UNIVERSITY OF PADOVA

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Final dissertation

The relationship between obsessive-compulsive behaviours and seeking proxies for internal states.

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ABSTRACT

Background and Goals: The Seeking Proxies for Internal States (SPIS) model of obsessive-compulsive disorder (OCD has recently been explored and proposed by professor Reuven Dar, a model which suggests that a major aspect of the disorder is inadequate access to internal states. This model suggests that the rituals and rules that frequently define OCD sufferers can be seen as stand-ins for internally accessible but inadequate states. In this replica study, I complement previous experimental work by investigating the potential link between OCD and the use of proxies to represent internal states in the daily lives of the Albanian population. Methods: To conduct this research, I have used three different inventories in order to measure peoples access to their internal states with obsessive-compulsive behaviours. The inventories used are the aforementioned Seeking Proxies for Internal States (SPIS) model, the Obsessive-Compulsive Inventory Revised (OCI-R), and the Depression, Anxiety and Stress Scale (DASS-21). The three inventories were compiled and distributed online to Albanian subjects of different ages, occupation and gender. Results: Participants who expressed more obsessive-compulsive tendencies indicated that they relied more on observable, external substitutes for a range of internal states. Even after adjusting for concurrent anxiety and depression, these findings held true. Limitations: The sampling of internal states and proxies in the inventory is constrained by necessity, and more correlational and experimental research will be required to look at other application areas like interpersonal liking and decision-making. Moreover, women are more represented than men in this study, which could potentially affect the results of the study, however the ratio of women to men is not large enough to question wether the study results can be accepted for the population. Conclusions: These findings support and broaden the Seeking Proxies for Internal States (SPIS) model. The results of the study, accompanied by previous and future research could bring to light new ways of understanding and treating OCD through the lens of insufficient access to internal states.

1. **INTRODUCTION**

Obsessive Compulsive Disorder (OCD) is characterised by recurrent and persistent thoughts, urges or impulses (obsessions) that the person tries to suppress, ignore or neutralise, and/or repetitive behaviours or mental acts that the individual feels compelled to perform (compulsions); (American Psychiatric Association, 2013). While this has remained the broad definition of OCD, there are many aspects which are not fully explained by this general definition. For example, OCD individuals tend to intensely monitor their actions and their thoughts (Riesel, Endrass, Auerbach, & Kathmann, 2015; Yoris et al., 2017). They govern their behaviour with rigid rules and procedures (American Psychiatric Association, 2013). According to Stein. Et al, (2019), obsessions are "intrusive and unwanted" while compulsions are responses to obsessions or actions performed in order to achieve "completeness". The study of OCD as a disorder is still a relatively new field in psychology and psychiatry. Very little is known about the root problems of people with OCD, how obsessions are formed and how, or even why they are maintained through compulsions. Being still quite of a mystery in these areas of study, it is still hard for clinicians to determine and diagnose patients with OCD. In one study, 1685 outpatients of 10 different psychiatric practices in South Germany went through a screening process for OCD. It was found that, of all the patients that met DSM-IV criteria for OCD, only a small percentage (27.5%) of them were diagnosed with OCD by their psychiatrist (Wahl et al., 2010). Another study found that clinician misidentification rates among American Psychological Association members was 38.9% across all dimensions of OCD, and it grew even higher in dimensions related to taboo thoughts like sexual obsessions about children, aggression etc. (Glazier, 2013). These features of OCD and more give birth to questions which puzzle psychologists in trying to understand it. What are the biological and psychological

processes that not only create but allow these mechanisms of OCD to function? What is their purpose?

This study focuses on a new model of studying OCD, called the Seeking Proxies for Internal States (SPIS; Lazarov, Dar, Oded, & Liberman, 2010; Liberman & Dar, 2009). According to the SPIS model, a core feature of OCD is dysfunctional access to internal states, that is, an inability to feel or understand a person's inner feelings without relying on outside clues or proxies to understand their own feelings. Internal states is defined broadly, in order to include emotions, preferences and even bodily sensations. For example, a person might find it difficult to understand how close they are to another person, so they use an outside proxy, like how many times they call that person, to infer how close their relationship is (Liberman & Dar, 2018). Another person might find it difficult to understand how hungry they are, so instead of understanding how hungry they feel themselves, they try and count how many times they have eaten that day to measure their hunger levels.

Previous studies have suggested that people with OC have reduced confidence in their memories and their cognitive functions (Shin, N. Y., Lee, T. Y., Kim, E., & Kwon, J. S. 2014,; Cartwright-Hatton & Wells, 1997). The SPIS model builds on these foundations and extends them by stating that individuals with OC have difficulty accessing *internal states* rather than their impaired c*ognitive function* (Liberman & Dar, 2018). Not all internal states are cognitive functions, for example feeling love, which, according to the SPIS model, people high in OC tendencies would have difficulty understanding their feelings of love. Moreover, the SPIS model also argues that it is not only reduced access to internal states that characterises OCD, but it is also the seeking of external proxies to identify and quantify these inaccessible internal states.

When people are struggling to understand things that they cannot at the moment access, they use indirect indices (proxies) for that information. For example, wether someone is cultured is a difficult thing to measure, therefore people tend to measure someones culture using a persons

activities, politeness and their general knowledge. The hypothesis here is that people with OCD similarly use these same tactics and proxies to make up for deficient access to internal states and rules and rituals observed in individuals with OCD serve as such proxies. For example, a person which has read a book and is not sure if he/she has understood what they have read, might try and see if they have memorised certain parts of the book. Similarly, a person who has not decided what kind of fast food they like, might develop a rule to always prefer hamburgers over pizza.

Unlike goals which have clear cut end-states, goals that have no definitive end do not provide a clear stoppage and therefore are very interpretable to the individual. For example, knowing you have win a match in football is very easily understood, but when should a person know if they have properly washed their hands? This is the dilemma of people with OCD. In some studies, it has been proposed that people are willing to stop these types of actions when they have become satisfied with their performance (Liberman & Dar, 2009; Szechtman & Woody, 2004). But for people with insufficient access to internal states, as it is proposed here are people with OCD, it becomes difficult to feel satisfied and therefore, stop these actions. This drives them to develop certain rituals and rigid rules to understand they have done enough (Liberman & Dar, 2018). For example, a person with OCD might develop a ritual where he/she checks the oven ten times, locks the house and waits for ten minutes outside to feel satisfied that he/she has secured the house before leaving. The SPIS model then suggest that for actions that are not governed by clear end goals, such as winning a game, but rather by internal states, like the feeling of having done enough, people with OCD would find it difficult to stop that action and would rely on these same rituals to tell them to stop. The classic OCD fields usually present people that avoid goals that have vague endings. The SPIS model, however, proposes that the difficulty to stop and reliance on rigid rules also exists on clear cut goal-directed actions, inasmuch as these actions require access to internal states in order to be stopped. This research compliments earlier work examining the SPIS model theory (Liberman, Dar,

2018) by adding the results collected here of another populations that had not been studied before, namely the Albanian population.

Previous studies using biofeedback had been used to measure OCD patients insufficient access to their internal states. In one of these studies, Lazarov, Dar, Liberman, and Oded (2012) asked subjects to attain different levels of muscle tension both with and without the aid of biofeedback. As expected, both patients high in OC tendencies and patients low in OC tendencies performed about the same in producing the specifying muscle tensions when biofeedback was available, but subjects high in OC tendencies performed significantly less well when biofeedback was not available. In another study, similar results were achieved when the same types of patients were asked to perform relaxation instead of muscle tension (Lazarov et al., 2010).

In other studies, false biofeedback was used to judge subjects' reliance on outside measures for access to their internal states. For example, in one study, Lazarov et al. (2011, Study 1), subjects with high OC tendencies and those with low OC tendencies were asked to relax their forearm muscles while viewing false pre-programmed "biofeedback" on their muscle tension. For each individual, they underwent two different phases of false feedback, one that indicated gradual increase and one that indicated gradual decrease in muscle tension. As was predicted, individuals with high OC were much more influenced by viewing the false biofeedback than their low OC counterparts. In this procedure, participants with anxiety disorders did not differ from control participants, establishing that reliance on proxies for internal states is a unique feature of individuals with OCD and it is not attributable to the anxiety that some OCD individuals display.

In another study, Dar, Lazarov, and Liberman (2016) sought to examine the relationship between OC tendencies and emotional intelligence. As predicted, OC tendencies were accompanied by lower scores on the Experimental area of the Mayer - Salovey - Caruso Emotional Intelligence Test (MSCEIT), which defines reliance on experienced emotions, but not on the Strategic area, which deals with semantic knowledge of emotions. All of these works examine the relationships

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between OC behaviours and tendencies and insufficient access to internal states. Indeed when patients who did not have insufficient access to their internal states were manipulated into losing confidence in their access, they started behaving very similarly to individuals high in OC tendencies. Therefore it is reasonable to assume that people high in OC tendencies have insufficient access in multiple areas concerning internal states, such as knowing when they are hungry, enjoying their vacations, their love toward their partners, their aesthetic preferences etc. After having read the study conducted by Liberman & Dar, (2018), I set to explore wether similar results from that study can be drawn on the Albanian population, therefore adding to the current body of knowledge of the relationship between the SPIS model and OC behaviours. To construct this study, I needed to make sure that the relationships I would find between insufficient access to internal states and OC tendencies were only related to each other, and not to other factors such as anxiety or depression. Therefore, I used 4 different inventories to measure these relationships and determine the absolute relation between insufficient access to internal states and OC tendencies.

2. RESEARCH

Table 1

Items of the Seeking Proxies for Internal States Inventory (SPISI) and their correlations with the OCI-R in the Albanian sample.

Items of the SPISI	Correlation with OCI-R
	Albanian sample
I look for rules that would tell me what I'm supposed to do	0.23
Sometimes I have to infer my feelings from my own actions	0.26
To know how hungry I am, I consider what and when I've eaten today	0.25
I turn to others to know if I acted right	0.3
I find it difficult to form an opinion about a person without hearing other opinions	0.32
I need clear evidence to be sure what others think about me	0.47
I tend to consult others about daily decisions	0.35
To know if I have understood what I have read, I check to see if I remember parts of it by heart	0.3
When choosing, I prefer to use clear criteria rather than intuition	0.26
I would prefer to use a formula to solve a math problem even if I think I know the answer	0.38
Because I have difficulty deciding, I've developed fixed rules	0.44
I know how close I am to someone by how often we interact	0.41
I know if I've enjoyed my vacation based on how much I've managed to do	0.35
I choose what to wear based on pre-determined criteria	0.17
I am only sure I understand what I've studied if I receive a good grade on the exam	0.24

2.1 Methods

2.1.1 Measures

The *Seeking Proxies for Internal States Inventory* (see <u>Table 1</u>). As Liberman & Dar, (2018) explain, items of the SPISI were selected with the purpose of providing a broad range of internal states and proxies for these states while maintaining a concise inventory. Among these internal states there are: hunger, preferences, understanding, while for proxies there are behaviours, the

opinions of others and objectives such as grades. Some items are more general than others, while other items provide a precise type of situation. The inventory is comprised of 15 statements, shortened from the original version in order to keep the internal consistency of the inventory quite high.

Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002). This inventory is comprised of 18 characteristic symptoms of OCD followed by a 4 point Likert scale ranging from 0 (not at all) to 4 (extremely) based on the prevalence of each of these symptoms during the last month. Foa et al., (2002) show that the OCI-R has good validity, test-retest reliability and internal consistency in clinical samples and also in non-clinical samples (Hajack, Huppert, Simons, & Foa, 2004). The English version of the OCI-R was translated to Albanian using a back translation procedure, where I translated the original version into Albanian, then three other people translated the Albanian version back to English and I observed that the items in the new English translation had not lost any of their meanings from the original English version. The Cronbach's alpha of the Albanian OCI-R was 0.91which means that the OCI-R had very good internal consistency and reliability.

The Depression, Anxiety and Stress Scales (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is a self-report measurement of negative states in the duration of the past week that aims to maximise the differences between depression, anxiety and stress. It is formed with 21 items split across the three sections and scored on a 4 point Likert scale from "does not apply to me at all" to "very applicable to me, or most of the time". For this research, I excluded the stress section of the DASS-21 because it does not really relate to symptoms of OCD and would therefore not influence the results of the SPISI OCI-R correlations. The structure of the DASS-21 is stable, and it professes good convergent and divergent validity and high internal consistency in non-clinical samples and across different ethnic groups in adults (Lovibond & Lovibond, 1995). The inventory was again translated to Albanian using the same back translation procedure. The Cronbach's alpha of the sectors varied from 0.84 to 0.85.

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2.2 Participants

The full survey, including all 4 measurements was distributed online to the Albanian population in the Google Forms format. The total number of respondents was 244. Participants were mostly female (61%) and the largest age group was young adults (38%, 18-24) and it was a fairly representative sample of Albanian society. The survey was distributed online through email or WhatsApp. The subjects came from different educational backgrounds with most being educated with at least a college degree or in college at the time of the study. Most of the respondents were religious (72%) while the majority of them (57%) were single. The overwhelming majority of the participants responded to every question of the survey and only a very small minority did not complete very few of the items in the survey, therefore those responses have also been received and examined as the number of unanswered questions would not influence the research results.

Table 2

Correlations of the SPISI total score with OCI-R and related measures.

| Items of the SPISI	Study
Item 1	0.254***
Item 2	0.321***
Item 3	0.174**
Item 4	0.140*
Item 5	0.199**
Item 6	0.329***
Item 7	0.240***
Item 8	0.245***
Item 9	0.270***
Item 10	0.389***
Item 11	0.313***
Item 12	0.402***
Item 13	0.333***
Item 14	0.187**
Item 15	0.240***

p< 0.05* p<.01** p < .001***

3. RESULTS

In the study, the mean of the SPISI (sum of all the ratings) was 37.84. Cronbach's alpha of the SPISI was 0.84 and the item-total correlations ranged between 0.335 to 0.615. The Pearson's correlation coefficient was 0.587 and remained high (0.502) when controlling for anxiety and depression on the DASS-21 score (Table 2). These results are consistent with the results of the previous research by Liberman & Dar, (2018). Among the OCI-R sub-scales, the correlations of the SPISI with all sub-scales were moderate to large and did not differ between them (for $p > .05$). The correlations of the SPISI with the DASS-21 sub-scales were moderate and did not differ between them (for $p > .05$). The reports of the sample suggests that subjects who exhibit higher OC tendencies also report using more proxies for determining internal states than those reporting low OC tendencies. They reported turning to check when they had last eaten to understand if they felt hungry, to check how many things they had done to measure if they enjoyed a vacation, deciding on interpersonal closeness based on how many times they interact with the other person, deciding wether they understood something based on wether they remembered parts of it by heart, turning to their actions to understand how they felt. More generally, they reported on using criteria that was predetermined on deciding what actions to take or what to feel and think. They also relied on others' opinions and using rules in problem solving and in making general decisions. It is very important to state that, for all these circumstances in which people with high OC tendencies chose to use proxies, there are clear alternatives like directly assessing your level of hunger, satisfaction, understanding and feelings of interpersonal closeness. Most people know if they like someone just by introspection and they do not have to refer to others' opinions in deciding wether they do so or not. According to the SPIS model and the results presented in this study, people who have difficulties of the sort tend to show higher OC behaviours and tendencies. In Table 3, you can see the general correlation between the total scores of the SPISI and the OCI-R, controlled for depression and anxiety using the DASS-21. As it is shown, the SPISI scores gradually increased when the OCI-R

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scores did. This table demonstrates the relationship between seeking proxies and high OC tendencies in individuals.

Table 3

Total SPISI

Total OCI-R
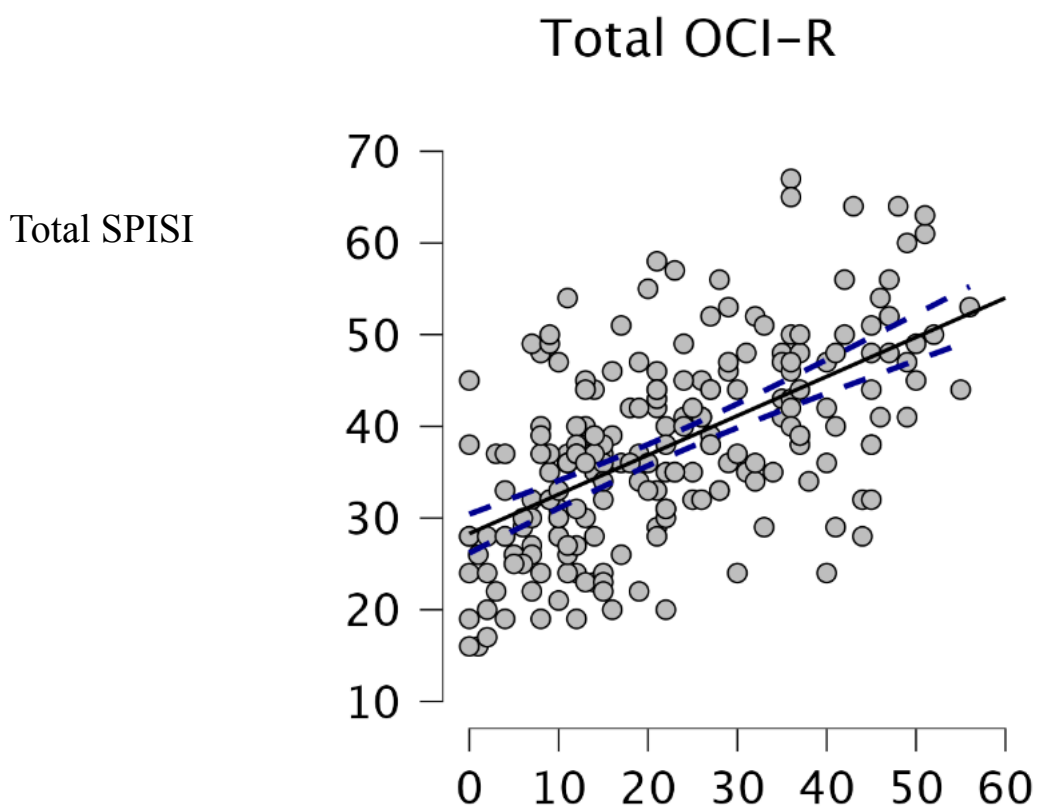
4. DISCUSSION

This study demonstrates that people high in Obsessive Compulsive tendencies are more likely to rely on external proxies to understand a wide range of internal states, such as hunger, satisfaction, understanding, interpersonal relations and peoples intuitions to the solutions of problems. These results yet again confirm the predictions of the SPIS model of OCD, where people with OCD tend to use proxies to determine their personal internal states. People with OCD often show a pattern of behaviour consistent with the feelings of incompleteness, or the "not quite right" feeling, where they feel that their "actions or intentions have been incompletely achieved" (Summerfeldt, Huta, & Swinson, 1998). Insufficient access to internal states, as explained by the SPIS model, contributes to the current knowledge of how this deficiency damages the interpersonal relationships of people with OCD. For example, according to Doron, Derby, Szepsenwol, Nahaloni, & Moulding, (2016), people with OCD who are in relationships experience "catastrophic feelings" because of the "overestimation of the negative consequences of staying in relationships and the negative consequences of being alone", forcing them to sometimes sabotage their own relationships with their loved ones because of these conflicting thoughts which arise from a deep uncertainty of one's own feelings or internal states. In another study by Shafran, R., Watkins, E., & Charman, T. (1996) feelings of extreme and unnecessary guilt were found to be deeply connected to individuals with obsessions. Using the SPIS model, we can understand that these feelings might be caused by the inability of people with high OC to self monitor their feelings due to their deficiency in assessing their internal states. This deficiency, in turn, causes the person to produce an exaggerated amount of the feeling of guilt due to not completely understanding the situation and producing a more proper reaction. Moreover, this research helps create new questions regarding people high in OC and possibly study other possible dimensions in which the SPIS model could facilitate in forming a helpful framework. In future papers it might be of interest to study the behaviours and decisions of people high in OC in situations in which they have to rely on their internal states, for example their

instincts. Would they be less inclined to make a decision if they have to base it on intuition or on other people's experiences? Would people high in OC be more likely to require assistance from an aide in a store when choosing a certain product and would they be more likely to buy that product because of the recommendations and not the person's own preferences? Would they also be more willing to purchase more expensive products than people who are low in OC tendencies because of their reduced ability to review certain products based on their own feelings towards it? These are areas yet unexplored but which can be of interest to researchers who can use the SPIS model of OCD in new areas of psychotherapy, for example in cognitive and behavioural therapy, to develop new practices which can contribute to the development of new treatments for patients.

4.1 The problem with deficient access to internal states.

Not having clear access to internal states would not necessarily pose a problem in someone's daily life. If a person's proxies for analysing internal states were available at all times and they were reliable, it would not be problematic for that person to use them on a regular basis. However, problems do arise when these proxies do not accurately reflect the situations that a person is trying to assess (Liberman & Dar, 2018). For someone to have a regular eating schedule and diet, they usually consume the three regular meals, breakfast, lunch and dinner with a specific amount of food intake depending on the person to maintain or lose their weight. However, someone who cannot easily understand wether they have eaten enough for the day might rely on proxies such as when did they last eat to assess if they need to eat again and if they're hungry. This does not prove to be a healthy tactic because it excludes crucial details like what did they eat and how much did they eat. Without knowing the quality and quantity of the food last consumed, one cannot make an accurate assessment on if they are hungry and should eat again. This faulty logic might potentially lead to unhealthy eating habits and, in the worst cases, might help the development of eating disorders. So here the argument is not that insufficient access to internal states is inherently a bad trait which has

to be fixed, but it is the proxies used by people with deficient access that are often times problematic, because they are highly subjective, unreliable and rarely give accurate accounts of the states they supposedly assess.

4.2 Future research purposes of the SPIS model with regards to therapeutic intervention.

Obsessive-Compulsive Disorder (OCD) is defined as a highly prevalent and chronic condition that is associated with substantial global disability (Stein. Et al, 2019). It has been showed through multiple research studies that Cognitive Behavioural Therapy is a very effective tool for reducing OCD symptoms (Olatunji, B. O., Davis, M. L., Powers, M. B., & Smits, J. A. J., 2013; Rosa-Alcázar et al., 2008). This study shows that people with deficient access to internal states and usage of proxies to assess these states increases when OC tendencies increase. It would be reasonable to assume that, based on this current research and previous knowledge, the SPIS model of OC tendencies would be a useful tool for cognitive behavioural therapists to use when dealing with patients with OCD. As Liberman & Dar (2018) point out "Educating patients and clinicians about these theoretical constructs and their everyday life manifestations might be a useful step in cognitive-behaviour therapy for OCD, as it would help the patient and the therapist to understand and draw a connection between seemingly unrelated behaviours (e.g., attempting to learn study material by heart and monitoring text messages to one's partner)."

With this knowledge, therapists can perhaps learn to help patients with deficient access to internal states in achieving a clearer guide into accessing them rather than using imprecise proxies. By educating their patients into the problems of using proxies to assess internal states, they can form new ways into achieving access into these states potentially without using proxies or by modifying them so that they have reliable ways to controlling when they should stop. Doing so may have the effect of reducing OC symptoms or at least a person with OCD might at least be aware of using these proxies thereby having the opportunity to self monitor their behaviours. Studies have consistently shown that self monitoring does cause behaviour modification for unwanted behaviours

such as smoking (Mairs, L., & Mullan, B. 2015); weight loss (Burke, L. E., Wang, J., & Sevick, M. A. 2011), and positively affecting problematic classroom behaviour (Sheffield, K., & Waller, R. J., 2010). Therefore we might assume that people high in OC tendencies who use self monitoring techniques might achieve reductions in their symptoms or, in this case, the faulty or excessive use of proxies to assess internal states.

Lastly, it is my opinion that, looking at the results of this study and the previous body of work before it, the SPIS model of OCD provides crucial new knowledge into the study of OCD, its nature and the way that individuals high in OC tendencies behave. With this model it is possible to discover new dimensions of looking at OCD not just at its present form of obsession followed by compulsion, but in a broader scale of perhaps why these compulsions exist, how they are maintained and even venture into new areas of how to reduce them and maybe even replace them.

5. LIMITATIONS

This study showed that people high in OC tendencies more often use proxies to assess internal states. However, this study is not conducted by surveying specifically people with OCD. Therefore it would be of interest for future studies to also research on this area, by comparing them to control subjects and also people with other anxiety disorders (Lieberman & Dar ,2018). On my research, the number of female respondents was larger than the number of male respondents, a number which I did not consider statistically significant enough to skew the results of the overall study seeing as the population of Albania is majority women, yet I would suggest that for future studies the gender of the subjects ought to be as representative of the population to be studied as possible.

For the distribution of the questionnaire I used an online form and distributed it to participants through email and WhatsApp and visited several institutions and schools to get a fairly representative sample of the population. However, the usage of survey and statistic centres is also suggested as they can gather more representative data of the population while also providing larger numbers of respondents depending on the country one would like to conduct this study. For example, in the study conducted by Lieberman & Dar (2018), they used a data centre for conducting their second study in the Netherlands.

Finally, it is worth stating that this data is gathered based on self reports by the subjects. While the data is still valid for the many reasons listed throughout the study, it would also be correct to use measurements that measure the peoples' ability to access internal states as well as self report measures, to get a more comprehensive and objective view of the whole area that is being studied.

6. CONCLUSIONS

This study revealed that people high in OC tendencies are more prone to using indices or proxies to determine their internal states. The correlation of Total SPISI items with Total OCI-R items was high and remained high after checking for depressions and anxiety. This suggests that the correlation between seeking proxies for internal states and OC tendencies is attributable only to these two factors. These results are consistent with the SPIS model of OC and are supporting of the previous theoretical knowledge on this topic (Liberman & Dar, 2018; Liberman & Dar, 2009). This research has added the Albanian population on the list of populations that have been studied using the SPIS model and it further enlarges the usage of the model and the SPIS Inventory (SPISI) across yet another culture and language, increasing its reliability across different peoples.

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