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Heavy study investment in college students: Studyholism and Study Engagement prevalence

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ABSTRACT. Lo *Studyholism* è una nuova potenziale condizione clinica definita come un disturbo correlato al disturbo ossessivo-compulsivo che può essere associato sia ad alti che a bassi livelli di *Study Engagement*. Questo studio ha l'obiettivo di valutare la prevalenza di Studyholism, Study Engagement e quattro tipi di studente (*Disengaged Studyholic*, *Engaged Studyholic*, *Engaged student*, *Detached student*) in un campione ampio ed eterogeneo di studenti universitari italiani. Inoltre, ha l'obiettivo di determinare se ci sono differenze tra i tipi di studente per quanto riguarda il genere, l'area di studio e l'età. I partecipanti (n = 5159) frequentavano diversi anni di corso e diversi corsi di studio in varie città italiane. Sono stati utilizzati test di Pearson del chi-quadro e ANOVA. Lo *Studyholism* è diffuso (15.4%) e gli *Engaged Studyholic* (3.2%) sono il tipo di studente con maggior prevalenza. Il tipo meno diffuso è l'*Engaged student* (1.6%). Inoltre, ci sono più femmine tra i *Detached student* e gli *Engaged Studyholic*. Data la sua prevalenza, studi futuri dovrebbero analizzare ulteriormente lo *Studyholism* in bambini, pre-adolescenti, e adolescenti, così come in altri paesi.

SUMMARY. Studyholism is a new potential clinical condition defined as an obsessive-compulsive related disorder, which might be associated with either high or low levels of Study Engagement. This study aimed to evaluate the prevalence of Studyholism, Study Engagement, and four types of student (i.e., Disengaged Studyholics, Engaged Studyholics, Engaged students, Detached students) on a wide and heterogeneous sample of Italian college students. Moreover, it aims to discern if there are any differences between types of student concerning gender, academic major, and age. The participants (n = 5159) were in different years and studied different academic majors in various Italian cities. Pearson's chi-squared tests and an ANOVA have been performed. Studyholism is widespread (15.4%) and Engaged Studyholics (3.2%) are the most prevalent type of student. The least prevalent type is the Engaged student (1.6%). Moreover, there are more females in the Detached student and the Engaged Studyholic types. Given its prevalence, future studies should further analyze Studyholism in children, pre-adolescents, and adolescents, as well as in other countries.

Keywords: *OCD, Workaholism, Study addiction*

INTRODUCTION

Workaholism, that is, problematic overworking, has been widely analyzed and the research showed that it is associated with psychological and physical adverse outcomes, with family functioning problems and issues at the organization level (Clark, Michel, Zhdanova, Pui & Baltes, 2016; Loscalzo & Giannini, 2017a). However, only recently, it has been suggested that a similar clinical condition could be evident in school context. More specifically, Atroszko, Andreassen, Griffiths and Pallesen (2015) introduced the construct of Study Addiction, while Loscalzo and Giannini (2017b) coined the term Studyholism.

Atroszko et al. (2015) defined problematic overstudying as a pure addiction characterized by the seven core components of substance addictions (i.e., salience, tolerance, mood modification, relapse, withdrawal, conflict, and problems). Moreover, they developed the *Bergen Study Addiction Scale* (*BStAS*), which is an adaptation of the *Bergen Work Addiction Scale* (*BWAS*; Andreassen, Griffiths, Hetland & Pallesen, 2012) and that comprises seven items, one for each of the core components of addictions. However, the BStAS Italian version showed only acceptable psychometric properties and potential issues in distinguishing between Study Addiction and Study Engagement (Loscalzo & Giannini, 2018a).

Loscalzo and Giannini (2017b), instead, proposed a conceptualization of problematic overstudying that goes beyond the addiction model and that highlights several critical theoretical differences as compared to Atroszko et al. (2015) (Loscalzo & Giannini, 2017b, 2018b, 2018c). First, Loscalzo and Giannini (2017b, 2018b, 2018c, 2019) defined Studyholism as an obsessive-compulsive related disorder (OCD-related disorder) made up by two components: i) obsessive-compulsive symptoms related to study; ii) high or low study engagement, which also includes inner motivation toward study. Hence, they have also taken into account the possibility that Studyholism might be associated with a positive attitude toward study, namely study engagement. Therefore, they suggested two types of Studyholics: i) Engaged Studyholics, that is students with high levels of both Studyholism and Study Engagement; ii) Disengaged Studyholics, namely students with high levels of Studyholism and low levels of Study Engagement. In addition, using the Heavy Study Investment framework (see Snir & Harpaz, 2011), Loscalzo and Giannini (2017b) pointed out that Engaged and Disengaged Studyholics are two types of Heavy Study Investor (HSI). However, they underlined that not all the students who spent lot of time and energy in study are Studyholics, as there is also a positive type of HSI, that is a student who is characterized by high levels of study engagement and low levels of Studyholism (i.e., Engaged Student). In sum, Loscalzo and Giannini (2017b) suggested crossing the high/low levels of Studyholism and Study Engagement to define four kinds of student: Disengaged Studyholics, Engaged Studyholics, Engaged students, and Detached students. This last type of student is not an HSI, since they have low levels of both Studyholism and Study Engagement. However, Detached Students are a negative type as they are detached from one of their most important daily activities, which is studying (Loscalzo & Giannini, 2017b).

Loscalzo and Giannini (2017b) also developed a comprehensive model including potential antecedents and outcomes of Studyholism, and they distinguished between individual and situational ones. More specifically, in order to suggest these antecedents and outcomes, they referred to the wide workaholism literature - taking into account that some differences might be present between workaholism and Studyholism. They listed, among individual antecedents, personality traits, perfectionism, motivation, cognitive factors, and inability to down-regulate negative emotion. Concerning situational antecedents, they referred primarily to the overstudy climate, which might be spread in the family and at school (including the area of study). About the outcomes, for the individual ones, they suggested low well-being at school, poor academic performance, physical and health impairment (including psychological impairment), and family functioning problems; for the situational ones, they listed aggressive behaviors and few positive relationships in class. Then, Loscalzo and Giannini (2017b) stressed the importance of distinguishing between Engaged and Disengaged Studyholics when studying the relationships between Studyholism and its antecedents and outcomes, suggesting that the first type could be less impaired and that the two types could have different relationships with the same variables.

Hence, Loscalzo and Giannini (2018c), based on a critical comparison between the DSM-5 diagnostic criteria for OCD and substance use disorder affirmed that problematic overstudying could better be conceptualized as an OCD-related disorder, even if they pointed out that the literature about the specific features of this construct is too scant now to arrive to any conclusion. Therefore, they suggested that future

studies about cerebral correlates and psychological aspects specifically linked to OCD and addictions will be critical to shed light on the real nature of problematic overstudying.

In line with this, Loscalzo and Giannini (2019) conducted a study to test many of the suggested antecedents and outcomes of Studyholism, with a specific focus on Worry as an antecedent that could provide support to their definition of problematic overstudying as an OCD-related disorder. Worry is indeed an internalizing feature that contributes to OCD (Comer, Kendall, Franklin, Hudson & Pimentel, 2004). Moreover, they aimed to analyze if there were differences between the two types of Studyholics, as they speculated in their model. The results of their path analysis provided support for the conceptualization of Studyholism as an OCD-related disorder, since worry is a strong predictor ($\beta = .67$, $p<.001$). Moreover, they found that Engaged and Disengaged Studyholics should be distinguished between as they have different relationships with some variables. As compared to Engaged Studyholics, Disengaged Studyholics have more impairment in the academic and affective areas, while they have less impairment in the social area despite the two types of Studyholics not differing in physical well-being and aggressive behaviors at school. However, even if Engaged and Disengaged Studyholics showed some differences, Disengaged Studyholics are not the most impaired type of student. Therefore, Loscalzo and Giannini (2019) suggested conceptualizing both Disengaged and Engaged Studyholics as clinical types of Studyholism that differ for their level of Study Engagement and for the area in which they are most impaired. From this evidence, Loscalzo and Giannini (2019) suggested a tentative proposal for Studyholism DSM-like criteria.

On Studyholism prevalence, Loscalzo and Giannini (in press) found a high frequency in Italian college students; a higher number of Engaged Studyholics as compared to Disengaged Studyholics; higher Studyholism and Study Engagement in females; no relationship between age and Studyholism/Study Engagement; and just a few differences concerning the area of study (i.e., Humanities and Educational students have higher Studyholism than Psychology and Health Professional students, as well as higher Study Engagement than Social Science students). Hence, this brief report aims to analyze further the prevalence of Studyholism and Study Engagement, as well as of the four types of student, in a wide and heterogeneous sample of Italian college students. Moreover, it aims to analyze if there are differences related to the gender, the area of study, and the age among the four types of student. Therefore, this study will help to determine if Studyholism deserves to be studied further in other countries and populations (i.e., children, pre-adolescents, and adolescents).

METHOD

Participants

The total sample is composed of 5159 Italian college students (73.9% females) aged between 18 and 60 years (*M* age = 23.20±4.26). They attended their courses in many different Italian cities, although Florence is the most represented (32.4%). Regarding their major of study, which have been coded in macro-groups, the following are the percentages (2.5% are missing): Technology (Engineering, Architecture, Informatics), 11.2%; Social Sciences (Psychology, Sociology, Economy, Law, Educational studies, …), 36.2%; Humanities (Literature, Language, Art, Philosophy, History, …), 15.5%; Medical studies, 13.8%; Sciences (Maths, Physics, Biology, Statistics, Chemistry), 13.1%; Helping professions (Nursing, Obstetrics, …), 4.5%; Para-Medical studies (Biotechnology, Veterinary medicine, Pharmacy, …), 3.2%. The proportions of students in years 1 to 5 were 20.8%, 17.6%, 24.5%, 15.1%, and 19.3% respectively. 2.7% of the students were said to be in their sixth year, however, it is not possible to know if the sixth year students are Medical students who are actually in their sixth year, or if they are Medical or non-Medical students who are off course and hence indicated being in the sixth year, since this information was not gathered at the time of the studies. Concerning their self-reported Grade Point Average (GPA), it ranges between 18 and 31 (where 31 stands for 30 with praise), and the *Mean* value is 26.50±2.24.

Materials

The participants filled many different self-report questionnaires, based on the specific study in which they took part. However, for this study, only the data gathered with the *Studyholism Inventory* (*SI-10*; Loscalzo & Giannini, in press; Loscalzo, Giannini & Golonka, 2018) is used. The SI-10 is a 10-item self-report instrument that has been created from a pool of 68 items and that, in its final version, is made up by

two scales, that is Studyholism and Study Engagement (with two filler items, one for each scale). The participants answer by indicating how much they agree with each item by means of a 5-point Likert scale ranging between 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). In addition, the first sheet of the instrument includes some optional questions about study habits (e.g., GPA). This instrument has good psychometric properties in its Italian version (Loscalzo & Giannini, in press).

Loscalzo and Giannini (in press), in order to define the SI-10 cut-off scores for high and low Studyholism/ Study Engagement, calculated on a sample of 1296 Italian college students the T scores for the two SI-10 scales, and next selected the raw scores corresponding to the 40^{th} and 60^{th} T score. Hence, they suggested using the cut-off scores that arose from these calculations to distinguish between high and low Studyholism and Study Engagement in Italian college students, as well as to screen for the four types of student proposed by Loscalzo and Giannini (2017b), namely Disengaged Studyholics, Engaged Studyholics, Engaged students, and Detached students.

Procedure

The participants that took part in this research were recruited by means of studies for which the approval from the ethical committee of the University of Florence was obtained. More specifically, the participants come from: i) Confirmatory Factor Analysis of the SI-10 (n = 956; Loscalzo & Giannini, in press); ii) path analysis aimed to test Loscalzo and Giannini's (2017b) Studyholism model (n = 1958; Loscalzo & Giannini, 2019); iii) preliminary analyses to select the variables to introduce in Loscalzo and Giannini (2019)'s path analysis model (n = 300; this data have not been published in Loscalzo & Giannini, 2019); iv) other samples gathered for research about Studyholism, whose results have not been published nor submitted to other journals yet. From the merged total sample, the participants who did not answer to all the SI-10 items have been removed, in order to avoid replacing the missing values and using instead only the data from participants who filled all the items of the scale.

Most of the participants (78.5%) filled the questionnaire online, along with the other instruments used for the specific study they took part in. The participants who filled the paper-and-pencil version are the ones gathered for Loscalzo and Giannini's (2019) preliminary analysis and for two other studies that have not been published yet. These students gave their written informed consent before participating in the research. Students who filled out the questionnaire online were provided instead with a first page explaining the research purposes, the anonymity of their responses, and their right to stop filling the questionnaire (and hence not submitting their response) at any time. Moreover, they had to check a box indicating that by continuing to fill out the questionnaire on the following pages they were giving their informed consent to take part to the research.

Data analysis

The analyses have been performed through SPSS. First, the descriptive statistics of Studyholism and Study Engagement, as well as their Pearson's correlation, have been analyzed. Next, Studyholism and Study Engagement have been categorized in three levels each, high, intermediate, and low Studyholism/Study Engagement. In order to do this coding, reference has been made to Loscalzo and Giannini's (in press) cut-off scores: high Studyholism (scores between 19 and 20), low Studyholism (scores between 4 and 9), high Study Engagement (scores between 19 and 20), and low Study Engagement (scores between 4 and 10). Intermediate levels have been defined for scores ranging between 10 and 18 (Studyholism) and between 11 and 18 (Study Engagement). Next, Pearson's chi-squared test has been performed to calculate the percentages of students for each of the four student types, as well as statistically significant differences in their prevalence. Also, Pearson's chi-squared tests have been performed to analyze if there are statistically significant differences among the types of student concerning gender and area of study (for the area of study, Helping Professions and Para-Medical groups have not been included in order to respect the assumption about the minimum count of 5 for each cell of the contingency table). Finally, an ANOVA has been performed to analyze age-related differences among the types of student.

RESULTS

The descriptive statistics highlighted that both Studyholism and Study Engagement range between 4 and 20, with Studyholism having a *Mean* value of 14.04±3.98

and Study Engagement having a *Mean* value of 14.50±3.54. Moreover, the correlation between Studyholism and Study Engagement is of .12 (p<.001), in line with their low factor correlation (Loscalzo and Giannini, in press).

As concerns the prevalence of high/low Studyholism and Study Engagement, as well as of the four types of student, Table 1 shows the results of the contingency table in which Studyholism and Study Engagement have been entered as variables. Moreover, Pearson's chi-squared analyses [$\chi^2(4) = 53.44$, p<.001] showed that there is a statistically significant difference between the prevalence of Engaged Studyholics (3.2%) and Disengaged Studyholics (2.2%), as well as between Detached students (2.8%) and Engaged students (1.6%). The Disengaged Studyholic type has a statistically significant lower prevalence than the Detached student type, and the Engaged student type has a lower prevalence than the Engaged Studyholic. Finally, the results showed that the 15.4% of the sample has high Studyholism.

In order to analyze if there are differences in gender, age, and area of study, two other Pearson's Chi-squared tests and one ANOVA have been performed (see Table 2). The results showed that Detached students and Engaged Studyholics are more prevalent in females as compared to males, while there is no difference concerning gender for Disengaged Studyholics and Engaged students: $\chi^2(3) = 21.58$, p<.001 (see Table 1 for the contingency table arisen from this analysis). For the area of study, there are not statistically significant differences: $\chi^2(12) = 16.77$, $p = .16$. Finally, the ANOVA showed that there is not a difference in the age among the four types of student: $F_{(3, 497)} = 2.05$, $p = .11$, $\chi^2 = .012$.

DISCUSSION AND CONCLUSIONS

This study analyzed the prevalence of the two forms of Heavy Study Investment, that is Studyholism and Study Engagement, and of the four types of student proposed by Loscalzo and Giannini (2017b) through the crossing of high/low levels of Studyholism/Study Engagement on a wide and heterogeneous sample of Italian college students.

Table 1 – Contingency table between Studyholism and Study Engagement, and prevalence of the four types of student on Italian college students

			Study Engagement			
			Low	**Intermediate**	**High**	**Total**
Studyholism	Low	n	142	539	84	765
		%	2.8[a]	10.4	1.6[b]	14.8
	Intermediate	n	461	2649	492	3602
		%	8.9	51.3	9.5	69.8
	High	n	112	514	166	792
		%	2.2[c]	10.0	3.2[d]	15.4
	Total	n	715	3702	742	5159
		%	13.9	71.8	14.4	100

Note. [a] = Detached student; [b] = Engaged student; [c] = Disengaged Studyholic; [d] = Engaged Studyholic. High and low levels of Studyholism and Study Engagement have been defined trough Loscalzo and Giannini's (in press) cut-off scores.

Table 2 – Contingency table between types of student and gender

			Gender		
			Male	**Female**	**Total**
Type of student	Detached student*	n	57	85	142
		%	40.1	59.9	100
	Disengaged Studyholic	n	28	84	112
		%	25.0	75.0	100
	Engaged student	n	29	55	84
		%	34.5	65.5	100
	Engaged Studyholic*	n	29	137	166
		%	17.5	82.5	100
	Total	n	143	361	504
		%	28.4	71.6	100

Note. * = The difference between males and females is statistically significant.

The results showed that in this sample there is a high prevalence of students with high levels of Studyholism, which is even higher than the prevalence found by Loscalzo and Giannini (in press) in their Italian sample. This suggests that this new potential clinical condition should be further analyzed in order to develop effective preventive and clinical interventions, especially considering the negative health outcomes and the higher intention to drop out of these students (Loscalzo & Giannini, 2019). Moreover, in line with Loscalzo and Giannini (in press), there are more Engaged Studyholics than Disengaged Studyholics, providing further support to Loscalzo and Giannini's (2017b) speculation that Studyholism and Study Engagement might co-occur and highlighting the need to distinguish between these two types of Studyholism. Engaged students are the least prevalent type. This provides additional support to Loscalzo and Giannini's (in press) suggestion to develop interventions aimed at fostering Study Engagement in Italian college students, since this positive attitude toward study leads to positive health and academic outcomes, in contrast to Studyholism, as showed by Loscalzo and Giannini (2019). In this study, the most prevalent type is not the Detached student, as in Loscalzo and Giannini (in press) study, but the Engaged Studyholic. This result might be due to the fact that the current sample comprehends a higher prevalence of students with high Studyholism. Anyway, the prevalence of the Detached student is still higher as compared to Engaged students and Disengaged Studyholics.

Finally, concerning differences among the four types of student, females have a statistically significant higher probability of being Engaged Studyholics and Detached students compared to males, but there is not a gender difference for the Disengaged Studyholic and the Engaged student type. In addition, there are no statistically significant differences in the types of student as far as age and major of study is concerned. Hence, in line with Loscalzo and Giannini (2019), preventive interventions should be implemented across all the areas of study by the first year of College, as each student could potentially be a Studyholic, no matter the major of study or the age.

One of the limits of this research is related to the sample, which is large, but most of the participants are females. Also, the sample is made up by college students only, while Studyholism could have its onset at a younger age (Loscalzo & Giannini, 2017b). Besides these limits, the present report has the merit of having analyzed the prevalence of a new clinical condition associated with overstudying that, as shown by the results, is quite widespread in college students and should be prevented through interventions across all the majors and years of study. Also, it has highlighted that Study Engagement, or a positive attitude toward study, should be fostered by means of preventive interventions, since the Engaged student (or the positive type of Heavy Study Investor) is the least prevalent type.

Future studies could analyze the prevalence of Studyholism, Study Engagement, and the four types of student in Italian children, pre-adolescents, and adolescents, aiming to evaluate the developmental trend of this new potential clinical disorder, especially through longitudinal studies. Moreover, it would be interesting to analyze the prevalence of Studyholism and the four types of student in other countries to understand if there are some culture-related differences. Given that there are the Italian, Polish, Croatian, and Spanish versions of the SI-10 currently available, these potential studies could be done in the near future.

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