, curricular, and service developments will be instrumental in cultivating healthy academic communities (Manthey et al., 2015). Health and education professionals alike must assign appropriate importance to students' mental health and begin investing in tertiary education institutions as key sites for mental health promotion. Indeed, facing higher education students' distress requires specialistic intervention and prevention services that are capable of addressing mental health conditions in a remarkably diverse population (Ciotoli et al., 2018; Mahmoud et al., 2012). Mapping students' psychological centers and services available in European tertiary education institutions and promoting international data sharing would enable systematic and continuous monitoring of students' mental health; thus, allowing tertiary education institutions to identify their students' mental health needs as well as assessing and improving the efficacy of their existing counseling programs. Moreover, such an approach would reinforce the collaboration between counseling staff and other bureaus (academic departments, administrative offices, and institutions) in order to attain a wider integration of higher education services (Güneri et al., 2003).

Students' psychological services can be useful in helping students deal with distress, adjustment difficulties, and some personal and interpersonal problems (Eichler, 2011). However, counseling and brief interventions cannot contain those students who have more serious mental health issues, or those who cannot always access or be addressed to other mental health services. Thus, clinical psychologists and psychotherapists working in higher education services often have to struggle with incompatibility between the time a student has a need and the time that can be offered (Hallett, 2012). On the contrary, investing in professionally trained staff and in the possibility of long-term treatment options would go a long way in supporting students who might not otherwise have access to treatment. Indeed, psychotherapy can be of great importance for higher education students in mitigating the intensity of negative effects; thus, gaining a better understanding of themselves,

decreasing their vulnerability to negative affective states and opening up the potential for ongoing development, ultimately leading to a more reality-based decision-making process (Schechter et al., 2018).

SUPPLEMENTARY MATERIAL

Table 73. Predictors of BDI-II considering students living with their family of origin vs. all other students

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	.15	1.34	2.55	.012	.77	6.05
ASQ C	-.13	.11	-1.99	.048	-.45	.00
ASQ DC	.19	.09	2.69	.008	.06	.42
ASQ RS	-.08	.14	-1.27	.206	-.45	.10
ASQ NA	.24	.12	3.33	.001	.16	.61
ASQ PR	.03	.12	.45	.654	-.18	.28
TAS-20 TOT	.22	.06	3.20	.002	.07	.29
PID-5-BF TOT	.15	1.24	2.28	.024	.37	5.25
Housing_Living with families	.03	1.26	.45	.653	-1.91	3.04

Altogether, the predictors explained the 46% of the variance observed in depression scores, $F(9,173) = 16.62$, $p < .001$.

Table 74. Predictors of STAI-Y State considering students living with their family of origin vs. all other students

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	.09	1.88	1.33	.185	-1.21	6.23
ASQ C	-.02	.16	-.28	.783	-.36	.27
ASQ DC	.13	.13	1.65	.101	-.04	.46
ASQ RS	.04	.20	.48	.634	-.29	.48
ASQ NA	.29	.16	3.46	.001	.24	.88
ASQ PR	.03	.16	.32	.752	-.27	.37
TAS-20 TOT	.21	.08	2.59	.010	.05	.36
PID-5-BF TOT	.00	1.74	-.02	.983	-3.47	3.40
Housing_Living with families	.05	1.77	.82	.416	-2.05	4.93

Altogether, the predictors explained the 30% of the variance observed in state anxiety, $F(9,173) = 8.08$, $p < .001$.

Table 75. Predictors of STAI-Y Trait considering students living with their family of origin vs. all other students

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	.10	1.38	1.87	.064	-.15	5.31
ASQ C	-.08	.12	-1.31	.191	-.39	.08
ASQ DC	.10	.09	1.49	.138	-.05	.32
ASQ RS	-.03	.14	-.45	.655	-.35	.22
ASQ NA	.35	.12	5.29	< .001	.39	.87
ASQ PR	.16	.12	2.49	.014	.06	.53
TAS-20 TOT	.25	.06	3.89	< .001	.11	.34
PID-5-BF TOT	.12	1.28	1.95	.053	-.03	5.01
Housing_Living with families	.00	1.30	.02	.984	-2.54	2.59

Altogether, the predictors explained the 56% of the variance observed in trait anxiety, $F(9,173) = 24.60$, $p < .001$.

Table 76. Predictors of SHSS considering students living with their family of origin vs. all other students

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	-.09	.46	-1.23	.220	-1.46	.34
ASQ C	-.10	.04	-1.23	.221	-.12	.03
ASQ DC	.15	.03	1.76	.080	-.01	.11
ASQ RS	-.11	.05	-1.46	.148	-.16	.03
ASQ NA	.18	.04	2.07	.040	.00	.16
ASQ PR	.13	.04	1.53	.127	-.02	.14
TAS-20 TOT	-.11	.02	-1.29	.199	-.06	.01
PID-5-BF TOT	.20	.42	2.46	.015	.20	1.87
Housing_Living with families	-.04	.43	-.51	.613	-1.06	.63

Altogether, the predictors explained the 20% of the variance observed in suicide risk scores, $F(9,173) = 4.84$, $p < .001$.

Table 77. Predictors of BDI-II considering commuter students vs. all other students

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	-.09	.46	-1.23	.220	-1.46	.34
ASQ C	-.10	.04	-1.23	.221	-.12	.03
ASQ DC	.15	.03	1.76	.080	-.01	.11
ASQ RS	-.11	.05	-1.46	.148	-.16	.03
ASQ NA	.18	.04	2.07	.040	.00	.16
ASQ PR	.13	.04	1.53	.127	-.02	.14
TAS-20 TOT	-.11	.02	-1.29	.199	-.06	.01
PID-5-BF TOT	.20	.42	2.46	.015	.20	1.87
Housing_Commuters	-.04	.43	-.51	.613	-1.06	.63

Altogether, the predictors explained the 46% of the variance observed in depression scores, $F(9,173) = 16.61$, $p < .001$.

Table 78. Predictors of STAI-Y State considering commuter students vs. all other students

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	.15	1.34	2.60	.010	.84	6.11
ASQ C	-.13	.11	-1.99	.048	-.45	.00
ASQ DC	.19	.09	2.70	.008	.07	.42
ASQ RS	-.08	.14	-1.24	.217	-.45	.10
ASQ NA	.24	.12	3.37	.001	.16	.62
ASQ PR	.03	.12	.45	.653	-.18	.28
TAS-20 TOT	.22	.06	3.19	.002	.07	.29

PID-5-BF TOT	.16	1.20	2.42	.017	.54	5.29
Housing_Commuters	-.02	1.51	-.42	.673	-3.62	2.35

Altogether, the predictors explained the 32% of the variance observed in state anxiety scores, $F(9,173) = 9.05$, $p < .001$.

Table 79. Predictors of SHSS considering commuter students vs. all other students

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	-.09	.46	-1.25	.214	-1.47	.33
ASQ C	-.10	.04	-1.21	.230	-.12	.03
ASQ DC	.15	.03	1.77	.078	-.01	.11
ASQ RS	-.11	.05	-1.43	.155	-.16	.03
ASQ NA	.18	.04	2.07	.040	.00	.16
ASQ PR	.14	.04	1.60	.111	-.02	.14
TAS-20 TOT	-.11	.02	-1.25	.213	-.06	.01
PID-5-BF TOT	.19	.41	2.38	.019	.17	1.78
Housing_Commuters	-.03	.52	-.37	.710	-1.21	.83

Altogether, the predictors explained the 20% of the variance observed in trait anxiety scores, $F(9,173) = 4.82$, $p < .001$.

Table 80. Predictors of BDI-II considering non-resident students living in a residence hall vs. all other students

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	.15	1.33	2.57	.011	.79	6.05
ASQ C	-.13	.11	-1.92	.056	-.45	.01
ASQ DC	.20	.09	2.75	.007	.07	.42
ASQ RS	-.08	.14	-1.20	.230	-.44	.11
ASQ NA	.24	.12	3.26	.001	.15	.60
ASQ PR	.03	.12	.45	.657	-.18	.28
TAS-20 TOT	.22	.06	3.17	.002	.07	.29
PID-5-BF TOT	.15	1.20	2.39	.018	.50	5.24
Housing_Residence	-.05	1.38	-.91	.365	-3.98	1.47

Altogether, the predictors explained the 47% of the variance observed in depression scores, $F(9,173) = 16.75$, $p < .001$.

Table 81. Predictors of STAI-Y State considering non-resident students living in a residence hall vs. all other student

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	.10	1.88	1.43	.156	-1.03	6.38

ASQ C	-.03	.16	-.40	.690	-.38	.25
ASQ DC	.13	.13	1.56	.120	-.05	.45
ASQ RS	.03	.20	.39	.697	-.31	.46
ASQ NA	.30	.16	3.60	< .001	.26	.91
ASQ PR	.02	.16	.22	.829	-.28	.35
TAS-20 TOT	.21	.08	2.58	.011	.05	.36
PID-5-BF TOT	.02	1.69	.26	.795	-2.90	3.78
Housing_Residence	.08	1.94	1.26	.211	-1.40	6.28

Altogether, the predictors explained the 30% of the variance observed in state anxiety scores, $F(9,173) = 8.23$, $p < .001$.

Table 82. Predictors of STAI-Y Trait considering non-resident students living in a residence hall vs. all other student

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	.10	1.38	1.91	.058	-.09	5.34
ASQ C	-.08	.12	-1.40	.164	-.40	.07
ASQ DC	.09	.09	1.43	.155	-.05	.31
ASQ RS	-.03	.14	-.52	.605	-.36	.21
ASQ NA	.35	.12	5.38	< .001	.41	.88
ASQ PR	.16	.12	2.47	.015	.06	.53
TAS-20 TOT	.25	.06	3.92	< .001	.11	.34
PID-5-BF TOT	.12	1.24	2.08	.039	.13	5.03
Housing_Residence	.05	1.43	1.01	.314	-1.37	4.26

Altogether, the predictors explained the 56% of the variance observed in trait anxiety scores, $F(9,173) = 24.86$, $p < .001$.

Table 83. Predictors of SHSS considering non-resident students living in a residence hall vs. all other student

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	-.09	.46	-1.28	.204	-1.48	.32
ASQ C	-.09	.04	-1.18	.241	-.12	.03
ASQ DC	.16	.03	1.79	.075	-.01	.12
ASQ RS	-.11	.05	-1.42	.157	-.16	.03
ASQ NA	.18	.04	2.00	.047	.00	.16
ASQ PR	.14	.04	1.59	.114	-.02	.14
TAS-20 TOT	-.11	.02	-1.27	.205	-.06	.01
PID-5-BF TOT	.19	.41	2.37	.019	.16	1.78
Housing_Residence	-.03	.47	-.42	.674	-1.13	.73

Altogether, the predictors explained the 20% of the variance observed in trait anxiety scores, $F(9,173) = 4.83$, $p < .001$.

Table 84. Predictors of BDI-II considering non-resident students not living in a residence hall vs. all other student

	β	SE	t	p	95%CI

					Lover	Upper
Gender	.16	1.34	2.64	.009	.89	6.17
ASQ C	-.13	.11	-1.93	.055	-.45	.01
ASQ DC	.20	.09	2.74	.007	.07	.42
ASQ RS	-.08	.14	-1.17	.245	-.44	.11
ASQ NA	.24	.12	3.36	.001	.16	.61
ASQ PR	.03	.12	.44	.664	-.18	.28
TAS-20 TOT	.22	.06	3.15	.002	.07	.29
PID-5-BF TOT	.16	1.21	2.53	.012	.68	5.46
Housing_Non-resident	.04	1.33	.77	.443	-1.61	3.66

Altogether, the predictors explained the 47% of the variance observed in depression scores, $F(9,173) = 16.70$, $p < .001$.

Table 85. Predictors of STAI-Y State considering non-resident students not living in a residence hall vs. all other student

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	.10	1.89	1.40	.165	-1.09	6.37
ASQ C	-.02	.16	-.27	.785	-.36	.28
ASQ DC	.14	.13	1.65	.101	-.04	.46
ASQ RS	.04	.20	.50	.620	-.29	.49
ASQ NA	.29	.16	3.48	.001	.25	.89
ASQ PR	.02	.16	.26	.795	-.28	.36
TAS-20 TOT	.20	.08	2.54	.012	.05	.36
PID-5-BF TOT	.02	1.71	.20	.843	-3.04	3.72
Housing_Non-resident	.01	1.89	.19	.847	-3.36	4.08

Altogether, the predictors explained the 29% of the variance observed in state anxiety scores, $F(9,173) = 7.98$, $p < .001$.

Table 86. Predictors of STAI-Y Trait considering non-resident students not living in a residence hall vs. all other student

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	.10	1.38	1.95	.052	-.03	5.42
ASQ C	-.07	.12	-1.22	.224	-.38	.09
ASQ DC	.10	.09	1.57	.119	-.04	.33
ASQ RS	-.02	.14	-.32	.749	-.33	.24
ASQ NA	.35	.12	5.31	< .001	.40	.86
ASQ PR	.16	.12	2.52	.013	.07	.53
TAS-20 TOT	.24	.06	3.86	< .001	.11	.34
PID-5-BF TOT	.12	1.25	2.13	.034	.20	5.13
Housing_Non-resident	.05	1.38	1.02	.308	-1.31	4.12

Altogether, the predictors explained the 56% of the variance observed in trait anxiety scores, $F(9,173) = 24.87$, $p < .001$.

Table 87. Predictors of SHSS considering non-resident students not living in a residence hall vs. all other student

	β	SE	t	p	95%CI	
					Lover	Upper
Gender	-.08	.45	-1.16	.246	-1.43	.37
ASQ C	-.09	.04	-1.10	.271	-.12	.03
ASQ DC	.16	.03	1.86	.064	.00	.12
ASQ RS	-.10	.05	-1.29	.198	-.16	.03
ASQ NA	.18	.04	2.06	.041	.00	.16
ASQ PR	.14	.04	1.61	.108	-.01	.14
TAS-20 TOT	-.11	.02	-1.32	.188	-.06	.01
PID-5-BF TOT	.20	.41	2.56	.011	.24	1.87
Housing_Non-resident	.09	.45	1.28	.202	-.31	1.48

Altogether, the predictors explained the 21% of the variance observed in trait anxiety scores, $F(9,173) = 5.03$, $p < .001$.

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