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THE CONCEPT OF DEATH. FROM SOCRATES TO ELLIS

AUREL BUMBAȘ^{1*} and SEBASTIAN VAIDA²

ABSTRACT. Death is a concept studied from ancient times by all major areas, from literature and art, to philosophy and psychology. In this research, we analyze the way Socrates, the famous Greek philosopher, negotiates the idea of death, through his own death. We approached this, because the ancient philosopher was put in this situation when he was sentenced to death, unjustly, following a democratic decision. His way of seeing death reveals a formula that does not match the expectation of his contemporaries, nor the classical typology of the imminence of his own death, belonging to psychiatrist Elizabeth Kübler-Ross. And the explanation of this non-coincidence is based on the philosophical idea of man and world and the specifics of his philosophical practice. It is precisely this philosophical conception and practice that will make Socrates' attitude become repeatable and not unrepeatable, as one might expect, since this attitude appears so conditioned by specific elements. In fact, the rational research on the grounds of beliefs and personal knowledge that stands at the basis of his philosophical practice, is deeply rooted in the foundations of Rational Emotive Behavior Therapy (REBT).

Therefore, what lays at the basis of Socrates' view on death goes far beyond the ancient cultural framework. To fill in the phenomenal dimension with the one of organic layer, the analysis will also include an interpretation of Socrates' behavior, from the dopamine mechanism approach.

Keywords: *death, Socrates, method, concept, analysis, beliefs.*

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ABSTRAKT. Der Tod ist ein Konzept, das seit der Antike in allen wichtigen Bereichen von Literatur und Kunst bis hin zu Philosophie und Psychologie untersucht wurde. In dieser Studie analysieren wir, wie Sokrates, der berühmte griechische Philosoph, die Idee des Todes, durch seines eigenen Todes, behandelt. Wir näherten uns dem, weil der alte Philosoph in diese Situation geraten war, als er nach einer demokratischen Entscheidung zu Unrecht zum Tode verurteilt wurde. Seine Art, den Tod zu sehen, offenbart eine Formel, die weder den Erwartungen seiner Zeitgenossen noch der klassischen Typologie des bevorstehenden Todes entspricht, die der Psychiaterin Elizabeth Kübler-Ross gehört. Und die Erklärung dieses Nicht-Zufalls basiert auf der philosophischen Idee von Mensch und Welt und den Besonderheiten seiner philosophischen Praxis. Es ist genau diese philosophische Konzeption und Praxis, die die Haltung von Socrate wiederholbar und nicht unwiederholbar macht, wie man erwarten könnte, da diese Haltung durch bestimmte Elemente so bedingt erscheint. Tatsächlich ist die rationale Forschung auf der Grundlage von Überzeugungen und persönlichem Wissen, die seiner philosophischen Praxis zugrunde liegt, tief in den Grundlagen der Rational Emotive Behavior Therapy (REBT) verwurzelt.

Daher geht das, was Sokrates Sicht auf den Tod zugrunde liegt, weit über den alten kulturellen Rahmen hinaus. Um die phänomenale Dimension mit der der organischen Schicht zu füllen, wird die Analyse auch eine Interpretation des Verhaltens von Socrate aus dem Ansatz des Dopaminmechanismus beinhalten.

Schlüsselworte: *Tod, Sokrates, Methode, Konzept, Analyse, Überzeugungen.*

INTRODUCTION

Talking about death, we inevitably must consider the experience of death, meaning the meeting with the phenomenon of death. We call it like this, because death is being revealed only as a phenomenon, through a series of perceptible elements. Later, it is processed by our own mind, whether it is about others or while waiting and experiencing our own imminent death.

In other words, our relation to death is mediated by the phenomenon and our own reflection, it is individual and intimate, and at the same time, it is shaped by our condition of a social being. That is why, before trying to unveil in which way philosophy can help us in understanding death, it is desirable to start from a common place, belonging to the present, in the attempt to answer this question: "How is social shaping today the way we perceive death?". The question is not about the semantics of the word "death", but it is rather trying to highlight a few phenomena that express ways to address death as social beings.

A first class of phenomena is expressed by *the report of delaying death*, which includes: a series of medical actions, from the ones that prevent body wear to replacing organs; a series of therapies that address the mind or soul.

A second class is expressed by *the report of a dignified expression of death*, which includes: actions specific to palliative medicine, addressed to people in terminal illness stages; actions specific to the spiritual realm, addressed to dying people; actions specific to the field of euthanasia.

A third class can be represented by the phenomena expressed by *the report of preventing accidental death*, which includes: any action pursued by organizations such as police, medicine, or employers.

A fourth class, characterized by subtlety and insight, is the one expressed by *the report of dissipating the phenomenon of death*. This dissipation is achieved in two ways. Either through desensitization, through repeated exposures in formulas that distance people from death or by packing the concept in fictional layers, often seen in entertainment productions. Or through the circumventing death, by considering it an intimate phenomenon, addressed only to adults or elderly. This dissipation predisposes us to avoid becoming the agent that can cause someone else's death or the being that will inevitably die.

All these socially mediated ways to address death, define and strengthen the idea that we benefit from a protection from death and its consequences. Perhaps a last level of this protection is the possibility to secure our lives, for the benefit of those that will survive after we die. In a context with such thaumaturgical valences, endorsed by the social condition of each individual, the meeting with someone else's death or the imminence of death, can produce for some persons an inner shock, anxious feelings or even behavioral and emotional disorders. Therefore,

although society intervenes and protectively mediates the process, this meeting with death remains a private and intimate one, where personal cognitive resources (beliefs, wisdom, judgment, reason) will play a decisive role. This is precisely why the concept of dying as an intimate reflexive effort, must be integrated with necessity with a concept about the world, and this must be sufficiently coherent and believable. This concept about the world can be subordinated to religious, spiritual, philosophical, or scientific patterns that are already known, or can represent a syncretic individual product that sometimes reaches the rigor of a philosophical system of beliefs. The existence of a concept of the world is a condition for understanding life and death as contiguous sequences, subtended to an existential meaning, even if it is vaguely represented.

We have begun from the typical ways of making contact with death, as a phenomena perceived and processed by our own minds, and eventually got to the condition of reflecting upon death, considering its' continuity with life and integrating it in our own design of the world. Doing such an act of reflection means having a comprehensive and stable perspective on the world, a capacity of reasoning properly and self-control. Chronologically, the spiritual-religious context was the first to make possible such an act of reflection, offering a concept on the world centered on transcendent factors and maintained through ritualistic acts. The reflection upon death in this spiritual-religious context is more the act of assuming the effort of collective understanding, maintained by a religious institution, rather than an individual reflection upon death. It was only through the birth of ancient Greece, through its opposition towards mythology and ritual (Vernant, 1984, 1990) and through the effort of revealing conceptions about the world that are comfortable with the reason rigor (Cornfort, 2009), generated the proper context for an individual reflection upon death. In this line, we will also discuss about the psycho therapeutical approaches such as psychoanalysis and existential psychotherapy.

SOCRATES AND DEATH

In the year 399, at the age of 70, Socrates was convicted to death in a public process, by a gather of 500 judges, Athenian citizens. The works of Plato (1997) and Xenofon (1997) are the major sources regarding

the way Socrates, as a philosopher, addressed the issue of his own death. The two authors are trustworthy, who have directly met the famous philosopher and whose ideas had a significant impact. Our analysis will be based on the philosopher's formulations and the clarifications regarding Socrates' philosophical conception will serve, on one side, as a corollary of the research, where ideas will be transparent enough and, on the other side, from critical sources.

SOCRATES' OPINIONS ABOUT DEATH (IN PLATO'S VIEW)

The platonic source of Socrates' statements about his encounter with death can be found in the following dialogs: *The Defense of Socrates*, *Criton*ⁱ and *Phaidon*ⁱⁱ. We will limit to these sources, because starting with the work *Gorgias*ⁱⁱⁱ, the sayings of Socrates are imprinted in Plato's (1997) conceptions and are less coherent with the position presented in Socrates' Apology (29a, 40c).

The following texts summarize the statements made by Socrates during the process filed against him in 399 B.C., by Antyos (politician), Meletos (obscure poet) and Lycon (orator with a certain reputation). In this trial, Socrates was accused of not acknowledging the gods of Athens, of preaching about new gods, and corrupting the youth. The texts have been selected and reproduced to reveal the disputation and argumentation methods used by Socrates, on the one hand, and his philosophical ideas, integrated within the arguments, on the other hand.

According to the legal procedure for public trials, the accused had the right to speak twice, when defending the allegations, and when he would suggest a different punishment than the one demanding by the prosecution party. Since the dialogue was written three years after the trial, Plato cannot be compared to a registrar, but the ideas presented in the trial certainly have not been ignored.

Socrates refers to the imminence of death before the prosecutors asked the death penalty, either because he anticipated this punishment, according to the allegations, or because of a contamination in the ideas exposed by Plato (1997). It is certain that, before the ending of his defense, Socrates stated that his doom will come not so much from the allegations, but from the envy of the mob. Which is why he replied to the mob with the following statement:

“Are you then not ashamed, Socrates, of having followed such a pursuit, that you are now in danger of being put to death as a result?” But I should make to him a just reply: “You do not speak well, Sir, if you think a man in whom there is even a little merit ought to consider danger of life or death, and not rather regard this only, when he does things, whether the things he does are right or wrong and the acts of a good or a bad man. For according to your argument all the demigods would be bad who died at Troy, including the son of Thetis, who so despised danger, in comparison with enduring any disgrace, that when his mother (and she was a goddess) said to him, as he was eager to slay Hector, something like this, I believe, My son, if you avenge the death of your friend Patroclus and kill Hector, you yourself shall die; for straightway, after Hector, is death appointed unto you; he, when he heard this, made light of death and danger, and feared much more to live as a coward and not to avenge his friends, and said, Straightway may I die, after doing vengeance upon the wrongdoer, that I may not stay here, jeered at beside the curved ships, a burden of the earth. Do you think he considered death and danger?

For thus it is, men of Athens, in truth; wherever a man stations himself, thinking it is best to be there, or is stationed by his commander, there he must, as it seems to me, remain and run his risks, considering neither death nor any other thing more than disgrace.

So I should have done a terrible thing, if, when the commanders whom you chose to command me stationed me, both at Potidaea and at Amphipolis and at Delium, I remained where they stationed me, like anybody else, and ran the risk of death, but when the god gave me a station, as I believed and understood, with orders to spend my life in philosophy and in examining myself and others, then I were to desert my post through fear of death or anything else whatsoever. It would be a terrible thing, and truly one might then justly hale me into court, on the charge that I do not believe that there are gods, since I disobey the oracle and fear death and think I am wise when I am not. For to fear death, gentlemen, is nothing else than to think one is wise when one is not; for it is thinking one knows what one does not know. For no one knows whether death be not even the greatest of all blessings to man, but they fear it as if they knew that it is the greatest of evils (28 b-29a).

Socrates uses a rational reasoning, where the premises are based on the Athenians' beliefs about gods, laws and order, on one side, and on the acts done in his life, in life threatening conditions (the wars of Potideea,

Amphipolis or Delion), or regular situations such as public meetings in the Agora. A first argument shows us that it is unworthy for a human being to willingly do evil acts, out of the fear of death. The generic premises are based on the exemplary gestures of heroes and the lawful order, both belonging to a socially accepted conception of the world. And the particular premises, tied to Socrates' life, are cases subordinated to the generic ones, therefore it would be unbecoming of Socrates to fear death and forget about the Delphi oracle saying, stating that his wisdom is merely human: "that what I do not know I do not think I know either" (21d).

This form of wisdom is publicly declared by Socrates in the statement "This one of you, O human beings, is wisest, who, like Socrates, recognizes that he is in truth of no account in respect to wisdom" (23a). Allegorically, he assigns this saying to the God of Delphi, in which he expressed the belief that our knowledge regarding death and after death is struck by uncertainty.

For to fear death, gentlemen, is nothing else than to think one is wise when one is not; for it is thinking one knows what one does not know. For no one knows whether death be not even the greatest of all blessings to man, but they fear it as if they knew that it is the greatest of evils.

And is not this the most reprehensible form of ignorance, that of thinking one knows what one does not know? Perhaps, gentlemen, in this matter also I differ from other men in this way, and if I were to say that I am wiser in anything, it would be in this, that not knowing very much about the other world, I do not think I know. But I do know that it is evil and disgraceful to do wrong and to disobey him who is better than I, whether he be god or man. So, I shall never fear or avoid those things concerning which I do not know whether they are good or bad rather than those which I know are bad. (29a-b)

Therefore, to base your fear of death on something you do not know with certainty, it is not desirable. Furthermore, to think that you possess clear knowledge about things or phenomena that have not been confirmed with facts, represents a "stupidity worthy of contempt", a situation that undermines virtue^{iv}.

Opposed to this situation, admitting what you do not certainly know is a copycat of the famous saying coined by Socrates, "I know that I know nothing". Taking on such an uncertainty in a rational act delivers

us from the fear of death, quenches our emotions and allows us to understand the things that depend on us, because we know them with certainty and can achieve them. Such a rational approach of the fear of death comes significantly close to the ABC model developed by Ellis (1979). The personal belief that death is something frightening has no basis in experience, and reevaluating the belief can lead to a freedom of the dysfunctional consequences^v.

We must once more emphasize that for Socrates, the reconsideration of beliefs is based on the ability to be aware that we can possess erroneous knowledge or unexplored preconceptions. And therefore, the possibility to become free of those knowledge or preconceptions is given by the ability to become aware that you lack strong knowledge, stated in the famous saying "I know that I know nothing!". Following this act of liberation, one can begin to research, to achieve clear and factful knowledge. The two moments constitute the basis for self-knowledge, so plainly stated by the Delphi quote „Γνωθι Σεαυτον” (“Know Thyself”). This quote is interpreted by Socrates in Alcibiades dialogue like this: “Then he who enjoins a knowledge of oneself bids us become acquainted with the soul. ... And anyone who gets to know something belonging to the body knows the things that are his, but not himself.” (130e-131a).

This is the approach that Socrates used to know his self in his daily acts, as he admits during the process, even if the confession provoked the judges and cost him his life.

“Most excellent man, are you who are a citizen of Athens, the greatest of cities and the most famous for wisdom and power, not ashamed to care for the acquisition of wealth and for reputation and honor, when you neither care nor take thought for wisdom and truth and the perfection of your soul?” And if any of you argues the point, and says he does care, I shall not let him go at once, nor shall I go away, but I shall question and examine and cross-examine him, and if I find that he does not possess virtue, but says he does, I shall rebuke him for scorning the things that are of most importance and caring more for what is of less worth. This I shall do to whomever I meet, young and old, foreigner and citizen, but most to the citizens, in as much as you are more nearly related to me. For know that the god commands me to do this, and I believe that no greater good ever came to pass in the city than my service to the god. For I go about doing

nothing else than urging you, young and old, not to care for your persons or your property more than for the perfection of your souls, or even so much; and I tell you that virtue does not come from money, but from virtue comes money and all other good things to man, both to the individual and to the state.” (29d-30b)

Therefore, in his view about the world, the human being is characterized by reason, the ability to shape knowledge and attitudes, reason, and soul. In a contemporary approach, Socrates’ obstinacy, and his way of questioning the convictions of others, might be perceived as negative – harassment, attack on someone’s rights, even defamation and slander. Still, such an assessment is refutable since the purpose is always beneficial to the interrogated person, like someone seeking education. This purpose can be achieved only by dialogue, if the two participating parts are voluntarily involved.

Socrates’ belief about man is the reason for his actions, and the result of these public acts become reason for his attitude before death:

“and if again I say that to talk every day about virtue and the other things about which you hear me talking and examining myself and others is the greatest good to man, and that the unexamined life is not worth living, you will believe me still less.” (38a)

This shows a practical approach based on Socrates’ view of the world and man, which can be placed in the context of contemporary psychological knowledge, and we can be certain that it serves as ground for those statements:

“But, gentlemen, it is not hard to escape death; it is much harder to escape wickedness, for that runs faster than death...” (39a).

“... there he must, as it seems to me, remain and run his risks, considering neither death nor any other thing more than disgrace” (28d).

“But you also, judges, must regard death hopefully and must bear in mind this one truth, that no evil can come to a good man either in life or after death...” (41d).

Discussing and researching in a Socratic manner about virtue^{vi} (ἀρετή), using heuristic conversation, means using cognitive, attitude and behavior mechanisms that are being discussed and confirmed by contemporary research as well. Practically, it means making a deeper processing of the problem that involves generating multiple connections^{vii}, with already existing cognitive elements (Miclea 2003). Also, it means creating synaptic new links and increasing their strength (Spitzer, 2020). Direct involvement in conversation and analysis, and not the simple exposure to an argumentative speech, will consolidate the attitude regarding virtue and will facilitate practicing a specific behavior (Aronson, Wilson & Akert, 2013). And manifesting and beliefs according to virtues will give birth to positive experiences^{viii} which, in turn, will maintain the feeling of self-efficacy, an essential component in the motivation process (Lieberman & Long, 2019).

Doing behaviors according to virtue can be even more motivating in Greek culture and in particular for Socrates^{ix}, because celebrating them can be a current practice, yet not drastically fined by the imperative of humbleness, that comes from the fear of sinning before the divine, through self-glorification, conceit, pride and praise. The limitations of celebrating virtue come from the concept of temperance (sophrosyne), which aims to balance extremes, a sort of limitation fit for humans.

CELEBRATING VIRTUE AND THE DOPAMINE OF CONTROL

If we regard the research and manifestation of virtue from the mechanisms of dopamine, we can assert that virtue fits in this mechanism as an object of desire. This is because virtue intends for us to transform our future in a safer and better place, through an effort to envision the future and dominate the elements of the present (Lieberman & Long, 2019). Following virtue involves actions that represent a means to temper the dominance of desire dopamine and its' excess, as well as the emotions that demobilize us (fear, doubt, lack of trust). The practice of celebrating virtue, previously presented, will temper the excess of control dopamine (Lieberman & Long, 2019), which is mandatory if we are to consider that this type of dopamine associated to practicing virtue, satisfies the desire for more, characteristic to dopamine (Lieberman & Long, 2019).

The consequence of uniting control dopamine and the experience of the satisfaction of practicing virtue will consolidate one's self image^{xi}, to such an extent that the doubt of reaching or not achieving the condition of a good person will diminish significantly. This way, we can no longer doubt the statement "there is nothing bad in life or death, for a good person" and we have no more reasons to fear death, should it be a mere passing in an existential register, where the deeds from this life will matter. Although this idea is mostly built on considerations that deal with biology and psychology, this approach is another way to explain Socrates' attitude towards death.

SOCRATES WAITING FOR THE VERDICT TO BE EXECUTED

We can now understand better why the calm attitude of Socrates concerning death and the absence of fear is based on his conception of world and man, which is a philosophical personal view, practiced daily, with honesty and without restraint.

Starting from these hermeneutical landmarks, we will continue our analysis regarding the concept of death from the dialogues called *Criton*, for a better understanding of the views of Socrates. In *Criton*, the reader sees the use of virtue driven reasoning, which allows Socrates to keep a rational attitude, free of any disturbing emotions. The dialogue becomes possible when Criton suggests Socrates to help him escape from prison. Criton is an old friend of Socrates and a philosopher and he justifies this proposal stating that the death penalty is unfair.

To this proposal, Socrates replies with a dialectic approach, which proves eventually that following such an attempt would mean doing something unjust, and proving to lack virtue, after a life dedicated to educating others. In a short format, Socrates' demonstration would include the following dialectic approach.

Since Socrates has "always" not let himself convinced only by the reasonings that, after a close examination, proved to be the best, he cannot deny the principles that he once invoked (46b). On the contrary, these principles have remained unchanged and are as valuable as before his sentencing. And considering the same principles, we conclude that

“we must not consider at all what the many will say of us, but what he who knows about right and wrong, the one man, and truth herself will say” (48a). Doing the right thing and avoiding injustice means living according to good, and that is above simply living, so “...living well and living rightly are the same thing”, which is virtuously (48b). Therefore, one must avoid doing wrong on purpose and this way will not have to consider death nor any other suffering, because “Or is not what we used to say most certainly true, whether the world agree or not? And whether we must endure still more grievous sufferings than these, or lighter ones, is not wrongdoing inevitably an evil and a disgrace to the wrongdoer?” (49 b). And to avoid what is wrong and degrading, and therefore inconsistent with virtue, injustice must not be done at all. Therefore, who takes on such a principle must admit if someone has been wronged and must not reply with injustice, as many might believe. Also, you should not do wrong to those you wronged you, “For doing evil to people is the same thing as wronging them” (49c).

And once Socrates and Crito agree on respecting the principle of not doing any injustice nor evil, actions that would contradict virtue. Using an allegory, they invoke the laws of Athens, and in the last part of the dialogue, they reveal that the escape of Socrates and bribing the guards would be an act of injustice done to the city that has protected and guided him so far. With this analysis in mind, we can now understand why the serenity he manifests while waiting to be executed is a consequence of his philosophical reflection and following principles, which he has not abandoned throughout his life and on the brink of death.

DEATH WITHOUT FEAR

Phaidon is the platonic source that reveals the moments before Socrates' death. Since the dialogue is more Plato's (1997) view than Socrates', and because we know that Plato was not present at the death of his master, this source is rather fictional and creative. That is why we can only focus on the reconciliation and peace that Socrates experiences in front of death, since his firm conviction contradicts the thoughts expressed during the trial. What remains here is Socrates life wish that we must do whatever it is humanly possible to share, while alive, the

virtue and wisdom. And this way to achieve, for the soul, the true jewelry: temperance, justice, courage, freedom, and truth. Since Socrates has followed these closely, the pious description made by Plato (1997) is more than fitted:

“As he spoke he handed the cup to Socrates, who received it quite cheerfully, Echecrates, without a tremor, without any change of color or expression, and said, looking up under his brows with his usual steady gaze” (117b-c)

Regarding the trustworthiness of this description, Vlastos (1991), concluding his book about Socrates, which is a rigorous scientific analysis of the moral concepts, especially virtue and happiness, stated that such an attitude should not come as a surprise. Because, if virtue matters more for your own happiness than everything else combined, it is not a surprise that you can remain happy and lighthearted if you lose all, for the sake of virtue. Therefore, nothing in this world can lead you to unhappiness.

In summary, we can assert that the Socratic formula for virtue reveals that the way of living life conditions the manner you confront death, especially when your knowledge about death is limited. The way Socrates sees death is the result of the recommendations he makes and follows throughout his life. These recommendations are the result of a long philosophical reflection about the world and man. According to this conception, man is a rational being, capable of knowing the world and itself, of choosing and behaving wisely, of accepting that it can be wrong.

We can find a similar conclusion in Jaspers (1996), with different accents and nuances. In his opinion, Socrates can face death without indignation, because he lacks the indignation against his city, world, or divinity, because he does not experience the disappointment about the issue of evil. Instead, he lived a certainty without circumstances regarding justice because the only life worth living is the one lived according to the truth, which clears your thinking process. In his view, the purpose of man is to dare on the idea that good exists, where one recognizes good as being the truth, and knows when it depends on him/her to do good.

SOCRATES' VIEWS ABOUT DEATH ACCORDING TO XENOFON

During the trial, Xenophon was not in Athens, which is why his text is based on the confessions of a direct participant, Hermogenes, son of Hipponikos, friend of Socrates. Socrates' attitude is characterized by a serene acceptance, reconciliation, and wisdom about death, based on the fact that he is already old and the days to be lived could be worse than death^{xii}. Another reason is that the time and way of death, although decided by his enemies, could rather be a gift from the gods^{xiii}. Even if the reason presented by Xenophon (1990) invoke a rather biological and practical level, rather than a moral one, the conclusion formulated by his disciple at the end of the text, points again the rapport between the moral approach to life and death.

The details are closely presented in the book *Conversations of Socrates*, a complex testimony regarding the view of the world and man, far more descriptive than the one written by Plato (1997), and less speculative. In these accounts, as well as in the writings of Plato (1997), the duty of cultivating your soul^{xiv} through reason, knowledge^{xv} and wisdom^{xvi} is at the center of Socrates' interests, as well as seeking virtue^{xvii} through actions^{xviii}, manifesting temperance^{xix} and honestly researching own beliefs and knowledge^{xx}. All these represent the essence of a practical life^{xxi}, life which he shares with his fellow citizens^{xxii} that are willing to follow his as friends in philosophy.

FROM VIRTUE...

What is truly extraordinary about Socrates the person is his ability to preserve the moral dimension of the self, against the life preservation instinct, in a context where he does not possess a certainty regarding death. He endures the death penalty not to lose his ideas, belief, or convictions, as later will happen with Christian martyrs or scientists, but to preserve his moral being condition. This element is specific to man and differentiates him from animals, and this condition is accessible to every being, including those that decided in the Agora to convict him, or to harm him, some from ignorance, others from envy.

But to be and remain a moral being means to think about your convictions and act within the limits of virtue, respecting and cultivating good, truth and beauty, not only for yourself, but for those around you as well. Therefore, to remain a moral being means to constantly make a conscious effort to stay within the limits of virtue, to respect the *principle of virtue sovereignty*^{xxiii}, formulated by Vlastos (1991). According to this principle, following virtue means choosing virtuosity over vice, and not accepting the non-moral or put them first, regardless of the benefits. Now it is clear why living and saving yourself by breaking the principle of virtue is inadmissible for Socrates. To him, regardless how great would be the good done by staying alive, this good cannot justify the deliberate action of breaking virtue. For Socrates, virtue is maintaining a continuum of moral life. Paying with your life or a lack of well-being for this continuum of virtue might seem exaggerated today, although this continuum can remain, hypothetically, desirable.

...OR FROM A CONTROL DOPAMINE EXCESS?

In relation to time, virtue is a purpose we can follow or reach through our actions, but never own. Still, we can maintain it by doing, again and again, the actions that describe virtue. What we can own is the desire to follow virtue. Maintaining the desire to follow virtue corresponds with the specificity of following a purpose in those that have an excess in dopamine control. They aim to identify the next purpose where control dopamine can manifest, right after they reach the previous one, while celebrating the success is low in meaning and importance (Lieberman & Long, 2019).

Hence, evaluating Socrates' behavior considering the dopamine control dimension, we can formulate a conclusion that highlights the existence of a dopamine control excess for this philosopher. To support this idea, we can invoke the situation when Socrates stood still for one day and one night, following his thought^{xxiv}, example used by Lieberman & Long (2019) to illustrate the force of dopamine control for creative people. To this example, we can use the ability to control the desire dopamine, illustrated by the formula "How many things I can do without!" (Laertios,

2018, p. 74), which he used to say while passing through the merchant's stalls. Also, we can see this in the ability to control his emotions in extreme conditions, illustrated by controlling fear in battle, when all the Athenians ran for their lives, Socrates withdrew without haste, or the ability to endure bad weather without complaint^{xv}. Also, we could quote the tenacity he proved in pursuing virtue, connecting this tenacity with his personal Daimon, a divine voice (θεοῦ φωνή) which only opposed to Socrates doing certain actions. We could use the analogy between the temporal dynamic of virtue and the typology of purpose succession, specific to dopamine control excess.

The remaining question is whether we are truly experiencing an excess or should we accept that the life of a person that follows virtue can be done only using the way of dopamine control? In other words, following virtue means, in terms of dopamine control, to go from state to trait.

SOCRATES DOES NOT DECIDE TO DIE

Apparently, Socrates does decide to die, since he does not do anything to avoid death, neither during the trial, nor during the three following days. Still, this is not true. Jaspers (1996) thinks that such an approach disregards the fact that Socrates never accepted to lose his divine call to work for the truth. In fact, the life he lived according to virtue is the chronic of an announced death. Socrates decided to live by following the principle of virtue supremacy, and we cannot say that the price for this is death, but rather happiness. Socrates lives and dies happy because he can follow his virtue.

SOCRATES DIES LIKE A MAN

After going through the sources that reveal the way Socrates sees his own death, based on reliable references, we highlighted the mechanisms that can lead to virtue. After concluding about the role of virtue in the concept of death, using arguments from renowned contemporary authors, we can still ask the question whether Socrates dies like a man. This

question hides the restlessness generated by the meeting with the man whose' death and uncertainty regarding death do not cause predictable consequences.

Perhaps that those who left testimonials about Socrates' relation to death talked about a character that embodies a moral ideal, perhaps about a spectrum of their minds which portrayed a real Socrates, or perhaps they overlooked the tears, trembling, disappointment, mourning or refusal to meet with family and disciples.

Without rejecting any of those possibilities, we will attempt to show that Socrates deals with the imminence of his own death as a person, an ordinary man, in which lives *the mind of Socrates the philosopher*. For the next analysis, we will look at the five states that a man goes through (Kübler-Ross, 1969), while facing death. We will discuss them as a conglomerate of potential states experienced by someone confronted with the imminence of death, a model proposed by Shneidman (apud Corr, Clyde & Corr, 2009) and called hive of affect. Within this model, the elements interact and become important, either successively or simultaneously, in shorter or longer periods of time (Corr, Nabe & Corr, 2009).

Shneidman's model has less criticism than the model of Kübler-Ross (1969) regarding the rigidity of the stages, timeline dependency, the dogmatism of succession and ignoring the nuanced states that characterize the act of confronting one's death (Friedman & James, 2008). Working with this hybrid model, we have a set of at least five landmarks for classifying the states of confronting one's death: denial, anger, negotiation, reactive or preparatory depression, and acceptance. The individual model of going through the death itinerary assumes a psychological coping style, and in this case is the result of Socrates' mind.

Socrates sees the imminence of his own death in a rational framework, where acts and a logical judgment are the core, an approach identified in REBT as a Socratic reasoning. Reported to the typology suggested by Moos & Schaefer^{xxvi} (1986) (apud Corr, Nabe & Corr, 2009), the Socratic approach is characterized by focusing on evaluation through a logic analysis and mental preparation, cognitive restructuring, avoidance or denial, by focusing on the problem through identifying alternative rewards, and in focusing on emotion through a resigned acceptance and emotional relief. Socrates, as we will see during the trial and his meeting

in *Criton*, reaches the five stages of a person that meets death, and what we can identify is rather the coping, than the specific descriptors of those stages:

Denial (a mix of refusal and isolation), is characterized by Kübler-Ross as a total or partial denial of the imminence of death, using expressions such as: “It is not happening to me, it cannot be true” (35). Denial is unhealthy and works as a buffer against the brutality of the situation, giving a respite and a chance to bounce back (36), but it is ultimately a temporary defense and will be replaced by a partial acceptance (37). The alternative of refusal is separation through an orientation towards acceptable elements (37). The manifestation of denial and the defense mechanisms depend on how one has been prepared throughout life to cope with stressful situations (38).

Anger has states like rage, envy, resentment, and is expressed in sayings like: “Why me? Why not someone else?”, and can be directed in many ways – towards people, environment, transcendence, or self, and sometimes almost randomly (45). Whether it is a rational or irrational anger, it generally represents a request for recognition, for reasserting the fact that the person has not been forgotten (47).

Negotiation is characterized by moving from the vindictive style of anger to asking a favor of an exchange that will persuade otherness, a formula often practiced throughout life to achieve what has been refused to us, or an acceptable alternative (73). It is an attempt to delay (74) and set some boundaries, where the complainant, despite a successful lament, is tempted to push on (75). The negotiations with transcendence include experiencing guilt and irrational fears caused by passed behaviors, where the complainant promises to correct them, in exchange of a relief, delay or deliverance from suffering (75).

Depression comes from the feeling of loss, which can be widely represented (76), from the sadness and guilt experienced in report with the consequences generated to others (76), and especially from the suffering generated by the loss of one’s own life (77). The first two types of triggers would generate a *reactive* depression, in report with what has already been lost, and the latter will generate a *preparatory* depression for what

comes next, the loss of one's own life (77). The preparatory is characterized by experiencing fear, sadness, agony, anxiety (79). Other behaviors and feelings expressed are cry, reactive or avoidance sleep, envy towards the healthy ones and anger that others should not be confronted with that drama (100).

Acceptance is the situation when the person is neither depressed, nor upset with "fate" (100), it is a period of emotional void, as if pain has gone, the fight ends and comes a moment for the "final rest" (101). Then comes the need for sleep (100), the duration of interactions with others decreases, communication changes predominantly to non-verbal and the gesture has a greater significance (102).

Hope is a recurrent element in the mind of a person that heard about the imminence of own death, is oriented towards avoiding death, gives people "a feeling of special mission in life", "helps them maintain their spirit and energy", is a way "rationalize their suffering", but it can also be "a form of temporary, yet necessary, denial" (124).

For Socrates, hope is not oriented towards avoiding death, but to avoid breaking the principle of virtue supremacy, therefore the locus of control is an internal one, depending on the philosopher's will. His hope is not anchored in the good that comes after death, since he has no certain knowledge about that. He can only deduct from reasoning that the one who followed good cannot be bad in life, nor in death (41d). This deduction is not a hope, but rather a certainty in a context of deep uncertainty regarding death. Jaspers (1996) will conclude with a much-elevated formula that the death of Socrates gives us the image of a serene detachment, on the base of an ignorance full of certainty. The ignorance is the base ground and the end of any discussion about death.

To use Schneidman's (1973) model, we will have to identify the five specific stages, by analyzing the various statements done by Socrates during his trial or while meeting Criton. The analysis will highlight the type of coping used and the specific state he confronted.

First, we will analyze a set of fragments that are a precursory for voting the guilt of Socrates and the acceptance of his death conviction. In each fragment, we notice that Socrates prepares mentally for the imminence of his death sentence.

Fragment 28b-29a, where Socrates states that people in general, and himself in particular, should not avoid death, and instead of doing something unjust or evil, should see life as a mental preparation for accepting the imminence of death and avoiding denial.

Fragment 29a-b, where he argues that the fear of death has no reason, since we do not know for certain whether it is good or bad for man, represents a point of view on focusing on a logic analysis, followed by a cognitive restructuring that allows to overcome the preparatory depression accompanied by fear.

Fragment 29d-30b, where he declares that he would rather die than be stopped to philosophize in public, represents a special form of identifying alternative rewards, that prepares him for unconditionally accepting death and by precluding the negotiating state.

Fragment 30c-31c, where he asserts that sending him to death is not bad for him, but rather bad for the ones that sentence him unjustly, since they do evil. Also, this can be bad for the Athenians since they lose the man that did good for them, and with these views, Socrates makes a cognitive restructuring that allows him to avoid the state of anger.

Fragment 34b-35d, where he rejects as unworthy the action of persuading the judges by appealing to their emotions and mercy, represents another cognitive restructuring meant to prevent the state of negotiation and self-addressed anger.

We can conclude that Socrates does actions of mental preparation for coping with the states that are precursors of his own imminent death, and therefore he anticipates the states he will experience and thus find coping ways for that.

Next, we will analyze from the same perspective the fragments that come after establishing his death and accepting the punishment, followed by an alternative sentence from the accused, where there was the possibility to avoid death.

The following analysis add to the former one, using the same theoretical background and researching the phenomena recorded after his death sentence, which will be executed 30 days later, due to worship circumstances.

Fragment 38c-39b, where Socrates argues why he did not appeal to positively persuade the audience, by using avoidance and cognitive denial. Through a cognitive restructuring, he reveals to those present that they are guilty and blameworthy, which is an interlacing between the state of denial, anger, and refusal to negotiate.

Fragment 39c-d, where he prophesies those who sentenced him a “far heavier punishment”, and shows an authentic state of anger, and here again he uses cognitive restructuring.

Fragment 39a, where he asks those who sentenced him to talk to him until he would be taken to the dungeon, by promising to share with them something of significance. This is Socrates’ way to identify an alternative reward and offer himself a compensatory state of negotiation.

Fragment 40a-41d, where he shares those that stayed with him that the interpretation of the signs of his Daimon convince him that death is not a bad omen, just as it will not be to anyone that does good in life. This represents a great combination between the logical analysis and mental preparation, cognitive restructuring and identifying alternative rewards as coping mechanisms that support Socrates in overcoming any negotiation with the transcendent, in overcoming preparatory depression and preparing for a serene acceptance. This fragment might seem improbable should we not consider the testimonials about his life.

CONCLUSIONS

Based on these analyses, we discover that Socrates seen by Plato and Xenophon, dies as an ordinary man, and that the force of his philosophical thinking makes him repeatedly to use efficient coping strategies while facing his own death.

We can conclude that the report with the imminence of his own death left by Socrates to posterity, represents a particular unrepeatable form, conditioned by the space-time context, the philosophical thinking about man and world and the specificity of the soul and body. Also, it can be seen as an assumed individual model, therefore repeatable for everyone, based on identifying the landmarks for a rational approach on existential

problems, guiding life towards cultivating the soul and virtue, and making an ongoing effort to evaluate one's knowledge and beliefs, that can be (come) the base for one's actions and behaviors.

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- ⁱ These two dialogs are part of Socrates' youth, and are characterized by the tendency to show conservatively his thinking and approach. They were written shortly after Socrates died, and Plato was not present there.
- ⁱⁱ Phaidon is a dialogue about maturity, where the philosophical ideas of Plato come before the philosophical considerations of Socrates. We take this dialogue into account only to paint the affective atmosphere that Socrates experiences before death.
- ⁱⁱⁱ It is a dialogue that belongs to the second creation period of Plato, which makes the transition towards consolidating his philosophical conception.
- ^{iv} Socrates imprints an intellectual nuance to virtue, supporting an identity between virtue and knowledge, which is then widely known among his successors (Peters, 1997, p. 46). For Socrates, virtue is a way of being for the soul, which makes its semantics to include the morale and the ontological. Virtue also has the positive meaning of valuing the soul as happiness, justice, piety, it is the very condition of soul, the first component of our being and a means of assuming the being as a whole. In Socrates' view, virtue is the distinctive sign of the human (Vlăduțescu, 2001). Considering to the declarations in Laches dialogue, Socrates considers virtue to be not only courage, but also wisdom, justice. Virtue proves to be a way of being everything that makes simultaneously possible courage, wisdom, justice and all the behaviors that unveil them.
- ^v The reasoning that is at the base of the lack of fear of death is called *modus tollens*. "If I fear death, then it is certainly something bad. But we do not know for sure that death is bad, therefore there is no reason to fear it."
- ^{vi} Reflecting upon the following statements of the philosopher:
SOCRATES: And if the soul too, my dear Alcibiades, is to know herself, she must surely look at a soul, and especially at that region of it in which occurs the virtue of a soul—wisdom, and at any other part of a soul which resembles this? (133b);

SOCRATES: Then this part of her resembles God, and whoever looks at this, and comes to know all that is divine, will gain thereby the best knowledge of himself. (133c), we can conclude that discussing virtue means acting on the Delphi incentive regarding the highest aspect of the human and, at the same time, to fulfill its' role.

- vii As one can see from the dialogues content, the discussion about virtue is an analysis regarding the human soul, that intends to know and follow good and justice, by using wisdom. Therefore, talking about virtue means developing connections with a large diversity of psychological content and deepen self knowledge. We have an eloquent example: "SOCRATES: Now do you think, my excellent friend, there could be anything wanting to the virtue of a man who knew all good things, and all about their production in the present, the future, and the past, and all about evil things likewise? Do you suppose that such a man could be lacking in temperance, or justice, and holiness, when he alone has the gift of taking due precaution, in his dealings with gods and men, as regards what is to be dreaded and what is not, and of procuring good things, owing to his knowledge of the right behaviour towards them?" (199 d-e).
- viii "So let's use the account that has now been disclosed to us as our guide, one that indicates to us that this way of life is the best, to practice justice and the rest of excellence both in life and in death. Let us follow it, then, and call on others to do so, too, and let's not follow the one that you believe in and call on me to follow. For that one is worthless, Callicles". (*Gorgias*, 527e).
- ix Diogene Laertios claimed that Socrates would take pride in his sober life and never asked for money from anyone (100). He easily disregarded even those who mocked him. He prided himself on the simplicity of his life, and never took a fee.
- x "For my part, Callicles, I'm convinced by these accounts, and I think about how I'll reveal to the judge a soul that's as healthy as it can be. So I disregard the things held in honor by the majority of people, and by practicing truth I really try, to the best of my ability, to be and to live as e a very good man, and when I die, to die like that. And I call on all other people as well, as far as I can—and you especially I call on in response to your call—to this way of life, this contest, that I hold to be worth all the other contests in this life." (*Gorgias* 526e).
- xi So, listen to me and follow me to where I am, and when you've come here you'll be happy both during life and at its end, as the account indicates. Let someone despise you as a fool and throw dirt on you, if he likes. And, yes, by Zeus, confidently let him deal you that demeaning blow. Nothing terrible will happen to you if you really are an admirable and good man, one who practices excellence. (*Gorgias* 527d).
- xii "...I shall prefer death to begging meanly for longer life and thus gaining a life far less worthy in exchange for death." (Xenofon, 1997, p. 647).
- xiii "God in his kindness is taking my part and securing me the opportunity of ending my life not only in season but also in the way that is easiest. For if I am condemned now, it will clearly be my privilege to suffer a death that is adjudged by those who have superintended this matter to be not only the easiest but also the least irksome to one's friends and one that implants in them the deepest feeling of loss for the dead." (Xenofon, 1997, p. 645)

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- ^{xiv} “It is the same with human beings. The most highly gifted, the youths of ardent soul, capable of doing whatever they attempt, if educated and taught their duty grow into excellent and useful men; for manifold and great are their good deeds. But untrained and untaught, these become the same utterly evil and mischievous; for without knowledge to discern their duty, they often put their hand to vile deeds, and through the very grandeur and vehemence of their nature, they are uncontrollable and intractable: therefore manifold and great are their evil deeds.” (Xenophon, 1997, p. 267)
- ^{xv} “Between Wisdom and Prudence, he drew no distinction; but if a man knows and practises what is beautiful and good, knows and avoids what is base, that man he judged to be both wise and prudent.” (Xenophon, 1997, p. 225). “...the wise, then, are wise by knowledge (119) it follows that Wisdom is Knowledge. Consequently, everyone is wise just in so far as he knows (Xenophon, 1997, p. 339). Knowing is different from believing, and Knowledge is, among other things, the making of an honest examination of one’s own convictions and knowledge, to their validation.”
- ^{xvi} “But I hold that they who cultivate wisdom and think they will be able to guide the people in prudent policy never lapse into violence: they know that enmities and dangers are inseparable from violence, but persuasion produces the same results safely and amicably. For violence, by making its victims sensible of loss, rouses their hatred: but persuasion, by seeming to confer a favour, wins goodwill. It is not, then, cultivation of wisdom that leads to violent methods, but the possession of power without prudence.” (Xenophon, 2018, p. 17).
- ^{xvii} “And I know that it was so with Socrates: he showed his companions that he was a gentleman himself and talked most excellently of goodness and of all things that concern man.” (Xenophon, 1997, p. 19).
- “Moreover, indolence and present enjoyment can never bring the body into good condition, as trainers say, neither do they put into the soul knowledge of any value, but strenuous effort leads up to good and noble deeds, as good men say.” (Xenophon, 1997, p. 93).
- “Nevertheless, through all these barriers friendship slips, and unites the gentle natures. For thanks to their virtue these prize the untroubled security of moderate possessions above sovereignty won by war ; despite hunger and thirst, they can share their food and drink without a pang ; and although they delight in the charms of beauty they can resist the lure and avoid offending those whom they should respect ; they can not only share wealth lawfully and keep from covetousness, but also supply one another’s wants.” (Xenophon, 1997, p.137).
- ^{xviii} He said that Justice and every other form of Virtue is Wisdom. “For just actions and all forms of virtuous activity are beautiful and good. He who knows the beautiful and good will never choose anything else, he who is ignorant of them cannot do them, and even if he tries, will fail. Hence the wise do what is beautiful and good, the unwise cannot and fail if they try. Therefore since just actions and all other forms of beautiful and good activity are virtuous actions, it is clear that Justice and every other form of Virtue is Wisdom.” (Xenophon, 1997, p. 225).

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- ^{xix} “Or for this, that during the siege, while others were commiserating their lot, I got along without feeling the pinch of poverty any worse than when the city's prosperity was at its height? Or for this, that while other men get their delicacies in the markets and pay a high price for them, I devise more pleasurable ones from the resources of my soul, with no expenditure of money?” (Xenofon, 1997, p.653)
- ^{xx} “And would not a person with good reason call me a wise man, who from the time when I began to understand spoken words have never left off seeking after and learning every good thing that I could? And that my labour has not been in vain do you not think is attested by this fact, that many of my fellow-citizens who strive for virtue and many from abroad choose to associate with me above all other men?” (Xenofon, 1997, p. 651)
- ^{xxi} “Thus, he would often say he was “in love”; but 2 clearly his heart was set not on those who were fair to outward view, but on those whose souls excelled in goodness.” (Xenofon, 1997, p. 265).
- ^{xxii} “For holding that it is good for anyone who means to do honourable work to have self-control, he made it clear to his companions, in the first place, that he had been assiduous in self-discipline; I moreover, in his conversation he exhorted his companions to cultivate self-control above all things. Thus, he bears in mind continually the aids to virtue, and put all his companions in mind of them.” (Xenofon, 1997, p. 325).
- ^{xxiii} The principle of virtue sovereignty is based on three statements made by Socrates, two from *Socrate's defense* (28b5-9 and 28d6-10) and one from *Criton* (48c6-d5). The principle mentioned in those three texts can be subsumed to these ideas: whenever we must choose between two alternative found in an exclusive and exhaustive alternative, and we consider one to be just and virtuous, and the other one vicious, the mere perception of this difference should help us make the right decision. Any other deliberation will be useless, because none of the non-moral goods that we could hope to achieve, could not compensate the loss of a moral good. (Vlastos, 1991, p. 175).
- ^{xxiv} Platon, *Banchetul*, 220c-d. Plato, *Symposium*, 220 c-d.
- ^{xxv} “Now did you ever know me to stay indoors more than others on account of the cold, or to fight with any man for the shade because of the heat, or to be prevented from walking anywhere by sore feet?” (Xenofon 1997, p. 69). “He also served in the expedition to Potidaea, which was made by sea; for one could not get there on foot, as the war made the land route impassable. It was there that he is said to have stayed in the same position for an entire night.” (Laertios, 2018, p.72).
- ^{xxvi} Coping: Three Focal Domains and Nine Types of Skills Appraisal-Focused Coping
1. Logical analysis and mental preparation: Paying attention to one aspect of the crisis at a time, breaking a seemingly overwhelming problem into small, potentially manageable bits, drawing on past experiences, and mentally rehearsing alternative actions and their probable consequences
 2. Cognitive redefinition: Using cognitive strategies to accept the basic reality of a situation but restructure it to find something favorable
 3. Cognitive avoidance or denial: Denying or minimizing the seriousness of a crisis

Problem-Focused Coping

4. Seeking information and support: Obtaining information about the crisis and alternate courses of action and their probable outcome

5. Taking problem-solving action: Taking concrete action to deal directly with a crisis or its aftermath

6. Identifying alternative rewards: Attempting to replace the losses involved in certain transitions and crises by changing one's activities and creating new sources of satisfaction

Emotion-Focused Coping

7. Affective regulation: Trying to maintain hope and control one's emotions when dealing with a distressing situation

8. Emotional discharge: Openly venting one's feelings and using jokes and gallows humor to help allay constant strain

9. Resigned acceptance: Coming to terms with a situation and accepting it as it is, deciding that the basic circumstances cannot be altered and submitting to "certain" fate.

Source: From "Life Transitions and Crises: A Conceptual Overview," by R. H. Moos and J. A. Schaefer. In R. H. Moos and J. A. Schaefer (Eds.), *Coping with Life Crises: An Integrated Approach*, pp. 3-28. Copyright 1986 Plenum Publishing Corporation. Reprinted with permission of Springer Science and Business Media.

THE INVESTIGATION OF THE RELATIONSHIP BETWEEN NARCISSISM, PERFECTIONISM, LONELINESS, DEPRESSION, SUBJECTIVE AND PSYCHOLOGICAL WELL-BEING IN A SAMPLE OF TRANSYLVANIAN HUNGARIAN AND ROMANIAN STUDENTS

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ABSTRACT. The last decades have witnessed a significant increase in several forms of human psychological malfunctioning, aspects that proved to significantly endanger healthy and efficient human adaptation. Mental health indicators (anxiety, depression, reduced levels of happiness), perfectionism, narcissism, and loneliness have significantly increased, despite the significant improvement of existent life-conditions. The market-based competition and reward system in the educational and professional spheres, as well as the perfectionistic expectations specific to the personal life impose high demands on the individual, which usually become sources of significant chronic stress, further impacting the individual's quality of life (psychological and subjective well-being, loneliness). The comparative investigation of the above-mentioned variables in Transylvanian Hungarian and Transylvanian Romanian students would offer us the chance to compare these levels of functioning in two, culturally different samples. Our present study is a continuation and refinement of previous studies, and concentrates on the following major aims: (i) the investigation of the possible differences in narcissism, perfectionism, loneliness, depression, happiness, subjective and psychological well-being in Transylvanian Hungarian and Transylvanian Romanian first and second year students; (ii) the investigation of the association patterns between variables in both samples, and (iii) the examination of the role the studied variables play on the major indicators of mental and psychological health (depression and happiness) both in

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the united sample and on the two samples of students separately. The results of our investigation may be beneficial for the tailoring of future prevention and intervention programs that would target the enhancement of psychological adaptation of Transylvanian students

Keywords: *narcissism, perfectionism, loneliness, depression, subjective well-being, psychological well-being.*

ABSTRAKT. In den letzten Jahrzehnten gab es eine signifikante Zunahme verschiedener Formen menschlicher psychischer Fehlfunktionen, Aspekte, die eine gesunde und effiziente Anpassung des Menschen erheblich gefährdeten. Die Indikatoren für die psychische Gesundheit (Angstzustände, Depressionen, vermindertes Glück), Perfektionismus, Narzissmus und Einsamkeit haben trotz der signifikanten Verbesserung der bestehenden Lebensbedingungen erheblich zugenommen. Das marktorientierte Wettbewerbs- und Belohnungssystem im Bildungs- und Berufsbe- reich sowie die perfektionistischen Erwartungen an das persönliche Leben stellen hohe Anforderungen an den Einzelnen, die in der Regel zu Quellen erheblichen chronischen Stresses werden und die Lebensquali- tät des Einzelnen weiter beeinträchtigen (psychisches und subjektives Wohlbefinden, Einsamkeit). Die vergleichende Untersuchung der oben genannten Variablen bei siebenbürgischen ungarischen und sieben- bürgischen rumänischen Studenten würde uns die Möglichkeit bieten, diese Funktionsniveaus in zwei kulturell unterschiedlichen Stichproben zu vergleichen. Unsere vorliegende Studie ist eine Fortsetzung und Verfeinerung früherer Studien und konzentriert sich auf die folgenden Hauptziele: (i) die Untersuchung der möglichen Unterschiede in Bezug auf Narzissmus, Perfektionismus, Einsamkeit, Depression, Glück, subjektives und psychologisches Wohlbefinden in Siebenbürgen, Ungarisch und Siebenbürgische rumänische Erst- und Zweitklässler; (ii) die Untersuchung der Assoziationsmuster zwischen Variablen in beiden Stichproben und (iii) die Untersuchung der Rolle, die die untersuchten Variablen für die Hauptindikatoren der psychischen und psychischen Gesundheit (Depression und Glück) sowohl in der Stichprobe als auch in der Stichprobe spielen zwei Stichproben von Studenten getrennt. Die Ergebnisse unserer Untersuchung könnten für die Anpassung künftiger Präventions- und Interventionspro- gramme von Vorteil sein, die auf die Verbesserung der psychologischen Anpassung siebenbürgischer Studenten abzielen.

Schlüsselworte: *Narzissmus, Perfektionismus, Einsamkeit, Depression, subjektives Wohlbefinden, psychisches Wohlbefinden.*

INTRODUCTION

In the last decades, a plethora of research has documented a considerable amount of significant changes in important aspects of the optimal human functioning. Despite the fact that worldwide, life conditions have significantly improved (Roser, 2020), especially in the western countries, indicators of mental ill-health have shown an increasing pattern. Depression, anxiety disorders, unhealthy levels of stress, burnout, personality disorders, loneliness, etc. have significantly increased in the last fifty years (Cuijpers, Smit, & van Straten, 2007; Cunningham, Rapee, & Lyneham, 2006; Erzen & Çikrikci, 2018; WHO, 2017b). Such increases have been encountered not only in the adult population, but an increasing number of children and adolescents seem to suffer of different forms of mental ill-health as well (Cunningham et al., 2006).

MENTAL HEALTH INDICATORS: DEPRESSION AND LONELINESS

One of the most frequently encountered forms of mental ill-health is depression, with over 298 million sufferers worldwide (representing over 4.4% of the population of the world) (Ferrari, Charlson, Norman, Patten, Freedman, Murray, et al., 2013; WHO, 2017b). More importantly, research predicts that by 2030 depression will become the second most serious illness, involving considerable personal, interpersonal, and socio-economic burdens (Gustavsson et al., 2011; Wittchen et al., 2011). Recent studies indicate that these results apply for the millennials as well. More precisely, between 2005 and 2015 the number of cases attaining levels above the depression cut-point has increased with 6%, with a significantly higher frequency in the female, than the male population (Bor, Dean, Najman, & Hayatbakhsh, 2014; Patalay & Fitzsimons, 2017; Patalay & Gage, 2019), women being more at risk than men. On the one hand, these dysfunctions do not always attain clinically significant levels. Frequently, the number of those who suffer of subclinical levels of depression is considerable, impeding their optimal functioning both in their personal and professional lives. On the other hand, the personal and societal costs if these mental health problems represent a significant burden at personal

and national levels as well (Banyard, Edwards, & Kendall-Tackett, 2009; Curran & Hill, 2017; Kendall-Tackett, 2009; Lanius, Vermetten, & Pain, 2010; Weehuizen, 2008).

Moreover, depression and loneliness seem to go hand in hand, thus not surprisingly, the levels and intensity of loneliness have also increased in the last decades (Cacioppo & Patrick, 2008; Erzen & Çikrikci, 2018). Interestingly, despite expectations, the younger generations report higher and more frequent levels of loneliness, than the older generations (Mushtaq, Shoib, Shah, & Mushtaq, 2014). Research indicates that loneliness is strongly associated with physical and psychological malfunctioning, and is a significant risk factor for substance abuse, obesity, injury and violence, immunization, access to health care, higher levels of depression and anxiety, etc. (Cacioppo & Patrick, 2008; Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015; Holt-Lunstad, Smith, & Layton, 2010; Perissinotto, Stijacic Cenzer, & Covinsky, 2012; Uchino, 2006).

Of more specific interest for our investigation are the results produced by the Hungarostudy: a series of periodic investigations conducted on a nationally representative sample in Hungary. The results of the 1980-investigation indicated that 24% of the Hungarians above 16-years of age experienced symptoms of depression measured with the Beck Depression Inventory (BDI) (Kopp & Skrabski, 1992). According to the Hungarostudy conducted in 1995, 31% of the assessed Hungarians reported serious depressive symptoms assessed with the BDI (Kopp, Skrabski, & Szedmák, 1996). The results of the 2002 Hungarostudy indicated a further increase in depression, the most significant results regarding the older population – 41% of those above 65 years of age reporting significant levels of depression (Purebl & Balogh, 2008). Similar results were produced by ampler investigations as well. Thus, within the countries of the European Union, depression and depressive symptoms have been found to attain the highest levels within the Hungarian population (Eurostat, 2019). According to these results, over 10.5% of the adult Hungarian population experiences depression.

Regarding the Transylvanian Hungarian population, research is much scarcer. Few research has been conducted in order to investigate the possible differences in depression between the Transylvanian and Hungarian Hungarians. Dégi, Kállay, and Vincze's (2007) research indicated

that within a sample of oncological patients, the Transylvanian Hungarian population attained the significantly highest level of depressive symptoms, while the Hungarian sample reported significantly lower levels, and the Romanian sample experiencing the lowest levels of depressive symptoms. Further research would be extremely useful to indicate if there are significant differences in depression between the two Hungarian populations.

PERFECTIONISM AND NARCISSISM

Furthermore, especially within the younger generations, the manifestation of perfectionism has also significantly increased, worldwide, in the last decades (Curran & Hill, 2017). A very plausible underlying motive for this may be represented by the changes in cultural and societal norms, which seem to significantly influence the way individuals view themselves (Foster, Campbell, & Twenge, 2003; Heine & Lehman, 1997; Millon, Grossman, Millon, Meagher, & Ramnath, 2004; Verhaeghe, 2014). Thus, the massive changes in the value system specific to the western society (constant and intense pressure for excellence and success, consumerism), seem to have significantly contributed to the accentuation and increase in number of those who present significant levels of dysfunctional perfectionism (Curran & Hill, 2017; Twenge & Campbell, 2009; Verhaeghe, 2014).

According to one of the most familiar definitions, perfectionism is a personality trait in which the person strives to achieve extremely high standard performances, and evaluates the results of his/her and others' achievements in an excessively critical way (Flett & Hewitt, 2002). At a first glance, due to its inherent benefits (e.g., high accomplishments), perfectionism suits extremely well the expectations set by our present society (Hewitt, Flett, & Mikail, 2017), and occasionally may become a very societally welcome individual characteristic. However, perfectionism may also have important negative consequences, which become evident especially in confrontations with highly stressful situations (e.g., exaggeration of the magnitude of the stressful event, frequency with which such events seem to occur for the highly perfectionist person) (Hewitt & Flett, 2001).

A very comprehensive and useful model of trait perfectionism was proposed by Hewitt and Flett (1991), model which comprises three different forms of perfectionism:

(i) ***self-oriented perfectionism*** (SOP) - characterized by unrealistic demands and expectations from the self, completed with punitive self-evaluations (Hewitt & Flett, 1991). On the one hand, SOP is strongly associated with achievement-related behaviors (Curran & Hill, 2017; Hewitt & Flett, 1991), while on the other hand, in its exaggerated forms, it is also strongly related to depressive symptomatology, anorexia nervosa, greater physiological reactivity, suicidal ideation and negative affect in general (Besser, Flett, Hewitt, & Guez, 2008; Fry & Debats, 2009; Smith, Sherry, Gautreau, Mushquash, Saklofske, & Snow, 2017).

(ii) ***other-oriented perfectionism*** (OOP) - characterized by unrealistic demands and expectations from others combined with their extremely critical evaluation. In case these others, burdened with the imposed exaggerated expectations, do not rise to the levels expected, are blamed and criticized, and treated with hostility by persons who score high on OOP (Hewitt, Flett, & Mikail, 2017). High levels of OOP are negatively associated with altruism, compliance, and trust (Hill, Zrull, & Turlington, 1997), and negatively impact intimate relationships (Haring, Hewitt, & Flett, 2003). Moreover, high levels of OOP are positively associated with narcissistic desire to obtain admiration from others (Nealis, Sherry, Sherry, Stewart, & Macneil, 2015).

(iii) ***socially prescribed perfectionism*** (SPP) - specific to those who consider that others are demanding perfection from them, and judge them. Thus, in order to obtain others' approval, those high on SPP have to constantly display a perfect image of themselves (Curran & Hill, 2017). Of the three dimensions of perfectionism SPP is the most debilitating one, determining the individual to believe that others have excessive, uncontrollable, and unfair expectations of them, beliefs that frequently lead to intense negative emotional states and different forms of psychopathology (e.g., anxiety, depressive symptomatology, suicidal ideation, etc.) (Sherry, Hewitt, Flett, & Harvey, 2003; Smith, Sherry, Rnic, Saklofske, Enns, & Gralnick, 2016).

Besides significant increases in maladaptive perfectionism, narcissism has also increased, more pronouncedly with the beginning of the 21st century (Twenge & Campbell, 2007). According to the *DSM-5*, clinical manifestations of narcissism refer to a “*pervasive pattern of grandiosity (in fantasy or*

behavior), a constant need for admiration, and a lack of empathy” (American Psychiatric Association, 2013). A large body of evidence supports the existence of different subtypes or variations of the Narcissistic Personality Disorder (Levy, 2012; Pincus & Lukowitsky, 2010; Ronningstam, 2005), the most frequently investigated ones being: (i) the **grandiose** or overt subtype (characterized by grandiosity, authority, superiority, exhibitionism, entitlement, exploitativeness, lack of insight regarding the impact their behavior may have on others, etc. (Raskin & Terry, 1988 as cited in Sherry, Galnick, Hewitt, Sherry, & Flett, 2014; Røvik, 2001), and the (ii) **vulnerable** or covert subtype (the most specific characteristics being: shyness, high levels of manifested distress, hypersensitive reactions to the evaluations of others, chronic envy, appearance of empathy, entitlement, secret grandiose fantasies about the self and expectations of oneself and others) (Dickinson & Pincus, 2003; Gabbard, 1998).

As in the case of perfectionism, narcissism has also different, positive and negative effects.

Some research indicate that narcissists have a tendency to be motivated more by extrinsic than intrinsic values and desires (Kasser & Ryan, 1996), are less willing to abide and behave agreeably (Bradlee & Emmons, 1992), may frequently manifest arrogance (Paulhus, 1998), etc. Nevertheless, individuals manifesting adaptive forms of narcissism, present positive associations with high self-esteem (Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004), emotional intelligence (Petrides, Vernon, Schermer, & Veselka (2011), subjective well-being, and negative associations with sadness, dispositional depression and loneliness (Sedikides et al., 2004).

WELL-BEING

Health is defined as “*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*” (WHO, 2018). Optimal human functioning has been treated either in the form of **hedonic/subjective well-being** (associated with satisfaction, happiness, and the experience of positive emotions), or as the **eudaimonic/psychological well-being** (attainment of human potential). The subjective

approach equates well-being with the human tendency to seek pleasure and happiness, simultaneously avoiding pain and suffering (for more, see, Kahneman, Diener, & Schwartz, 1999).

According to Ryff and Singer's (1998, 2000, 2008), **psychological well-being** is a multidimensional construct, encompassing six specific dimensions:

- (1) **self-acceptance** – the non-judgmental acceptance of one's self.
- (2) **positive relations with others** – the ability to develop and maintain warm, affectionate relationships with others.
- (3) **autonomy** – the ability to function independently of other people's approval.
- (4) **environmental mastery** – the capacity to create an external environment that enhances one's functioning and adaptation (Ryff, 1989).
- (5) **purpose in life** – the capacity to find meaning in life
- (6) **personal growth** – the need to attain and realize one's potential.

Scientific literature identified that age, wealth, level of education, personality factors, the ability to frequently experience positive affect, adaptive emotion-regulation strategies, etc., are factors that might affect well-being (e.g., Folkman & Moskowitz, 2004; Keyes, Shmotkin, & Ryff, 2002; Lyubomirsky & Della Porta, 2010; Ryff & Singer, 2008).

OBJECTIVES

The World Health Organization defines mental health as not only representing the absence of mental health symptom, but also the presence of positive psychological and social functioning (2017), thus, the major aim of our study is to focus on the investigation of the indicators of mental health: positive (happiness and subjective/psychological well-being) and negative (depression, anxiety, loneliness, etc.).

Taking into consideration the fact that in Transylvania the Hungarian population is the largest minority, the investigation of the mental health indicators (especially depression) within this population and in comparison with the majority Romanian population, becomes an

intriguing topic. Furthermore, it would also be of interest to investigate the relationship between these indicators and possible mechanisms that may be associated with these variables, and which were found in the literature to significantly increase worldwide (narcissism, perfectionism).

Thus, our present study is a continuation and refinement of previous studies, and concentrates on the following major aims: (i) the investigation of the possible differences in narcissism, perfectionism, loneliness, depression, happiness, subjective and psychological well-being in two culturally different samples: Transylvanian Hungarian and Transylvanian Romanian first and second year students; (ii) the investigation of the association patterns between variables in both samples, and (iii) the examination of the role the studied variables play on the major indicators of mental and psychological health on the two samples of students separately.

STUDY

Participants

Our study included 535 students, 247 Transylvanian Hungarian and 288 Transylvanian Romanian first and second year students, from Babes-Bolyai University in Cluj-Napoca, Romania, and from Sapiientia, Targu-Mures, Romania (Cluj and Mures counties having highest percentage of Transylvanian Hungarian student populations in Romania). A part of the students was assessed during face-to-face meetings, and another part were asked to participate at an online assessment. The minimum age of the participants was 19 years, and maximum 31, with a mean age of 20.01 years ($SD=2.11$). Of the 535 participants 120 were male (22.64%), and 415 female students (77.35%). After providing informed consent, participants completed the questionnaire packets that took 45 minutes to fill, in a face-to-face assessment session with the researcher or online.

Instruments

Demographic variables were: age, gender and satisfaction with family income (not at all, so-so, very much).

Depression tendencies were measured with the Beck Depression Inventory-II (BDI, Beck, Rush, Shaw & Emery, 1979; Romanian adaptation David & Dobrean, 2012; translated and adapted into Hungarian by the author). The BDI is a 21-item, multiple-choice format inventory, designed to measure the presence of depression in adults and adolescents. Each of the 21 items assesses a symptom or attitudes specific to depression, inquiring its somatic, cognitive and behavioral aspects. By its assessments, single scores are produced, which indicate the intensity of the depressive episode. Scores ranging from 0 to 9, represent normal levels of depression. Scores situated between 10 and 18 represent mild to moderate depression; values between 19 and 29 represent moderate to severe depression, while scores above the value of 30 represent severe depression. Internal consistency indices of the BDI are usually above .90. For the present sample, the internal consistency indices for the BDI was .87.

Happiness was measured with the 29-item Oxford Happiness Questionnaire (OHQ) (Hills & Argyle, 2002; translated and adapted into Hungarian by the author). The OHS measures happiness as a unidimensional compact construct. The has 29 items, with 12 reverted items, using a Likert scale with answers from 1 to 6 (1=strongly disagree, to 6=strongly agree). The psychometric properties of OHQ are very good (Cronbach $\alpha = .90$).

Loneliness and perceived social isolation was measured with the 20-item UCLA Loneliness Scale (revised UCLA Loneliness Scale; Russell, Peplau, & Cutrona, 1980; translated and adapted into Hungarian and Romanian by the author). Participants are asked to respond to each item on a 4-point Likert scale, from 'never' to 'always'. The scale's items are worded to suggest a general, present-day experience that relate to both social and emotional dimensions of loneliness (e.g., "*No one really knows me well*"; "*My interests and ideas are not shared by those around me*", and "*I feel in tune with the people around me*"). The UCLA Loneliness Scale consists of both positively and negatively worded items, with a possible total score of 20 to 80 points with no identified cut-off score that would

define loneliness. The scale has good internal consistency with a Cronbach's α of 0.94 (Russell et al., 1980). Mean scores for university students usually vary between 36 and 39 (Anderson, Miller, Riger, Dill, & Sedikides, 1994).

Narcissistic traits were measured with 16-item Narcissistic Personality Inventory (NPI-16, Ames, Rose, & Anderson, 2006; translated and adapted into Hungarian and Romanian by the author) derived by the authors from the long, 40-item NPI scale (Raskin & Hall, 1979). The test consists of sixteen pairs of statements, and for each pair subjects should select the one that they feel best reflect their personality. The NPI-16 is a short measure of subclinical narcissism, presenting a good face, internal, discriminant, and predictive validity (Ames et al., 2006). The internal consistency of the NPI-16 for the present sample was .81.

Perfectionism was measured with the 45-item self-report Multi-dimensional Perfectionism Scale (MPS, Hewitt & Flett, 1991; translated and adapted into Hungarian and Romanian by the author). The MPS contains three sub-scales: self-oriented perfectionism (SOP) (e.g., "*One of my goals is to be perfect in everything I do*"), other-oriented perfectionism (OOP) (e.g., "*Everything that others do must be of top-notch quality*"), and socially-prescribed perfectionism (SPP) (e.g., "*I find it difficult to meet others' expectations of me*"). Responses are given on a 7-point Likert scale, from 1 (strongly disagree) to 7 (strongly agree). The psychometric properties of the scale (reliability and validity) were found across studies to be very good (Hewitt et al., 2003). Cronbach's alpha for the present sample ranged from .74 to .87.

Psychological well-being was measured by the 44-item scale developed by Ryff (1989) and adapted by Kállay & Rus (2014) (translated and adapted into Hungarian by the author). This scale has 6 sub-scales measuring the basic components of eudaimonic well-being: self-acceptance (PWB-SA), positive relations with others (PWB-PRO), autonomy (PWB-A), environmental mastery (PWB-EM), purpose in life (PWB-PL), and personal growth (PWB-PG). Items are assessed along a 6-point scale, 1 = total agreement, and 6 = total disagreement. The psychometric properties of the Romanian translation are good (.81-.88). On each sub-scale high scores mean high WB, while low scores mean low levels of psychological well-being. The internal consistency of the Psychological Well-being scale for the present sample ranged from .81.

Subjective well-being was assessed with the 5-item WHO well-being questionnaire (WHO Collaborating Centre in Mental Health, 1999; Hungarian version available on www.psikiatri-regionh.dh/who-5/Documents/WHO5_Hungarian.pdf), focusing on the assessment of positive affective states. Each of the five items is rated on a 6-point Likert scale from 0 (not present) to 5 (constantly present). Scores are summed, with raw scores ranging from 0 to 25. Then the scores are transformed to 0-100 by multiplying by 4, with higher scores meaning better well-being. This scale was adapted for Hungarian population by WHO (WHO Collaborating Centre in Mental Health, 1999). Cronbach's alpha for the present sample was .79.

Results

Firstly, we present the descriptive characteristics of our data (see Table 1).

Table 1. Descriptive statistics

SCALES	Min.	Max.	M	SD	Shapiro-Wilk	p
BDI	.00	44.00	9.94	8.13	.91	.000
UCLA	23.00	72.00	45.13	10.01	.96	.000
WHO-5	.00	100.00	52.05	20.36	.98	.000
OHQ	43.00	169.00	103.65	24.28	.98	.000
PWB-A	15.00	42.00	31.61	5.44	.98	.000
PWB-EM	8.00	48.00	34.64	6.96	.96	.000
PWB-PRO	6.00	36.00	29.14	4.67	.94	.000
PWB-PG	10.00	54.00	45.33	6.44	.92	.000
PWB-PL	7.00	42.00	32.04	6.66	.94	.000
PWB-SA	7.00	42.00	31.57	6.64	.95	.000
MPS-SOP	29.00	89.00	56.73	12.08	.98	.000
MPS-OOP	30.00	86.00	52.79	10.12	.97	.000
MPS-SPP	29.00	91.00	54.88	11.91	.96	.000
NPI_16	16.00	30.00	20.90	3.55	.93	.000

Note:

BDI= Beck Depression Inventory, UCLA = Loneliness scale, WHO-5=subjective well-being, OHQ=Oxford Happiness Questionnaire, PWB-A= Psychological Well-Being - Autonomy, PWB-EM= Psychological Well-Being - Environmental Mastery, PWB-PRO = Psychological Well-Being - Positive relations with Others, PWB-PG= Psychological Well-Being - Personal Growth, PWB-PL= Psychological Well-Being - Purpose in Life, PWB-SA= Psychological Well-Being-Self-Acceptance, MPS-SOP=Multidimensional Perfectionism-Self-Oriented-Perfectionism, MPS-OOP=Multidimensional Perfectionism-Other-Oriented-Perfectionism, MPS-SPP=Multidimensional Perfectionism - Socially-Prescribed-Perfectionism, NPI-16=Narcissistic traits.

Next, we continued our investigation by comparing the assessed variables between the two samples: Transylvanian Hungarian and Transylvanian Romanian first and second-year students. Since our data did not follow a normal distribution (see Table 1), we opted for non-parametric analyses, and effect size was calculated according to the formula: $r=Z/\sqrt{N}$. Significant differences are presented in Table 2.

Table 2. Significant differences between Transylvanian Hungarian and Romanian students in loneliness, happiness, narcissism, multidimensional perfectionism, and subjective well-being

SCALES	Group	Mean	SD	U	p	r
UCLA	Hu (N=245)	46.84	10.09	27863	.000	0.19
	Ro (N=285)	43.63	9.72			
OHQ	Hu (N=245)	92.26	19.35	17313	.000	0.44
	Ro (N=285)	113.52	23.82			
NPI_16	Hu (N=245)	21.83	3.75	25888	.000	0.23
	Ro (N=285)	20.10	3.16			
MPS_SOP	Hu (N=245)	49.31	7.15	11493.5	.000	0.57
	Ro (N=285)	63.09	11.81			
MPS_OOP	Hu (N=245)	44.73	4.93	4160	.000	0.76
	Ro (N=285)	59.63	8.17			
MPS_SPP	Hu (N=245)	46.30	6.26	6676.5	.000	0.70
	Ro (N=285)	62.22	10.63			
WHO-5	Hu (N=245)	54.84	17.36	29867	.001	0.14
	Ro (N=285)	49.60	22.42			

Note:

UCLA = Loneliness scale, OHQ=Oxford Happiness Questionnaire, MPS-SOP=Multidimensional Perfectionism-Self-Oriented-Perfectionism, MPS-OOP=Multidimensional Perfectionism-Other-Oriented-Perfectionism, MPS-SPP= Multidimensional Perfectionism - Socially-Prescribed-Perfectionism, NPI-16=Narcissistic traits.

According to our results, the Transylvanian Hungarian students report significantly higher levels of loneliness, and significantly lower levels of happiness than their Romanian colleagues. These differences have size-effects that vary between small to medium (0.19-0.44). In the same time, the Transylvanian Hungarian students' reported levels of narcissism are significantly higher than those of the Romanian students'.

However, quite unexpectedly and contrary to the literature, the levels of perfectionism are significantly higher in Romanian students than in their Hungarian colleagues. In all these cases the effect size of these differences are large (0.57-0.76). Finally, Transylvanian Hungarian students report a significantly higher level of subjective well-being, however the effect size of this difference is small (0.14).

We continued our investigation with analyzing the association patterns between the assessed variables in the united sample, as well as in the two samples separately. The results are presented in Tables 3 (for the united sample) and 4 and 5 (for the two samples separately).

Table 3. Correlation matrix for the entire sample

	BDI	UCLA	OXF	NPI-16	MPS_SOP	MPS_OOP	MPS_SPP	WHO	PWB_A	PWB_EM	PWB_PG	PWB_PRO	PWB_PL	PWB_SA
BDI	1													
UCLA	.45**	1												
OHQ	-.51**	-.68**	1											
NPI-16	NS	.21**	-.29**	1										
MPS_SOP	.14**	NS	.23**	NS	1									
MPS_OOP	.15**	NS	.24**	-.15**	.68**	1								
MPS_SSP	.26**	NS	.17**	-.15**	.74**	.72**	1							
WHO	-.64**	-.41**	.51**	NS	NS	-.14**	-.21**	1						
PWB_A	-.31**	-.20**	.19**	.18**	NS	NS	NS	.26**	1					
PWB_EM	-.56**	-.35**	.46**	.11**	.15**	NS	NS	.52**	.51**	1				
PWB_PG	-.33**	-.28**	.35**	.12**	.14**	NS	NS	.36**	.58**	.63**	1			
PWB_PRO	-.33**	-.38**	.30**	NS	NS	NS	NS	.31**	.39**	.51**	.68**	1		
PWB_PL	-.54**	-.37**	.49**	.10*	-.37**	.49**	.10**	.51**	.50**	.82**	.68**	.53**	1	
PWB_SA	-.52**	-.38**	.41**	.17**	-.38**	.41**	.17**	.48**	.54**	.79**	.67**	.55**	.83**	1

Note:

* $p < .05$; ** $p < .01$

As seen in Table 3, for the entire sample, the correlation matrix indicates a strong positive correlation between depression tendencies and: loneliness ($r=.45, p<.01$), strong negative correlation with happiness ($r=-.51, p<.01$), weak positive, correlations with all the three dimensions of perfectionism (SOP: $r=.14, p<.01$; OOP: $r=.15, p<.01$; SSP: $r=.26, p<.01$). As for well-being, we found a strong negative correlation between depression and subjective well-being ($r=-.64, p<.01$), and moderate correlation with all the components of the psychological well-being (see Table 3). No significant correlation was found between depressive symptomatology and narcissism. As for happiness, the scores obtained from the OHQ presented moderate positive correlations with all the dimensions of perfectionism, significant positive associations with the subjective and all the components of the psychological well-being, and negative correlation with narcissism ($r=-.29, p<.01$).

The correlation matrix conducted for the two samples separately presents somewhat different association patterns. Depression tendencies continue to positively correlate with loneliness in both samples (Hu: $r=.34, p<.01$, Ro: $r=.56, p<.01$), and negatively with happiness (Hu: $r=-.32, p<.01$, Ro: $r=.77, p<.01$). Interestingly, in the case of Transylvanian Hungarian students, depressive symptoms do not significantly correlate with either dimensions of perfectionism, while in the case of Romanian students, the correlations between depression and the three components of perfectionism present significant associations (SOP: $r=.15, p<.01$; OOP: $r=.17, p<.01$; SSP: $r=.33, p<.01$). Correlation patterns for the two groups separately regarding subjective and psychological well-being are similar to those for the entire sample. No significant correlation was found between depressive tendencies and narcissism. Regarding happiness, in the case of Transylvanian Hungarian students, it was found to significantly correlate in a negative fashion with narcissism ($r=-.70, p<.01$), positively with subjective well-being ($r=.41, p<.01$), and some components of psychological well-being (environmental mastery: $r=.18, p<.01$; positive relations with others: $r=.13, p<.05$; purpose in life: $r=.25, p<.01$, self-acceptance: $r=-.14, p<.05$) (see Table 4). In the case of Romanian students, the scores on the OHQ positively correlate with narcissism ($r=.17, p<.01$), negatively with other oriented and socially prescribed perfectionism (OOP: $r=-.15, p<.01$; SPP: $r=-.25, p<.01$), and positively with all the components of psychological well-being (see Table 4).

Table 4. Correlation matrix for the assessed Transylvanian Hungarian students

	BDI	UCLA	OXF	NPI-16	MPS_SOP	MPS_OOP	MPS_SPP	WHO	PWB_A	PWB_EM	PWB_PG	PWB_PRO	PWB_PL	PWB_SA
BDI	1													
UCLA	.34**	1												
OXF	-.32**	-.72**	1											
HUNGARIAN NPI-16	NS	.44**	-.70**	1										
MPS_SOP	NS	NS	NS	NS	1									
MPS_OOP	NS	NS	NS	NS	.36**	1								
MPS_SPP	NS	NS	NS	NS	.46**	.38**	1							
WHO	-.58**	-.32**	.41**	13.7*	.16*	NS	NS	1						
PWB_A	-.49**	NS	NS	NS	.15*	NS	NS	.34**	1					
PWB_EM	-.52**	-.14*	.18**	NS	.34**	NS	NS	.51**	.45**	1				
PWB_PG	-.17**	NS	NS	NS	.31**	NS	NS	.39**	.46**		1			
PWB_PRO	-.36**	-.13*	.13*	NS	.25**	.13*	.19**	.43**	.32**	.45**	.56**	1		
PWB_PL	-.49**	-.22	.25**	NS	.32**	NS	NS	.50**	.46**	.75**	.60**	.47**	1	
PWB_SA	-.45**	-.17*	.14*	NS	.26**	NS	NS	.47**	.54**	.70**	.60**	.52**	.69**	1

Note:

* $p < .05$; ** $p < .01$

Next, we conducted two hierarchical multiple regression (HMR) analyses in order to investigate the degree to which depressive symptoms (as measured with the BDI scale) (Table 5) and happiness (as measured with OHQ) (Tables 6a,b and 7a,b) are predicted by the variables that correlated with them, separately for the assessed Transylvanian Hungarian and Romanian students. For practical reasons, we presented the regression analysis separately for the Transylvanian Hungarian and Transylvanian Romanian students. In this way, those interested can easily obtain more concrete results specific to the population of interest.

Table 6a. Hierarchical Regression Model of depressive tendencies, with loneliness, subjective well-being, and psychological well-being as predictors for the assessed Transylvanian Hungarian students

	R	R ²	R ² Change	B	SE	β	t
Step 1	.34	.12***	.12				
UCLA				.24	.04	.34	5.76 (***)
Step 2	.60	.32***	.24				
UCLA				.09	.04	.14	2.49(**)
WHO				-.22	.02	-.53	-9.51(***)
Step 3	.71	.56***	.03				
UCLA				.65	.03	.09	1.77(NS)
WHO				-.16	.02	-.38	-6.47(***)
PWB-A				-.37	.08	-.23	-4.39(***)
PWB-PG				.50	.08	.38	5.86 (***)
PWB-PRO				-.30	.10	-.17	-2.97(**)
PWB-PL				-.39	.08	-.31	-4.84(***)

Model one with loneliness as predictor of depression proved to be statistically significant [$F_{(1,243)}=181.51, p<.001$], predicting 12.1% of the variance in depressive tendencies. Next we introduced subjective well-being which also proved statistically significant [$F_{(2,243)}=67.99, p<.001$], explaining an additional 24% of the variance in depressive tendencies. In the third, final step we introduced the four components of the psychological well-being (A, PG, PRO, PL). This final model was also statistically significant [$F_{(6,243)}=40.06, p<.001$], explaining an additional 14.3% of the variance in depressive tendencies. The three variables together (loneliness, subjective well-being, and psychological well-being) explain 50.4% of the variance in depressive tendencies.

We continued our investigation with conducting hierarchical multiple regression analyses for the happiness experienced by the Transylvanian Hungarian students, based on the correlation matrix presented in Table 4. In the first step of the HMR we entered depressive tendencies as measured with the BDI. In step two we introduced loneliness. In the third step, we introduced narcissistic characteristics, and in the fourth step we introduced subjective well-being. After running the regression analyses, we selected those variables which significantly predicted depressive tendencies.

Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity and homoscedasticity. Results are presented in Table 6b for happiness as measured with the OHQ.

Table 6b. Hierarchical Regression Model of Happiness, with depressive tendencies, loneliness, narcissism, and subjective well-being as predictors

	R	R ²	R ² Change	B	SE	β	t
Step 1	.32	.10***	.10				
BDI				-.87	.16	-.32	-5.36 (***)
Step 2	.73	.53***	.43				
BDI				-.23	.12	-.08	-1.82(NS)
UCLA				-1.34	.09	-.69	-14.89(***)
Step 3	.85	.72***	.19				
BDI				-.34	.09	-.12	-3.54(***)
UCLA				-.90	.07	-.46	-11.66(***)
NPI				-2.53	.19	-.48	-12.91(***)
Step 4	.86	.74***	.02				
BDI				-.09	.10	-.03	-.876(NS)
UCLA				-.82	.07	-.42	-10.71(***)
NPI				-2.56	.18	-.49	-13.55(***)
WHO				.20	.04	.18	4.43(***)

Model one with depressive tendencies as predictor of happiness proved statistically significant [$F_{(1,241)}=28.75, p<.001$], predicting 10.7% of the variance in happiness. Next we introduced loneliness which also proved statistically significant [$F_{(2,241)}=138.54, p<.001$], explaining an additional 43% of the variance in happiness. In the third step we introduced narcissistic characteristics, model which was also statistically significant [$F_{(3,241)}=211.95, p<.001$], explaining an additional 19.1% of the variance. In the final model we introduced subjective well-being, model that was also significant [$F_{(4,241)}=176.32, p<.001$], explaining an additional 2% of the variance in happiness. The four variables together (depressive tendencies, loneliness, narcissism, and subjective well-being) explain 74.8% of the variance in happiness.

We continued our investigations by running the same analyses for the sample of Romanian students as well, based on the correlation matrix presented in Table 4. In the first step of the HMR we entered loneliness. In step two we introduced happiness. In the third step, we introduced the three dimensions of perfectionism, and in the fourth step we introduced subjective well-being. Results are presented in Table 7a for depressive symptoms.

Table 7a. Hierarchical Regression Model of depressive tendencies, with loneliness, happiness, perfectionism and subjective well-being as predictors for the assessed Romanian students

	R	R ²	R ² Change	B	SE	β	t
Step 1	.56	.32***	.32				
UCLA				-.51	.04	-.08	11.57 (***)
Step 2	.77	.60***	.28				
UCLA				.07	.04	-.08	1.68(NS)
OHQ				-.26	.01	-.71	-14.25 (***)
Step 3	.79	.62***	.02				
UCLA				.03	.04	.04	.78(NS)
OHQ				-.26	.01	-.72	-14.33 (***)
MPS-SOP				.04	.03	.06	1.24(NS)
MPS-OOP				-.03	.04	-.03	-.74(NS)
MPS-SPP				.10	.04	.12	2.40(*)
Step 4	.80	.64***	.01				
UCLA				-.04	.04	.04	-.978(NS)
OHQ				-.21	.02	-.56	-8.67 (***)
MPS-SOP				.04	.03	.05	1.11(NS)
MPS-OOP				-.03	.04	-.03	-.77(NS)
MPS-SPP				.09	.04	.11	2.36(*)
WHO				-.07	.02	-.19	-3.51 (**)

Model one with loneliness as predictor of depression proved to be statistically significant [$F_{(1,284)}=134.02, p<.001$], predicting 32.1% of the variance in depressive tendencies. Next we introduced happiness which also proved statistically significant [$F_{(2,284)}=216.59, p<.001$], explaining an additional 28.5% of the variance in depressive tendencies. In the

third, step we introduced the three components of the perfectionism [$F_{(5,284)}=93.95, p<.001$], explaining an additional 2.1% of the variance. In the fourth, final model we introduced subjective well-being, which was also statistically significant [$F_{(6,243)}=83.53, p<.001$], explaining an additional 1.6% of the variance in depressive tendencies. The four variables together (loneliness, happiness, perfectionism, and subjective well-being) explain 64.3% of the variance in depressive tendencies in the case of the assessed Romanian students.

We continued our investigation with conducting hierarchical multiple regression analyses for the happiness experienced by the assessed Romanian students, based on the correlation matrix presented in Table 4. In the first step of the HMR we entered depression. In step two we introduced loneliness. In the third step, we the Environmental Mastery component of Psychological well-being. After running the regression analyses, we selected those variables which significantly predicted depressive tendencies. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity and homoscedasticity. Results are presented in Table 7b for happiness as measured with the OHQ.

Table 7b. Hierarchical Regression Model of Happiness, with depressive tendencies, loneliness, and Environmental Mastery as predictors of happiness in Romanian students

	R	R ²	R ² Change	B	SE	β	t
Step 1	.77	.60***	.60				
BDI				-2.09	.10	-.77	-20.67 (***)
Step 2	.82	.68***	.07				
BDI				-1.57	.11	-.58	-14.25 (***)
UCLA				-.83	.10	-.34	-8.32 (***)
Step 3	.86	.74***	.06				
BDI				-1.19	.10	-.44	-11.02 (***)
UCLA				-.60	.09	-.24	-6.44 (***)
PWB-EM				1.02	.11	.32	8.39 (***)

Model one with depressive tendencies as predictor of happiness proved statistically significant [$F_{(1,284)}=427.6, p<.001$], predicting 60.2% of the variance in happiness. Next, we introduced loneliness which also proved statistically significant [$F_{(2,284)}=300.08, p<.001$], explaining an additional 7.8% of the variance in happiness. In the third, and final step we introduced Environmental Mastery, the component of psychological well-being that correlated with happiness, model which was also statistically significant [$F_{(3,284)}=272.91, p<.001$], explaining an additional 6.4% of the variance. The three variables together (depressive tendencies, loneliness, and environmental mastery) explain 74.4% of the variance in happiness in the case of the assessed Romanian students.

CONCLUSIONS

As Weehuizen contends (2008), in some ways, in the presently developed life- and work-conditions, mental health “*functions as an **input** factor in the production processes of today’s economy*” (p. 63). In other words, in most areas of the present life- and work-conditions excellent mental functioning becomes a condition of well-being, productivity, economic growth, etc. As seen in the introductory part of this paper, mental health represents not only a stringent personal problem, but it has also become an issue in national and international level, due to the disability costs produced by the increasing tendencies of mental malfunctioning (WHO, 2002), with depression ranking highest in lost productivity and associated costs.

In these conditions, the investigation of the factors that contribute to the way mental health, and associated phenomena, are contoured and related to each other, is of utmost importance. Another essential aspect refers to the understanding of the cultural specificities of these phenomena, since the way in which prevention and intervention programs may be promoted should depend on this information. Narrowing more down towards the objectives of our investigation, an important population in which the relationship between these factors is very important to investigate is that of the population of youngsters who are in transition from adolescence to adulthood, and who prepare for contouring a personal

life and simultaneously develop a career. The student population is a very common and well represented segment of this population. The challenges accompanying the bio-psycho-social growth, rapidly changing and occasionally obscure social role transitions (which have drastically changed in the last decades) (Sawyer, Azzopardi, Wickremarathne, & Patton, 2018), frequently changing living and learning conditions, easier relocation, the facile access to information, changes in learning conditions, the gradual transition from traditional to interactive learning, e-learning, increased pressure for excellence, are just a few of the burdens these youngsters have to face, burden which in many cases may surpass the originally intended significance of challenge, and may frequently turn into adversity (Curran & Hill, 2017).

As discussed more thoroughly in the introductory part, the last decades have documented a considerable amount of significant changes in important aspects of the optimal human functioning. Even if life conditions have significantly improved worldwide (Roser, 2020), indicators of mental ill-health have shown an increasing pattern. Depression, anxiety disorders, unhealthy levels of stress, burnout, personality disorders, loneliness, etc. have significantly increased in the last fifty years (Cuijpers, Smit, & van Straten, 2007; Cunningham, Rapee, & Lyneham, 2006; Erzen & Çikrikci, 2018; WHO, 2017b). Such increases have been encountered not only in the adult population, but an increasing number of children and adolescents seem to suffer of different forms of mental ill-health as well (Cunningham et al., 2006).

Based on these assumptions, our present study had the following major aims: *(i)* the investigation of the possible differences in narcissism, perfectionism, loneliness, depression, happiness, subjective and psychological well-being in Transylvanian Hungarian and Transylvanian Romanian first and second year students; *(ii)* the investigation of the association patterns between variables in both samples, and *(iii)* the examination of the role the studied variables play on the major indicators of mental and psychological health (depression and happiness) both in the united sample and on the two samples of students separately.

Our results have indicated that between the two culturally different samples (Transylvanian Hungarian and Romanian students), there were significant differences in the following variables: in the case

of Transylvanian Hungarian students, loneliness was significantly higher, and happiness was significantly lower. Moreover, the Transylvanian Hungarian students scored significantly higher on narcissism, while the Romanian students scored significantly higher on all dimensions of perfectionism. Despite the fact that the Transylvanian Hungarian students proved lonelier and less happy, they reported significantly higher levels of subjective well-being. The somewhat controversial results regarding the differences in narcissism and perfectionism may be due to the fact that narcissism was assessed with the NPI-16, a questionnaire that does not differentiate between the grandiose and the vulnerable forms of narcissism. Thus, we do not exactly know which form of narcissism is higher in the case of Transylvanian Hungarian students as reported to their Romanian counterparts.

Furthermore, as expected, correlation patterns indicate a somewhat different association tendency between variables, in the case of Transylvanian Hungarian students, depression tendencies as measured with the BDI do not present any significant correlation with narcissism and perfectionism, but significantly correlates with loneliness, and subjective and psychological well-being. In the Romanian students, depression significantly correlated with all the assessed variables except narcissism. Similar patterns may be observed in the case of happiness as measured with the OHQ (see Tables 4 and 5).

Based on the comparison of the conducted regression analyses, we may observe that in both samples depression seems to be quite well predicted by loneliness (12.1% for Transylvanian Hungarian and 32.1% for Romanian students), while subjective well-being plays a more pronounced role for Transylvanian Hungarian students (24%) compared to the Romanian students (1.6%). On the other hand, regarding happiness, depression and loneliness seem to be the best predictors for both samples (BDI=10.7% and UCLA=43% for Transylvanian Hungarian students, and BDI=60.2% and UCLA=7.8% for Romanian students). In addition to these variables, the happiness of Transylvanian Hungarian students is also well predicted by levels of narcissism and subjective well-being, while for the Romanian students by Environmental Mastery component of the Psychological well-being.

Based on these findings, we may consider loneliness as a very important factor that may play a significant role in the way depression and happiness develops and is maintained in both groups of students. However, our study cannot conclude the direction of the relationship between depression tendencies and loneliness, as well as happiness and loneliness. Further research should investigate in-depth both the relationship between loneliness and depression and happiness, as well as the possible causes of loneliness, and differences in these causes depending on cultural characteristics.

One of the major limitations of our study regards the fact that for temporal economy's sake, we used the short version of the NPI, based on which we cannot refine our results regarding the different types of narcissism (grandiose and covert), which might have significantly enhanced the conclusions of our investigation. However, based on the present results, we may suggest future directions out of which research might gain even more valuable information: the use of a narcissism scale that assesses both grandiose and covert narcissism, to complete the research design with a qualitative side that may evince the possible differences in the subjectively perceived causes of loneliness, and an eventual experimental design which may permit us to indicate the direction of the relationship between the three key variables: depression, loneliness, and happiness, all of which significantly contributing to the well-being experienced. Finally, we consider that our results may be useful in the development of prevention and intervention programs, targeting the enhancement of the psychological functioning of students with different cultural backgrounds (in this case, Transylvanian Hungarian and Romanian).

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ENGAGEMENT IN LEARNING AS MEDIATOR BETWEEN MOTIVATIONAL BELIEFS AND SCHOOL ACHIEVEMENT: A PATH ANALYSIS

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ABSTRACT. This study applied the Expectancy-Value Theory to explore the directionality of the associations among academic self-efficacy, motivational beliefs (e.g., expectation of success, task value), procrastination, and engagement in learning as well as the impact of these constructs on educational attainment. The data analysis was done by using structural equation modeling. The results reveal important associations among students' personal variables. Correlational and path analyses show that: (a) self-efficacy is consistently found to predict both expectation of success, task value and procrastination, (b) the associations between self-efficacy and engagement are mediated by motivational beliefs and procrastination, (c) different facets of engagement (class participation, homework completion, absenteeism) in high school predict educational attainment, and (d) class participation had stronger effects on educational attainment than homework completion. The data analysis provided empirical evidence to better understand the mechanism that mediates self-efficacy and school achievement. Also, the study provides empirical evidence supporting the multifaceted nature of school engagement and demonstrates its utility relative to educational success. The implications of these findings for teaching and learning a specific subject matter in formal classroom contexts are discussed.

Keywords: *self-efficacy, engagement in learning, expectation of success, valuing of school, procrastination.*

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ABSTRAKT. In dieser Studie wurde die Erwartungswerttheorie angewendet, um die Richtungsabhängigkeit der Assoziationen zwischen akademischer Selbstwirksamkeit, Motivationsüberzeugungen (z. B. Erfolgserwartung, Aufgabenwert), Aufschieben und Engagement für das Lernen sowie die Auswirkungen dieser Konstrukte auf die Bildung zu untersuchen. Die Datenanalyse wurde unter Verwendung der Strukturgleichungsmodellierung durchgeführt. Die Ergebnisse zeigen wichtige Assoziationen zwischen den persönlichen Variablen der Schüler. Korrelations- und Pfadanalysen zeigen, dass: (a) die Selbstwirksamkeit konsistent sowohl die Erwartung des Erfolgs als auch den Aufgabenwert und den Aufschieben vorhersagt, (b) die Assoziationen zwischen Selbstwirksamkeit und Engagement durch Motivationsüberzeugungen und Aufschieben vermittelt werden, (c) Unterschiedliche Aspekte des Engagements (Teilnahme an der Klasse, Abschluss der Hausaufgaben, Fehlzeiten) an der High School prognostizieren das Bildungsniveau, und (d) die Teilnahme am Unterricht hatte stärkere Auswirkungen auf das Bildungsniveau als der Abschluss der Hausaufgaben. Die Datenanalyse lieferte empirische Belege, um den Mechanismus, der Selbstwirksamkeit und Schulleistung vermittelt, besser zu verstehen. Die Studie liefert auch empirische Belege für die Vielschichtigkeit des schulischen Engagements und zeigt seine Nützlichkeit für den Bildungserfolg. Die Implikationen dieser Ergebnisse für das Lehren und Lernen eines bestimmten Themas in formalen Unterrichtskontexten werden diskutiert.

Schlüsselwörter: *Selbstwirksamkeit, Engagement für das Lernen, Erfolgserwartung, Wertschätzung der Schule, Aufschieben.*

INTRODUCTION

Research into student's transition from middle-school to high school is gaining increasing attention, particularly in the context of difficult transitions. This process of changing can lead to disengagement, negative attitudes towards school, reduced self-confidence, and reduced engagement in learning (Fuer & Skinner, 2003). Some of the more frequently cited difficulties that can impact on motivation and that are reduced with entry into the ninth grade are that: (a) attitudes towards learning, achievement, and school; (b) beliefs about themselves; (c) approach to their schoolwork;

and (d) reasons for learning (Maehr & Midgley, 1996). As such we aim to analyse some of the facets of motivation and engagement that need to be sustained as students move from middle-school to high school. In particular, we aim to get an overview of how motivational beliefs (expectation of success, valuing of school), and engagement are adaptive dimensions to monitor at this critical transition time.

Several decades of research have demonstrated that an important contributor to school performance is an individual's *self-efficacy* about whether he or she has any control over academic successes and failures. Students who believe that they can produce the responses that lead to desired outcomes (Bandura, 1997), or who believe that they possess high ability (Stipek, 1996) perform better academically. These students score higher on tests of achievement and earn better grades in school than students who do not hold these beliefs (Eccles & Wigfield, 2002; Findley & Cooper, 1983). Students need to believe they can be successful if they are going to try. Their self-competence perception influence their willingness to engage in learning. For example, a student who believes that he is good at writing is more likely to spend his time elaborating and revising his essay than a student who does not have confidence in his writing skills. Numerous studies have shown that students with confidence in their abilities to succeed on a task work harder, persist longer, and perform better than their less efficacious peers (Eccles, Wigfield, & Schiefele, 1998; Pintrich & De Groot, 1990; Schunk, 1991; Stipek, 1996).

Despite there being considerable evidence to support the positive effects of self-efficacy beliefs on academic achievement, studies that have explored the *motivational mechanism* which mediates self-efficacy-achievement relationship are desirable, and are necessary to understand how and why self-efficacy affects students' academic achievement. This can allow instructional actions and programs to improve academic achievement to be designed (Doménech-Betoret et al., 2017). One of the most well-grounded proposals that integrate these mediational variables is the expectancy-value model of achievement motivation (EVT; Eccles, 2009; Eccles & Wigfield, 2002; Wigfield and Eccles, 1992, 2000).

EVT posits that achievement-related performance are most directly influenced by the individual's *expectancies of academic success* and a subjective assessments of the inherent *value of academic tasks*. In other words, an adolescent who believes a successful result when engaging in

the task is possible, but does not have a compelling reason to do so will refrain from putting in a great deal of effort. Vice versa, if the task is important but is viewed as unlikely to be accomplished, the adolescent might choose to engage in another task with higher expectancy of success (Meyer et al. 2019).

Expectancies for success is conceptualized as the task-specific beliefs about the possibility of experiencing future success in that task, which is directly linked to ability self-concept in an academic domain (Guo et al., 2015). Empirically, however, the two constructs: expectancies and self-concept, are indistinguishable (Eccles, 2009; Eccles & Wigfield, 2002). For this reason, we are used academic self-concept as a measure of the expectancies of success (e.g., Wang & Eccles, 2013; Simpkins, Fredricks & Eccles, 2012; Wang & Eccles, 2013). In turn, subjective *task value* is defined in terms of multiple components: *intrinsic value*, *utility value*, *attainment value*, and *cost* (Eccles & Wigfield, 2002). In the current study, we focus on two value components: intrinsic value and utility value of learning. *Intrinsic value* refers to the subjective interest in an educational domain or the enjoyment a person gains from engaging in a task. In the case of high intrinsic value, positive psychological outcomes are the reward. Thus, the intrinsic value component can be viewed as similar to intrinsic motivation (Eccles & Wigfield, 2002). In contrast, *utility value* relates to how school tasks fits an individual's future plans and objectives describes the perceived individual usefulness of engagement and achievement in a task or domain (Wang & Eccles, 2013). Because of the stronger importance of extrinsic performance rewards, utility value can be conceptualized as similar to the extrinsic motivation component (Trautwein et al., 2012). For example, utility value includes the perceived extent of how succeeding in this task can impact a student's future life (Guo et al., 2015).

We aim to this study to considerate differential effects of expectancy and value on different component of behavioral engagement (*class participation, homework completion, absenteeism*) in two domains (mathematics and Romanian language). Further, and following Trautwein et al., 2012, we focus on behavioral engagement and its relationship with expectancy value beliefs, taking into account the two subcomponents (intrinsic value, and utility) together. Moreover, EVT provides a theoretical foundation for a mediational model that links self-efficacy to engagement

and performance. According to EVT, school engagement are influenced by the individual's expectation for success and subjective valuing of the academic work (Eccles, 2007). Students need to believe they can be successful if they are going to try. Also, they likely to engage in school learning place higher value and have greater expectation of success about their academic abilities than those who do not (Wang & Eccles, 2013). Consequently, we predict that these motivational beliefs influence student engagement in various educational activities (Simpkins, Davis-Kean, & Eccles, 2006).

Another candidate that has a negative impact on engagement is *procrastination*. Few studies have considered both motivational beliefs and procrastination simultaneously when exploring directionality of the associations between these constructs and educational engagement. In the current study, procrastination was taken into consideration to explore the nature of the relations between self-efficacy and engagement. Estimates indicate that 80%–95% of students engage in procrastination (O'Brien, 2002), approximately 75% consider themselves procrastinators, and almost 50% procrastinate consistently and problematically (Day, Mensink, & O'Sullivan, 2000; Onwuegbuzie, 2000). The absolute amount of procrastination is considerable, with students reporting that it typically occupies over one third of their daily activities, often enacted through sleeping, playing, or TV watching (Pychyl, Lee, Thibodeau, & Blunt, 2000). Furthermore, these percentages appear to be on the rise (Kachgal, Hansen, & Nutter, 2001). The prevalence and availability of temptation, for example, in the forms of computer gaming or internet messaging, continue to exacerbate the problem of procrastination. There are simply more activities with desirable features competing for student attention. Procrastination can be defined as unreasonable postponement of academic activities (Simpson & Pychyl, 2009). When, students delay in completing academic work and submitting assignments in last minutes considered as an academic procrastination. It is a common problem and consequences are lower level of learning and academic achievement. This is a critical issue which is required to be addressed, because if procrastination became students' habitual behavior, that can seriously impact their engagement in learning. Consequently, in this study we are interested in investigating the impact that procrastination has on different components of engagement (class participation, homework completion, absenteeism).

In school setting *engagement* is important because function like behavioral pathway by which students' academic motivational beliefs contribute to their subsequent learning and development. Although an extensive literature dating from the 1960s has investigated school and classroom engagement, the construct of engagement has experienced something of a revival in recent years, stimulated by the growing recognition that student disaffection with school increases with additional years in school and is a major factor in student achievement (Fredricks et al., 2004). More, school engagement has received increasing research attention as teachers search solutions for problems such as declining academic motivation and achievement and increasing school absenteeism (Fredricks, Blumenfeld, & Paris, 2004). School engagement has been seen as a potential answer to these problems because it encompasses processes that, theoretically, serve to promote learning and achievement and, practically, can be fostered in students. For children to profit from schooling, they must do more than simply attend school or be present in classrooms (Ladd & Dinella, 2009). They must engage the classroom environment in ways that promote learning. Because researchers studying the effects of school engagement on achievement have differed in their definitions and measures of engagement, it is difficult to integrate findings across studies. Often, researchers incorporated a wide variety of constructs in their measurement of engagement, an inclusiveness that makes it difficult to determine the unique precursors and consequences of different types of engagement (Skinner et al., 1998; Skinner et al., 2009). Drawing on these theoretical frameworks, school engagement results from a prediction of the individual motivational characteristics and is responsive to variations of these factors. In the current study, we explored the specific facets of students' behavioral engagement that are related to students' performance (Hughes, Luo, Kwok, & Loyd, 2008). Behavior engagement refers to participation in the learning environment, and although defined in different ways, we operationalized in terms of the *class participation, homework completion and school attendance* aspects of involvement in instructional activities (see, Green et al., 2012). Also we predict that students' behavioral engagement has a direct effect on their performance. Hence, it is reasonable to expect direct links from class participation, homework completion, and absenteeism to academic performance (Green et al., 2012; Martin, 2017). Effects of active classroom

participation on academic performance are supported in different empirical research (Valiente et al., 2008). Conversely, a lack of *class participation* leads to problematic educational outcomes and processes such as emotional withdrawal and poor identification with school, poor academic performance (Finn, 1993; Finn, Pannozzo, & Voelkl, 1995). Thus, empirical evidence supports a link between class participation and academic performance. Also, *homework completion* was found to positively predict achievement (Green et al., 2012). However, findings on the relationship between *time spent* on homework and achievement were inconclusive; research either demonstrated weak links (Trautwein & Köller, 2003) or no significant relationship (DeJong, Westerhof, & Cremmers, 2000). It seems that the amount of homework actually completed by students (rather than the time spent on homework) is associated with higher achievement (Cooper et al., 1998). *School non-attendance* has detrimental effects on academic outcomes because absentees receive less hours of instruction (Green et al., 2012; Rothman, 2002). Supporting evidence shows that absenteeism is a predictor of early school leaving (Reid, 2005) and poor achievement (e.g., Sutton & Soderstrom, 1999). Absenteeism, then, is likely to be a proximal negative predictor of academic performance (Green et al., 2012; Martin, 2017).

STUDY OBJECTIVES AND APPROACH

The hypothesized predictive model (see Figure 1) was built on the basis of the EVT framework (Eccles, 1994, 2009) and empirical research reviews. The present investigation, focuses on the process through which individuals develop personal qualities, such as motivational beliefs, that subsequently lead to behavioral engagement and educational attainment. As such, we propose the following objectives:

We firstly analyze how student's self-efficacy are related to our measure of components of EVT framework (academic expectation of success and valuing of school).

Second, we expect that expectation of success and valuing of school would significantly mediate the relationships between self-efficacy and components of behavioral engagement (Eccles & Wigfield, 2002; Marsh et al., 2013; Nagengast et al., 2011; Trautwein et al., 2012).

Third we anticipated the multiplicative effect of expectation of success and value on engagement variables to be significant, indicating that students with both high expectation and valuing of school would be likely to have higher behavioral engagement (Green et al., 2012).

Fourth, we anticipated different effects of components of behavioral engagement on educational outcome.

Participants

The sample included 143 (53% female) adolescents, attending nine classes in four schools from Cluj-Napoca. The mean chronological ages were 15.76 (SD = .88). Participants' gender did not have any significant effects on the dependent variables; hence, it is omitted from further consideration. Although no other demographic information was collected, we had no reason to expect that the groups differed in socio-economic background, given that all participating classrooms were from predominantly middle-class, urban schools. All children were in the 9th grade. There were no substantial differences across schools with respect to previous grades. In general, students in different schools and classes had similar characteristics and experienced similar learning environments. Participation was voluntary, and scores were confidential and anonymous. We collected the questionnaire data during the semester and the achievement data (semester grade) after the semester ended.

Instruments

The measures of the student expectancy-value constructs and achievement-related and aspiration outcomes were selected from the student-background questionnaire.

Academic Self-efficacy Scale consisted of five items regarding perceived competence and confidence in performance of class work. Subject-level academic self-efficacy items were adapted from the Patterns of Adaptive Learning Survey (PALS; Middleton & Midgley, 1997; Roeser et al., 1996) and the Self-Efficacy subscale of the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich & De Groot, 1990). Students report

answers on a 5-point scale ranging from *not at all true of me* (1) to *very true of me* (5) (five items; e.g., "I'm certain that I can do an excellent job on the problems and tasks assigned for a class"; $\alpha=.84$).

Academic Self-Concept Scale. In the current study, self-concept was measured using the ASCS (Reynolds, 1988), which is a 40-item self-report measure. The questionnaire used a 4-point Likert-type scale that ranges from strongly disagree (1) to strongly agree (4), to measure aspect of academic self-concept. Thus, within the ASCS, the seven constructs of academic self-concept include: grade and effort dimension, study habits/organization self-perceptions, peer evaluation of academic ability, self-confidence in academics, satisfaction with school, self-doubt about ability, and self-evaluation with external standards. A revision of specific terms was necessary to explore the unique experiences of junior high students. The ASCS yields one global score; sample item include: "If I try hard enough, I will be able to get good grade. The overall ASCS alpha coefficient was .86.

Valuing of school. The scale of students' positive school attitude was used to assess the effect students experienced when studying in school (e.g., "Learning at school is important to me"), in line with the notion of *intrinsic value* in the EVT (Eccles, 2009; Guo et al. 2015). The utility value scale that assesses how important studying hard in school was used (e.g., "Are you studying hard to get good grades in school? "). A Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*) is used to rate each item. The overall scale alpha coefficient was .88.

Procrastination. The 16-item of Procrastination Scale (PS) (Tuckman 1991) measures procrastination tendencies in students. Participants rated items on a Likert scale from 1 (That's really not me) to 4 (That's me for sure). Sample items include "I postpone starting on things I don't like to do" and "When I have a deadline, I wait till the last minute". In the present sample, the Cronbach alpha reliability estimate for PS was 0.85.

Student engagement. Students' behavioral engagement was assessed by way of participation in class, homework completion, and school absence (inversely).

Class participation. Students were administered items that explored their involvement in various class activities (four items; e.g., “I get involved in things we do in class”). These measures were rated on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) and were adapted from Green et al. (2012) and Martin (2009). The Cronbach alpha reliability estimate was 0.83.

Homework completion (“How often do you do and complete your homework and assignments?”) was a single item assessed on a scale ranging from 1 (*never*) to 5 (*always*).

Absenteeism (“About how many days were you absent from school last term?”) was a single item.

Academic performance. To assess academic achievement, we used the actual school record of each student’s overall semester grade, scored at the end of the semester on a 10-point scale.

Results

Prior to conducting the analyses, we examined the data for univariate and multivariate outlying cases by using the procedure devised by Tabachnik & Fidell (2007). Before conducting the main analyses, all of the major variables were checked for missing data. Since the pattern of missing values was random for the present data, cases with missing values more than 5% were deleted (Tabachnick & Fidell, 2001). Among 143 participants, 5 data were detected with missing values more than 5% of the total endorsement. Hence, 138 data were left for the main analyses after this deletion. In order to prevent additional subject loss, cases with missing data less than 5% were replaced with mean of the given variable. Second for the preliminary analyses, outlier analyses over the data were conducted. In this respect, in order to check the univariate outlier, the data was converted into z-score and 3 problematic outlier values higher or smaller than ± 3.29 (Tabachnick & Fidell, 2001) was detected. As a result 3 cases were treated as outlier and excluded from the data set. Hence, the analyses were performed with data obtained from 135 cases.

Table 1 presents the means and standard deviations for each construct measured in this study. Bivariate correlations were computed to depict the interrelationships among all of the study variables. The correlation matrix on the Table 1 showed the relationships among the predictors, mediator and criterion variables. The relationships also assess the presence of multicollinearity. The results showed that none of the partial coefficients exceeded .50 that the multicollinearity among the study variables was not severe (Tabachnick & Fidel, 2001). Table 1 presented the mean and standard deviation for each construct measured in this study.

Table 1. Descriptive statistics and intercorrelations among all the measures

	M(SD)	1	2	3	4	5	6	7	8
1. Academic self-efficacy	3.67(.91)	-							
2. Expectation of success	2.87(.77)	.35**	-						
3. Academic valuing	3.91(1.1)	.29**	.33**	-					
4. Procrastination	2.78(.57)	-.21**	-.17*	-.07	-				
5. Class participation	3.73(.89)	.13	.34**	.09	-.13*	-			
6. Homework	4.12(.52)	.12*	.27**	.24**	-.25**	.27**	-		
7. Absenteeism	3.77(1.18)	-.20**	-.11*	-.19*	.23**	-.21**	-.11*	-	
8. Educational attainment	7.94(1.22)	.17*	.37**	.13*	-.08	.31**	.23**	-.07	-

* = p<.05, ** = p<.01

The path analyses that were employed in the present investigation rely on assumptions including linearity, causal closure and unitary variable. Overall the assumption checks were conducted in the frame of preliminary analysis. In this respect, linearity assumption was controlled by conducting the correlation analysis. As suggested by Wright (1968) all relationships between variables should be linear. In order to perform a path analysis he also suggested causal closure in that all direct influences of one variable on another must be included in the path diagram. Final specific assumption for conducting path analysis includes unitary variables for which variables should not be composed of components that behave in different ways with different variables (Fig 1).

The structural equation analysis to firstly test the mediation role of the expectancy-value beliefs and procrastination between the self-efficacy - behavioral engagement in learning relationship, and secondly the mediation role of the components of engagement between expectancy-value beliefs - achievement relationship. The model was first tested (direct effects) for the mediation role of the expectancy-value beliefs and procrastination between self-efficacy and behavioral engagement. The fit indices values obtained by the ML method ($\chi^2 = 194.52$; $p = 0.0000$, d.f. = 6; NNFI = 0.91; CFI = 0.94; GFI = 0.93; RMSEA = 0.082) and Robust method of estimation ($\chi^2 = 168.19$; $p = 0.0000$, d.f. = 6; NNFI = 0.91; CFI = 0.94; RMSEA = 0.080) indicated that the model satisfactorily fitted the data. According to the data, academic self-efficacy had a significant effect on engagement. So this prerequisite for mediation to exist was met (Baron and Kenny, 1986). Next the mediated model of for the mediation role of the behavioral engagement between both expectancy-value beliefs and procrastination and achievement was tested. The fit indices values obtained by the ML method ($\chi^2 = 137.37$; $p = 0.0000$, d.f. = 6; NNFI = 0.92; CFI = 0.94; GFI = 0.94; RMSEA = 0.067) and the ML Robust method of estimation ($\chi^2 = 293.87$; $p = 0.0000$, d.f. = 6; NNFI = 0.92; CFI = 0.94; RMSEA = 0.062) indicated that the model fitted the data well.

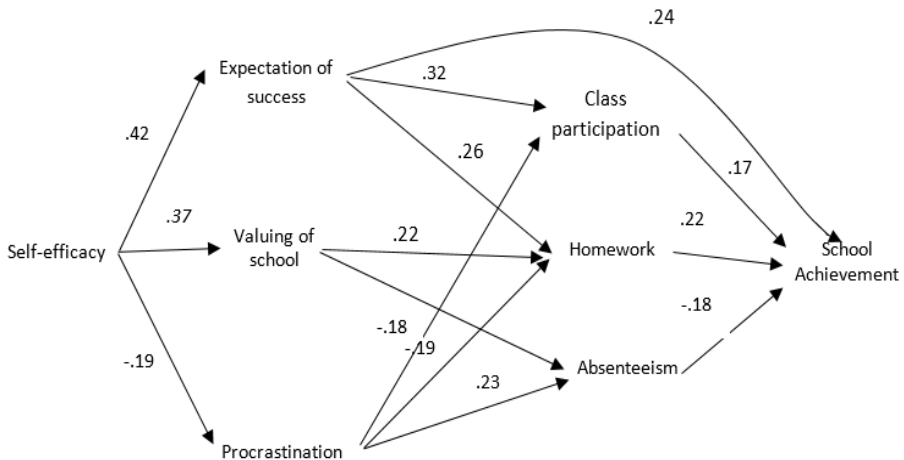


Figure 1. Final model depicting the relationships among constructs. Solid path coefficients are standardized regression coefficients, and all paths represent significant effects ($p < .05$ at minimum).

According to the data, latent variable expectancy-value beliefs and procrastination had a significant effect on engagement which, in turn, had a significant effect on achievement. In the same time, the path between academic expectation of success and achievement was significant. In accord with the posited structural model, self-efficacy predicted expectancy-value beliefs and procrastination. The effect of self-efficacy on behavioral engagement was totally mediated by self-efficacy predicted expectancy-value beliefs and procrastination. Thus, students who has a high level of self-efficacy will lead to a deep engagement in learning. As we further hypothesized, the impact of expectancy-value beliefs and procrastination on school performance was mediated through different type of engagement. Also, expectation of success was distally linked to achievement both directly and through the mediation of engagement. Overall, behavioral engagement in learning and expectation of success accounted for 24 % of the variance in academic achievement, $p < .001$, 95% CI [.44, .71].

Discussion

The study that applied the EVT (Eccles, 2005, 2009) to explore associations between self-efficacy, motivational beliefs, and engagement as well as the impact of these constructs on educational attainment. The results provide empirical support for the subject specificity of self-efficacy, expectation of success (measured by students' academic self-concept), valuing of school, and various behavioral engagement aspects. Path analyses based on a process model revealed that data were consistent with a model in which self-efficacy predict academic self-concept, valuing of school and procrastination, which can in turn promote or undermine engagement and thus affect students' academic performance.

The study of high school learners' engagement could help understand the dynamic interplay between students' beliefs and their subsequent engagement in learning activities. Although no direct paths between self-efficacy and students' different aspects of engagement, like homework and absenteeism were found in the path model, however microanalytic approaches detected the mediational effects of motivational beliefs and procrastination in these relations. Results also highlight that a high level

of each behavioral engagement dimension is important for facilitating academic performance, because *class participation, homework completion and school attendance* aspects of involvement are linked with higher achievement.

A key goal of the study was to explore a possible *mechanism* through which dimensions of behavioral engagement make a difference to high school students' actual academic achievement. Taken together, the pattern of mediational findings suggests that learners' engagement in the classroom, is one likely pathway. Expectation of success and valuing of school may have an energetic function, awakening enthusiasm, interest, and willingness to participate in academic activities. It seems to be more interesting for adolescents to be involved in activities by which are worthy. Valuing of school may also buffer against negative emotions, minimizing feelings of boredom, pressure, or frustration. Moreover, expectation of success may be a psychological resource that adolescents can, to some extent, take with them into new learning situations. Expectation of success was a significant predictor of all three indicators of students' engagement. The findings of this study suggest that adolescents who are high on self-efficacy likely to show participation in school activities, leading to greater opportunities for actual learning and school success.

In line with previous research, our findings indicated that self-efficacy has emerged as the variable that was strongly and consistently related to procrastination (Bandura, 1997; Klassen, Krawchuk, & Ranjani, 2008; Zimmerman et al., 2000). This is consistent with the findings of Ferrari & Tice (2000) that stated that there is an inverse relationship between self-efficacy and academic procrastination. Also, our results show that lack of self-efficacy was significantly predict procrastination. Students who are less confident about the success or their achievement are more likely to become frustrated, bored, and alienated from learning activities, which in turn interferes with engagement in the task and their academic progress.

Meanwhile, high self-efficacy is a positive motivational beliefs associated with low levels of procrastination (Steel, 2007). Learners who perceive themselves as capable of structuring their own learning, who feel confident against his wishes would engage in procrastination to a much lesser extent than other students.

Path analyses of the correlational data supported data that both expectation of success and valuing were significantly related to student engagement in school, but primary relations were with expectation of success. Moreover, the findings show a direct relations between expectation of success and learners' academic outcomes. These direct effects expectation - achievement can interpreted as possible reciprocal effects of students' academic accomplishments on their motivational-related beliefs. Interpreting these findings in the context of the "cyclicity" view yields the following picture: For students, a relatively open system of beliefs and performance exists, in which beliefs about expectation of success are calibrated on the basis of the level of performance. The path analysis suggest that an ongoing task of students is to form a map of the behavioral strategies that lead toward success and away from failure and this success, in turn, will increase expectations (Martin, 2017; Skinner & Belmont,1993). Longitudinal studies of these constructs may confirm these reciprocal effects as well as the other path analytic findings.

As indicated by the present results, both motivational beliefs and procrastination were predicted (positively respectively negative) students' participative behaviors in the classroom. Class-participation refers to learners' effort-based actions including help-seeking behaviors such as questioning, participating in group discussions as well as on task behaviors (Woolfolk & Margetts, 2013). As students see themselves as competent are more likely to value further engagement in it (Wigfield et al., 2016). However, students' academic valuing was not significantly related to their class participation and, to their absence as well. Learners' expectancy beliefs positively predicted their homework completion and negatively predicted absenteeism. Academic self-concept maybe animates their effort, persistence and their ability to recover when faced with setbacks (Schunk & Mullen, 2012).

Implications and limitation

The study holds some implications and limitations for educational theory and research.

First, findings from this study have implications for education and educational practice. Interventions designed to assist struggling learners and specifically to decrease procrastination, would benefit from maintaining a primary focus on developing self-efficacy. Instead of attempting to increase self-efficacy per se, interventions could focus on adaptive motivational attitudes and beliefs, and that help the learner to manage and enhance learning. Adaptive help-seeking and effective management of academic stress within the educational context would also be helpful for the learner.

Second, our findings has shown that key components of the behavioral engagement can be analyze to their specific dimensions. The distinction and hypothesized of behavioral dimensions affirms the multidimensional perspective of engagement (Fredricks et al., 2004; Skinner et al., 2008). Further, the differential effects of class participation, homework completion, and absenteeism on academic outcomes shows the fruitfulness of using these specific dimensions resembling three conceptual categories of behavioral engagement: participation in school activities, involvement with home learning and positive conduct (including school attendance. This analyses demonstrates that some behavioral factors are more critical and more adaptive than others.

These results need to be interpreted in the context of study limitations.

First, although academic self-efficacy and expectancy-value beliefs were measured in the same data collection, we provide enough evidence and theoretical support to consider the expectancy-value belief and a procrastination students' as an antecedent of engagement in the classroom context. Because of both the cross-sectional nature of the study the reciprocal nature of human motivation and behavior (Bandura, 1986), a causal ordering between constructs is not confirmed. Studies of longitudinal design are needed to establish the influence that might exist among these factors and the degree of reciprocity that might be present between adolescent characteristics and behavioral factors.

Second, most of the measures used by researchers to assess motivational beliefs are student self-report measures (see Wigfield & Cambria, 2010). However, self-report measures can be problematic, especially for students who state that school is not important to them.

Consequently, we wish to emphasize the importance of combining quantitative and qualitative methods to reduce biases and to obtain more complete information about students' belief.

Third, the study mainly focused on two value components (intrinsic value and utility value) out of the four value components. The fine-grain analyses of the four value components would provide a more nuanced understanding of the relationships between motivational beliefs and behavioral-related outcomes.

CONCLUSION

This study provide a rather comprehensive picture and expand understanding of how self-efficacy interact with expectation of success, valuing of school and procrastination to influence engagement and implicit achievement-related outcomes. The findings of this investigation present new insights and opportunities for educators and parents, seeking to enhance the educational outcomes of students - outcomes that rely in large part on the extent to which their students are behaviorally motivated and engaged in academic tasks. Interventions designed to assist struggling learners and specifically to decrease procrastination, would benefit from maintaining a primary focus on developing self-efficacy. Instead of attempting to increase self-efficacy per se, interventions could focus on adaptive motivational attitudes and beliefs (increasing expectation of success, and valuing the academic tasks), and cognitive and metacognitive strategies that help learner to more engage in learning.

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DEPRESSION, ANXIETY AND SELF-ESTEEM AMONG INFERTILE WOMEN: A SYSTEMATIC REVIEW OF LITERATURE

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ABSTRACT. This paper aims to analyze the current literature on the impact of infertility on women's psychological health through systematic methods. A systematic review of the literature for the research of the psychological effects on infertile women was performed. Depression, anxiety and self-esteem were analyzed in the context of women with reproductive problems. Our results indicate that infertile women had higher levels of anxiety and depression, but also a lower self-esteem, compared to women without fertility problems. Almost half of the infertile women, presented in the literature included in this study, reported the presence of psychological problems. The risk factors identified as having important influences on the experience of infertility were age, level of education, employment, duration of infertility, type of infertility, known or unknown cause of infertility, intentionality, perceived social support and treatment for infertility. Of course, these experiences differ from woman to woman, but most of the times, the lifestyle and physical and mental health of infertile women are negatively affected.

Keywords: *systematic review, female infertility, depression, anxiety, self-esteem.*

ABSTRAKT. Ziel dieses Papier ist es, die aktuelle Literatur zu den Auswirkungen von Unfruchtbarkeit auf die psychische Gesundheit von Frauen durch systematische Methoden zu analysieren. Eine systematische Überprüfung der Literatur zur Untersuchung der psychologischen

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Auswirkungen auf unfruchtbare Frauen durchgeführt. Depressionen, Angstzustände und Selbstwertgefühl wurden im Kontext von Frauen mit Fortpflanzungsproblemen analysiert. Unsere Ergebnisse zeigen, dass unfruchtbare Frauen ein höheres Maß an Angstzuständen und Depressionen, aber auch ein geringeres Selbstwertgefühl hatten als Frauen ohne Fruchtbarkeitsprobleme. Fast die Hälfte der unfruchtbaren Frauen, die in der in dieser Studie enthaltenen Literatur vorgestellt wurden, berichten über psychische Probleme. Die Risikofaktoren, die einen wichtigen Einfluss auf Unfruchtbarkeit haben sind: Alter, Ausbildung, Beschäftigung, Dauer der Unfruchtbarkeit, Typ der Unfruchtbarkeit, bekannte oder unbekannte Ursachen für Unfruchtbarkeit, Absichtlichkeit, wahrgenommene soziale Unterstützung und Behandlung von Unfruchtbarkeit. Natürlich unterscheiden sich diese Erfahrungen von Frau zu Frau, aber in den meisten Fällen werden der Lebensstil sowie die körperliche und geistige Gesundheit unfruchtbarer Frauen negativ beeinflusst.

***Schlüsselworte:** systematische Überprüfung, weibliche Unfruchtbarkeit, Depression, Angst, Selbstwertgefühl.*

INTRODUCTION

Infertility is defined as a disease of the reproductive system that is characterized by the inability to procreate after twelve months of regular sexual contact without the use of contraception (Zegers et al., 2009). Infertility is an increasingly common condition. According to the WHO, one in four couples in developed countries suffers from infertility (Global prevalence of infertility, 2014) and this number will increase probably with the increasing of the average age of women who become pregnant for the first time (Wilkins et al., 2010).

Infertility can function as a painful emotional experience (Dural et al., 2016). The most common psychological problems identified in previous research are high stress, depression anxiety, low self-esteem, sexual satisfaction problems, low quality of couple life (Ali et al., 2015; Allan, 2013; Carreño-Meléndez et al., 2011; Cousineau & Domar, 2007). Infertile women may also experience a relatively high level of frustration and anger because of prejudices in society against childless women.

In today's society, the definition of woman is still closely linked to the concepts of wife and mother, although in the last decades, the ideals of femininity have undergone a great transformation so that youth, beauty, fertility and love are also fundamental values (Cunningham, 2013; Díaz Bernal, & García Jordá, 2011; Moore, 1991). Depending on the beliefs that each woman has about her role as a woman and as a mother, the diagnosis of infertility can cause emotional disorders (Sañudo Toca, 2014). However, the results in the existing literature show some discrepancies in the associations between psychological consequences and female infertility.

The results in the existing literature show some discrepancies in the associations between psychological consequences and female infertility. Due to the great diversity of existing studies, many of them have a low methodological quality, do not correctly conceptualize the investigated problem, or do not take into account the factors that could mediate the analyzed associations. Several systematic reviews have been identified for the study of quality of life, psychological well-being, marital satisfaction and all these effects have been analyzed on both partners in a comparative model (Chachamovich et al., 2010; Luk & Loke, 2015). Other systematic reviews have been performed on the effectiveness of treatments for infertility or on the psychological effects of infertility caused by endometriosis or Polycystic Ovary Syndrome (Barry, Kuczmierczyk, & Hardiman, 2011; Frederiksen, Farver-Vestergaard, Skovgård, Ingerslev, & Zachariae, 2015; Pope, Sharma, Sharma, & Mazmanian, 2015). No systematic review has been published to investigate the psychological impact of infertility on infertile women. Moreover, there is not much research, let alone systematic reviews, to study the problems of depression, anxiety and self-esteem in an integrative form of these consequences.

Therefore, this study aims to systematically analyze studies that address the psychological problems of depression, anxiety and self-esteem among infertile women who are part of several cultures. In order to provide a realistic vision and a more complete understanding of this phenomenon, the risk factors that could influence the experience of women with reproductive problems will be considered and analyzed in an integrative and comparative way. This approach allows for an in-depth exploration of the impact of infertility on today's women.

METHODS

This study is a systematic analysis of the literature published in the last 15 years, on the psychological impact of infertility on women. Given the systematic and critical nature of this paper, all procedures were performed in a rigorous manner, following all criteria in terms of the search and selection of studies and interpretation of results. The working procedure addressed in this research will be presented below.

Search strategy

This review analyzes studies focusing on infertile women of reproductive age, regardless of their marital status, living in any part of the world. Therefore, studies focusing on infertile men were excluded from this review. The cause of infertility, the type of infertility (primary or secondary), previous pregnancies, the duration of infertility and the age of the infertile women are not an exclusion criteria. Only those comparative studies between infertile men and infertile women that place great emphasis on the female experience were included, so that it is possible to extract significant results for this study.

At the same time, this study focuses on the experiences of women with infertility, more precisely, the psychological consequences on them. Studies that examine at least one of the following psychological consequences have been included: depression, anxiety and/or self-esteem. Therefore, any article that does not contain these consequences has been excluded.

Both qualitative and quantitative studies investigating the experiences of women with infertility (psychological consequences) were considered. Only studies published between 2004 and 2019, full-text, and those in English were included in this review.

The search strategy located exclusively published studies and included three stages. First stage started with a search in the electronic databases PubMed and PsycInfo and on Google Scholar, followed by an analysis of the words included in the title and abstract and the indexed terms used to describe the articles. A second search in the electronic databases PubMed, PsycInfo and Google Scholar using the identified keywords and index terms was performed in all included databases.

Finally, the list of referenced articles of all studies has been analyzed for further studies. Articles published from 2004 to 2019 were introduced in the research.

At the end of the systematic search, all identified citations were collected and uploaded to the EndNote reference management software, duplicate items were removed. Studies that met the inclusion criteria were accessed in full-text. The full text of the selected studies was taken over and evaluated in detail based on the inclusion criteria. If complete but inaccessible studies were identified, those articles were excluded from the analysis. Full-text studies that did not meet the eligibility criteria were excluded and the reasons for exclusion were recorded in an Excel document. The included studies underwent a critical evaluation process.

The data were extracted using Microsoft Excel. All studies included in the review were analyzed in detail. The most important data were the research methods, tools used, sample size, groups included, study location (country), year of publication, data on the psychological consequences of infertility (depression, anxiety and/or self-esteem) and risk factors.

Data synthesis

All data extracted from the articles included in this systematic review were subjected to critical and comparative analyzes to determine which are the risk factors, which information is common but also which are in opposition. In order to perform a critical and transparent analysis, all the details and possible explanations present in each study were taken into account. In the synthesis of the data, the cultures of the women surveyed and the tools used to make it possible to understand the discrepancies were taken into account.

RESULTS

After the first stage of searching in the electronic databases: PsycInfo and PubMed but also on Google Scholar, the following words were identified: infertility, women, psychological impact, psychological consequences, depression, anxiety, self-esteem, distress and infertility treatment.

Once the essential terms for searching the literature to be analyzed according to the inclusion criteria were established, 1177 articles were obtained from the databases used (745 from PsycInfo and 432 from PubMed) and 54 articles from the manual searches on Google scholar. Subsequently, based on the verification of the references in the articles found in the electronic databased, two more studies with probability of eligibility were obtained. Duplicates were eliminated (585 studies). Following the process of screening the title and abstract of the 648 studies, only 152 researches met the inclusion criteria. Finally, 17 studies were included, eight of them from PsycInfo, 5 from PubMed, 2 from Google Scholar and 2 from the references of other articles. The results of the literature search strategy can also be seen in Figure 1.

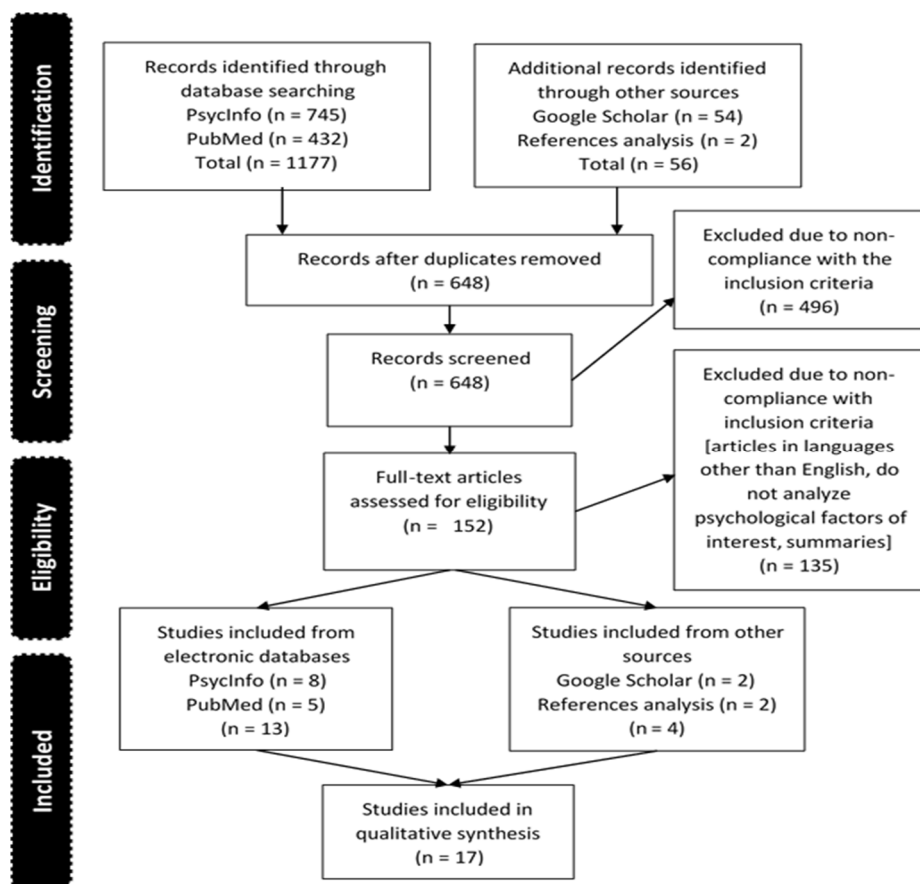


Figure 1. PRISMA flow chart for study selection.

Articles that predominantly analyzed male infertility (n = 4), did not study at least one of the three psychological consequences – depression, anxiety and self-esteem (n = 48), the full-text of the article was not found (n = 40), were published in a language other than English (n = 19) and were published before 2004 (n = 24) were excluded.

Characteristics of selected studies

All 17 studies included in this analysis were published in journals. These are 15 quantitative studies, of which seven cross-sectional studies, a “case-control” study, two qualitative studies are included. Table 2 present the included articles and the types of studies.

The identified studies represent a diverse population of 13 countries, with 5 studies conducted in Europe (Germany, Italy, Poland and Portugal), 9 studies in Asia (India, Iran, Japan, Pakistan and Turkey), 1 study in Africa (Ghana), 1 study in South America (Chile) and 1 study in the USA (Table 2).

The total number of participants presented in these studies is 3799. The sample size ranged from 14 to 1027. The samples were represented and divided into various forms: (1) infertile women and fertile women; (2) infertile women and infertile men; (3) women with primary infertility and women with secondary infertility; (4) infertile women undergoing treatment for infertility and women without treatment; (5) infertile women undergoing treatment for infertility; (6) infertile women after a failed treatment; (7) infertile women without treatment (Table 2).

The literature focused on the three aspects of psychological effect on infertile women: depression, anxiety and self-esteem. Of the 17 articles included in this paper, three of them analyze a single psychological effect (depression or anxiety), two of psychological effects are studied in 13 studies (depression and anxiety, depression and self-esteem, anxiety and self-esteem) and only two studies analyze all three psychological effects (Table 1).

Table 1. Psychological effects approached in the literature

Reference	Depression	Anxiety	Self-esteem
Begum & Hasan (2014)	■	■	
Contreras, Jara & Vidal (2016)			■
Donkor, Naab & Kussiwaah (2017)	■		
Drosdzol & Skrzypulec (2009)	■	■	
Facchin, Buggio, Dridi & Vercellini (2019)			■
Farzadi & Ghasemzadeh (2008)	■		
Galhardo, Alves, Moura-Ramos & Cunha (2019)	■		
Greil, Shreffler, Schmidt & McQuillan (2011)		■	
Hasanpoor-Azghdy, Simbar & Vedadhir (2014)	■		■
Kahyaoglu & Balkanli (2015)	■		
Maroufizadeh, Karimi, Vesali & Samani (2015)	■	■	
Massarotti et al. (2019)			
Ogawa, Takamatsu & Horiguchi (2011)	■	■	
Ramezanzadeh et al. (2004)			
Shahraki, Ghajarzadeh & Ganjali (2019)			
Tan et al. (2008)			■
Verma et al. (2015)	■	■	

Qualitative analysis of results from the literature

After the studies to be included in this paper were established, a comprehensive and in-depth analysis was performed to extract the relevant data, which were then entered into a table. Other important data such as the authors of each research, the year of publication, the sample size and the methods used were presented in Table 2.

Some differences have been identified in the results of the studies but what all the studies had in common is the statement that infertility does have a very large impact on women's mental health (Begum & Hasan, 2014; Contreras et al., 2016; Donkor et al., 2017; Drosdzol & Skrzypulec, 2009; Facchin et al., 2019; Fazardi & Ghasemzadeh, 2008; Galhardo et al., 2019; Greil et al., 2011; Hasanpoor-Azghdy et al., 2014; Kahyaoglu & Balkanli, 2015; Maroufizadeh et al., 2015; Massarotti et al., 2019; Ogawa et al., 2011; Ramezanzadeh et al., 2004; Shahraki et al., 2019; Tan et al., 2008; Verma et al., 2015). No article had contradictory findings.

Table 2. Summary of results from included studies

Reference	Year	Sample	Method	Results / Conclusions
Begum & Hasan (2014) Pakistan (Asia)	2014	n = 120 of which 60 infertile women without treatment and 60 fertile women.	Questionnaires. Comparative quantitative study.	Assigning guilt and responsibility for fertility problems are some of the factors that contribute to the development of depression and anxiety in infertile women. Another important factor is the lack of support from the family and the husband.
Contreras-Garcia, Jara-Riquelme & Manriquez-Vidal (2016) Chile (South America)	2016	n = 40 primary infertility women undergoing IVF treatment.	Questionnaires. Pilot study.	Blaming for treatment failure, lack of support from others contributes to lower self-esteem and creates symptoms of anxiety. Lack of hope can affect treatment outcomes.
Donkor, Naab & Kussiwaah (2017) Ghana (Africa)	2017	n = 14 women under treatment.	Face-to-face interviews. Qualitative study.	The passage of time without the possibility of conceiving, the observation of friends who have managed to conceive a child, the fear of losing their husband are some of the key elements for the development of depressive and anxiety symptoms.
Drosdzol & Skrzypulec (2009) Poland (Europe)	2009	n = 584 of which 206 infertile women without treatment.	Questionnaires. Cross-sectional quantitative study.	Risk factors for depression and anxiety include female gender, age over 30, lower level of education, lack of professional activity and duration of infertility of 3-6 years.
Facchin, Buggio, Dridi & Vercellini (2019) Italy (Europe)	2019	n = 127 infertile women, most without treatment.	Questionnaires. Quantitative study.	Infertile women who believe that women without children are less appreciated by others have reported higher levels of depressive symptoms and lower self-esteem. Shame is a direct predictor of depression.
Farzadi & Ghasemzadeh (2008) Asia	2008	n = 193 infertile women under treatment.	Interviews and questionnaires. Cross-sectional quantitative study.	Irrational cognitions of parents and pressure from relatives were the two main independent predictors of depression among infertile women. The duration of infertility is not associated with depression.
Galhardo, Alves, Moura-Ramos & Cunha (2019) Portugal (Europe)	2019	n = 124 infertile women under treatment.	Self-report and evaluation questionnaires. Cross-sectional quantitative study.	Representations about the importance of motherhood are indirectly associated with depressive symptoms, throughout the association with the impact of infertility on women's lives and the use of experimental avoidance.

Reference	Year	Sample	Method	Results / Conclusions
Greil, Shreffler, Schmidt & McQuillan (2011) USA	2011	n = 1027 of which primary infertility (399) and secondary infertility (628). No treatment,	Telephone interviews. Quantitative study.	Both types of infertility (primary and secondary) have been associated with high levels of psychological distress. Levels of depression and anxiety do not vary depending on the type of infertility or intentionality of women.
Hasanpoor-Azghdy, Simbar & Vedadhir (2014) Iran (Asia)	2014	n = 25 women with primary infertility and secondary infertility under treatment.	Semi-structured interviews. Qualitative study.	Iranian infertile women undergoing treatment face several psychological and emotional problems. Failure to treat infertility causes a decrease in self-esteem. The fear of not disappointing your husband involves higher levels of anxiety. After failed treatments or long time spent in treatment, it produces symptoms of depression, anxiety and negatively affects self-esteem.
Kahyaoglu & Balkanli (2015) Turkey (Asia)	2015	n = 89 infertile women under IVF treatment.	Questionnaires. Cross-sectional quantitative study.	Symptoms of depression and anxiety are present in infertile women. Moreover, during treatment and especially after a failed treatment, anxiety and depression levels increase.
Maroufizadeh, Karimi, Vesali & Samani (2015) Iran (Asia)	2015	n = 330 of which 208 infertile women undergoing failed ART treatment.	Questionnaires. Cross-sectional quantitative study.	Women who have failed treatments suffer from higher levels of anxiety and depression than women who have not received any treatment. Anxiety reaches its maximum level after a single treatment failure and depression after two failures.
Massarotti et al. (2019) Italy (Europe)	2019	n = 89 infertile women before and after IVF treatment.	Questionnaires for the effects of treatment. Quantitative study.	The time spent trying to get pregnant and the fear of undergoing an unknown treatment are the causes of anxiety before exposure to a treatment. During treatment, anxiety levels decreased.
Ogawa, Takamatsu & Horiguchi (2011) Japan (Asia)	2011	n = 83 infertile women before treatment.	Self-reporting and evaluation questionnaires. Quantitative study.	Infertile women without a job and women undergoing treatment experience higher levels of depressive symptoms. Age is negatively associated with depression. The duration of infertility is not associated with anxiety and depression.

DEPRESSION, ANXIETY AND SELF-ESTEEM AMONG INFERTILE WOMEN...

Reference	Year	Sample	Method	Results / Conclusions
Ramezanzadeh et al. (2004) Iran (Asia)	2004	n = 370 infertile women under treatment.	Questionnaires. Cross-sectional quantitative study.	Depression is significantly related to the causes of infertility, duration of infertility, educational level and vocational level. Anxiety is related to the duration of infertility and educational level. Anxiety and depression are more common after 4-5 years
Shahraki, Ghajarzadeh & Ganjali (2019) Iran (Asia)	2019	n = 189 infertile women before IVF treatment.	Questionnaires. Cross-sectional quantitative study.	Women with primary or secondary infertility do not differ in their levels of depression and anxiety. Failed treatment and feeling of helplessness cause depression and anxiety.
Tan et al. (2008) Germany (Europe)	2008	n = 115 untreated PCOS infertile women.	Questionnaires. Quantitative study.	The intentionality of infertile women (whether they want to conceive or not) is related to depression. Self-esteem is affected by the ability to conceive. Levels of anxiety and depression are higher in the first year of trying to get pregnant.
Verma et al. (2015) India (Asia)	2015	n = 280 infertile women under treatment.	Questionnaires. Case-control quantitative study.	Employed infertile women with a higher level of education and support from their husbands and families appear to be better protected from depressive and anxiety symptoms. Treatment increases the level of depression and anxiety.

Infertile women suffer from higher levels of anxiety and depression but also from lower self-esteem compared to fertile women (Begum & Hasan, 2014; Facchin et al., 2019; Maroufizadeh et al., 2015). A study in Poland, using the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI), showed that 35.44% of infertile women suffer from depression and anxiety compared to 19.47% of fertile women (Drosdzol & Skrzypulec, 2009). Another study in Chile, measuring BAI and the Rosenberg Self-Esteem Scale (RSES), found that 55.8% of infertile women had low self-esteem, 42.5% had low levels of anxiety, 10% moderate anxiety and 47.5% severe anxiety (Contreras et al., 2016). In the case of Asian population, 46% of infertile women, according to BDI, experienced depressive symptoms (Fazardi & Ghasemzadeh, 2008).

Another study in Asia (Iran) showed, using the Cattle questionnaires for anxiety and depression and BDI, that between 67 and 84% of infertile women suffer from anxiety and 24-36% of infertile women suffer from depression (Ramezanzadeh et al., 2004). The instrument used by these studies were the same, except for the study in Iran which used another questionnaire to measure anxiety.

Infertile women are more prone to both the development of depressive and anxiety symptoms and lower self-esteem, but the psychological impact that infertility has on women differs depending on *age* (Drosdzol & Skrzypulec, 2009; Ogawa et al., 2011; Ramezanzadeh et al., 2004), *level of education* (Drosdzol & Skrzypulec, 2009; Ramezanzadeh et al., 2004; Verma et al., 2015), *employment* (Drosdzol & Skrzypulec, 2009; Ogawa et al., 2011; Ramezanzadeh et al., 2004; Verma et al., 2015), *duration of infertility* (Donkor et al., 2017; Drosdzol & Skrzypulec, 2009; Hasanpoor-Azghdy et al., 2014; Maroufizadeh et al., 2015; Ramezanzadeh et al., 2004; Tan et al., 2008; Verma et al., 2015), *the type of infertility* (Greil et al., 2011; Shahraki et al., 2019), *known or unknown cause of infertility* (Drosdzol & Skrzypulec, 2009; Ramezanzadeh et al., 2004), *intentionality* (Greil et al., 2011; Tan et al., 2008), *perceived support* (Begum & Hasan, 2014; Fazardi & Ghasemzadeh, 2008; Greil et al., 2011; Hasanpoor-Azghdy et al., 2014; Ramezanzadeh et al., 2004; Verma et al., 2015), *treatment for infertility* (Begum & Hasan, 2014; Hasanpoor-Azghdy et al., 2014; Kahyaoglu & Balkanli, 2015; Maroufizadeh et al., 2015; Massarotti et al., 2019; Ogawa et al., 2011; Shahraki et al., 2019; Verma et al., 2015).

Age

Age seems to be a predictor of depressive and anxious symptoms among women suffering from infertility. Research on the population of Poland and the US has shown that the aging of infertile women causes increases in depression and anxiety because they feel they do not have much time to conceive a child and their “biological clock” ticks (Drosdzol & Skrzypulec, 2009; Greil et al., 2011). Other research in Japan suggest that aging may influence the development of depression, but the results have not been clear (Ogawa et al., 2011). On the other hand, studies in Iran have had different results, showing that the symptoms of depression and

anxiety were more severe in infertile women aged 21 to 25 years (Ramezanzadeh et al., 2004). Two other studies on women in Italy and Turkey, which investigated the relationship between the psychological impact of infertility and age, found no connection between them (Kahyaoglu & Balkanli, 2015; Massarotti et al., 2019).

Level of education

As with age, education may be a predictor of symptoms of depression and anxiety. A higher level of education seems to have a positive effect on the mental health of women with infertility. Education has a protective effect against depression, more precisely, the higher the level of education, the lower the symptoms of depression and anxiety, therefore, women with lower levels of education are more prone to the psychological consequences of infertility (Drosdzol & Skrzypulec, 2009; Ramezanzadeh et al., 2004; Verma et al., 2015). However, a study on infertile women in Turkey found no association between the level of education and the psychological effects of infertility (Kahyaoglu & Balkanli, 2015).

Employment

Employee status and occupational role are likely to have a positive impact on the psychological well-being of infertile women. The workplace can bring role satisfaction or help women suffering from infertility forget about their problems and focus their attention on occupational tasks (Drosdzol & Skrzypulec, 2009). The association is discussed in various studies that have shown that employed women had much lower levels of depression and anxiety than women who did not have a job (Drosdzol & Skrzypulec, 2009; Ogawa et al., 2011; Ramezanzadeh et al., 2004; Verma et al., 2015). In addition, having a job reduces the stress and anxiety caused by IVF treatments for infertility (Ramezanzadeh et al., 2004). However, the study conducted on infertile women in Pakistan showed no association between work activity and symptoms of depression and anxiety (Begum & Hasan, 2014).

Duration of infertility

The duration of infertility has been associated, in most research, with depression and anxiety (Donkor et al., 2017; Drosdzol & Skrzypulec, 2009; Hasanpoor-Azghdy et al., 2014; Maroufizadeh et al., 2015; Ramezanzadeh et al., 2004). Regarding self-esteem, no data were found to confirm a possible association (Hasanpoor-Azghdy et al., 2014). Three studies from Iran and an article from Ghana support the above statement, namely that anxiety and depression increase with increased duration of infertility (Donkor et al., 2017; Hasanpoor-Azghdy et al., 2014; Maroufizadeh et al., 2015; Ramezanzadeh et al., 2004). There is the fear of aging without the possibility of becoming pregnant and, therefore, the fear of losing their husband, which contributes to the development of anxiety (Donkor et al., 2017).

The 3-6 year period is the most critical, according to a study in Poland, in which anxiety and depression reach their highest levels, and the period of less than a year or more than 6 years of infertility seems to be less destructive and with a very high impact for infertile women (Drosdzol & Skrzypulec, 2009). Another study found that, in fact, the first year of infertility is the most difficult and most emotionally and mentally impacted by coping mechanisms that could „dampen” the experience of infertility over time (Tan et al., 2008). However, there are also studies that have shown no correlation between the duration of infertility and the mental health of women with infertility (Massarotti et al., 2019; Ogawa et al., 2011).

The type of infertility

By type of infertility, we refer to primary and secondary infertility. In this case, there were two contradictory results regarding the association between the type of infertility and the psychological impact of infertility. On the other hand, no connection between the variables was identified in a study in Iran, therefore, no differences were found between women with primary infertility and those with secondary infertility in terms of depression and anxiety (Shahraki et al., 2019).

On the other hand, in the US research, women with primary infertility suffered from higher levels of anxiety and depression compared to women with secondary infertility (Greil et al., 2011). Emotional needs may differ between women with primary infertility and women with secondary infertility (Greil et al., 2011). It is possible that women who have not had more pregnancies are more affected by infertility than women who already had at least one child before the diagnosis of infertility, due to the fact that latter are already mothers and can satisfy, in to some extent, the desire for motherhood, while women with primary infertility have never experienced such a thing (Greil et al., 2011).

Known or unknown cause of infertility

There are discrepancies in the results of the literature on the impact of knowing the cause of infertility on infertile women. One study in Poland, showed that infertile women who know the causes of their infertility experience higher cases of depression compared to women who do not know the cause of infertility (Drosdzol & Skrzypulec, 2009). In the other direction, according to an article from Iran, depression is more common in women with unknown causes of infertility (Ramezanzadeh et al., 2004). Whereas, anxiety is more common in women with endometriosis than in other causes of infertility (Ramezanzadeh et al., 2004).

Intentionality

Intentionality represents the presence or absence of the current desire to conceive. The literature suggests that this factor would be a predictor of anxiety and depression among infertile women. (Greil et al., 2011; Tan et al., 2008). Infertile women who have a current desire for a pregnancy experience higher levels of both anxiety and depression compared to women who do not have this desire at the time of the infertility episode, according to the US research (Greil et al., 2011). Other findings in Germany on infertile women diagnosed with Polycystic Ovary Syndrome (PCOS) have suggested that although infertile women who have a desire to conceive suffer from more psychological problems when it comes to anxiety and depression, intentionality is not associated so strong with these symptoms (Tan et al., 2008).

Perceived support

Perceived sleep was considered one of the most important risk factors among women suffering from infertility (Begum & Hasan, 2014; Fazardi & Ghasemzadeh, 2008; Hasanpoor-Azghdy et al., 2014; Ramezanzadeh et al., 2004). Most research has highlighted the positive effect of support from husband, family and friends, so lack of support and care from others would raise anxiety and depression and lower self-esteem on infertile women (Begum & Hasan, 2014; Contreras et al., 2016; Fazardi & Ghasemzadeh, 2008; Hasanpoor-Azghdy et al., 2014; Ramezanzadeh et al., 2004; Verma et al., 2015). Also, the negative reactions and attitudes of the spouse or relatives seem to worsen the situation (Fazardi & Ghasemzadeh, 2008; Ramezanzadeh et al., 2004). According to a study in Iran, social support not only helps to alleviate psychological problems but rather, infertile women who perceived a high level of social support showed no signs of depression or anxiety (Ramezanzadeh et al., 2004).

These results are not confirmed in the US study, which claims that not every kind of support is a positive support (Greil et al., 2011). Women who receive support from family and friends feel guilty for not being able to provide for a child, which helps develop anxiety problems but, to a lesser extent, depression (Greil et al., 2011). Encouragement to seek treatment may be perceived as „pressure” from others, and perceived social pressure may be more stressful than supportive (Greil et al., 2011). However, although the perceived pressure from the family may lead to greater suffering, there is also the possibility that more affected women may seek more encouragement from others (Greil et al., 2011).

Treatment for infertility

Undergoing infertility treatment is another important risk factor in terms of the psychological consequences of infertility on women (Hasanpoor-Azghdy et al., 2014; Massarotti et al., 2019). Women undergoing infertility treatment experience higher levels of anxiety and depression (Begum & Hasan, 2014; Hasanpoor-Azghdy et al., 2014; Kahyaoglu & Balkanli, 2015; Maroufizadeh et al., 2015; Ogawa et al., 2011; Verma et al., 2015). Feelings of helplessness increase as the time spent on treatment

increases, this contributes to the development of symptoms of depression and anxiety among women with infertility, and the increase of the number of treatment exposure is associated with impaired „mind-body” connection and of psychological health (Hasanpoor-Azghdy et al., 2014; Kahyaoglu & Balkanli, 2015; Verma et al., 2015). Infertility is very common in women from lower social classes who most likely do not have the ability to bear the costs of treatment, since these costs are covered only partially or perhaps not covered by health insurance, therefore the costs of treatment and social determinants play an important role in the development of the psychological consequences of infertility (Hasanpoor-Azghdy et al., 2014). Anxiety and depression are less common in IVF treatments compared to other types of treatments (Hasanpoor-Azghdy et al., 2014).

Contrary to the data presented so far, a study of infertile women in Italy showed that anxiety and depressive symptoms decrease during treatment (Massarotti et al., 2019). This decrease in psychological consequences is explained by feelings of empowerment due to exposure to a process that could help or solve infertility problems and this effect could help infertile women to be more open about the social support they receive from the others (Massarotti et al., 2019).

Following a failed treatment, the situation becomes even more critical, as self-esteem is predicted to decrease among infertile women due to feelings of helplessness and because they attribute blame and responsibility for the failure of treatment considering that this body does not cope and is not good enough to support a pregnancy (Hasanpoor-Azghdy et al., 2014). Anxiety reaches its maximum level after a failed treatment, and in the case of depression, the peak is reached after two failures of infertility treatments, therefore, the levels of depression and anxiety are much higher after treatments and during treatment (Hasanpoor-Azghdy et al., 2014; Maroufizadeh et al., 2015; Ogawa et al., 2011; Shahraki et al., 2019).

DISCUSSIONS

Family status is important and valuable for most individuals. Having a child stabilizes the family and increases marital satisfaction (Ramezanzadeh et al., 2004). The absence of a child in the family can

cause relationship problems, such as divorce or extramarital affairs (Drosdzol & Skrzypulec, 2009) but also psychological problems such as depression, anxiety and low self-esteem (Contreras et al., 2016; Tan et al., 2008).

Infertile women suffer from higher levels of anxiety and depression compared to women in the fertile group (Tan et al., 2008). Among infertile women, 38% suffer from depression, 57.5% from anxiety and 55.8% have low self-esteem.

The desire to be a parent and not be able to achieve this goal does not directly influence the development of depressive symptoms, instead, a childless lifestyle can contribute to the emergence of social, sexual and couple concerns and these may include difficult emotional states (Galhardo et al., 2019). Women learn to take responsibility and blame for their infertility problems. They try to solve the problem but feelings of guilt, self-blame, loneliness and/or fear of losing their husband contribute to the development of symptoms of depression and anxiety.

When they see that their friends have managed to become mothers and when they are talking about their children, there is a possibility that depression levels will increase because they remind them of their reproductive problems and that they may not manage to get pregnant (Donkor et al., 2017). At the same time, not having children could influence how they are seen by others and some women feel worried because they feel they are seen as inferior and do not meet society's standards for the concept of woman-mother, which increases the probability of occurrence of psychological consequences and decreased self-esteem (Donkor et al., 2017; Facchin et al., 2019; Massarotti et al., 2019).

In some situations, women prefer to hide infertility issues and at the same time use experiential avoidance as a way to stay in touch with these aversive experiences, but in some cases, experiential avoidance can contribute to the formation of depressive symptoms (Galhardo et al., 2019). The likelihood of developing or worsening psychological problems associated with infertility is influenced by certain risk factors such as age, level of education, employment, duration of infertility, type of infertility, known or unknown cause of infertility, intentionality, perceived social support and treatment for infertility.

Most research has shown that aging, low levels of education, lack of employment, current desire to conceive and lack of social support

contribute to increased levels of depression and anxiety. The level of education has a protective role against depression, educated women being less prone to depression.

Although most studies analyzing age and level of education have shown a relation between the affective problems and infertility, there were some contradictory results who stated that there was, in fact, no connection (Kahyaoglu & Balkanli, 2015; Massarotti et al., 2019). Nevertheless, they are aware of the fact that having a larger sample size could change the results (Kahyaoglu & Balkanli, 2015).

The relationship between employment and infertility is discussed in various studies, stating that an occupational role seems to have a positive impact on the emotional and psychological health of women suffering from infertility. Nonetheless, according to Begum & Hasan (2014), „working status appeared as an insignificant predictor of depression and anxiety” (p. 1290). However, in their study, there was not presented any data regarding employment, nor an explanation for the given conclusion.

As presented in the literature analyzed earlier, the perceived support from the husband, relatives or friends because the lack of support from them but also from society can lead to psychological problems and low self-esteem. However, the support received from others is not always a positive support, for example, encouragement can be seen as a „pressure”, and this social pressure may not be beneficial for women with infertility. Understanding how social support works and the ability to identify what type of support can increase or decrease psychological stress is important for the counseling process and future directions of treatment.

Regarding the duration of infertility, most research has shown that depression and anxiety increase with increased duration of infertility, other studies have considered the 3-6 year period of infertility as the most critical, and before the first year of infertility and after 6 years of infertility these symptoms improve significantly. Contrary to these results, in the study on the German population, the first year of infertility was seen as the most difficult and with a greater emotional impact and after the first year, the coping mechanisms intervene and „dampen” the experience of infertility (Tan et al., 2008).

For the type and cause of infertility, there were conflicting results. On the one hand, no differences were found in the research in Iran between women with primary infertility and women with secondary infertility, although, as in the case of age and level of education, they justify these results by the existence of a limited sample size. However, the US study claims that women with primary infertility suffer from more psychological consequences because their emotional needs may differ, and women with secondary infertility were more likely to experience motherhood compared to women who did not have a previous pregnancy (Greil et al., 2011). Regarding the causes of infertility, the study on Polish women claims that women know the cause of their infertility suffer more (Drosdzol & Skrzypulec, 2009), and the study on Iranian women showed that, in fact, depression is more common in women with unknown causes of infertility (Ramezanzadeh et al., 2004). However, it is important to note that Drosdzol & Skrzypulec (2009) refer to the cause of infertility as female/male/combined, while Ramezanzadeh et al. (2004) in addition to female/male/combined infertility, they also analyze causes such as endometriosis, PCOS and so on.

The most important risk factor, that the literature has noted, for emotional problems amongst infertile women, was treatment for infertility. Women undergoing infertility treatments suffered from much higher levels of anxiety and depression compared to women who did not follow these treatments. However, anxiety levels initially decrease in women undergoing treatment because they feel they are doing something to solve their reproductive problems (Massarotti et al., 2019). Treatment costs could be a source of stress for infertile women with lower socioeconomic status. Undergoing a great number of treatments, increased time spent in treatment and, especially, treatment failure creates feelings of hopelessness and helplessness which contributes to worsening depressive symptoms and low self-esteem (Hasanpoor-Azghdy et al., 2014). Anxiety reaches its maximum level after a failed treatment, and in the case of depression, the peak is reached after two failed treatments (Maroufizadeh et al., 2015).

It is necessary that during the treatments for infertility, the psychological effects that occur throughout their period to be investigated and ameliorated. Due to the fact that the post-treatment period is the most critical and significant for infertile women, both counseling for these women and providing adequate support to improve the experience and psychological consequences should be considered.

Infertility is a problem that causes a great emotional and psychological impact, not only on the infertile woman, but also on her husband, relatives and friends. Therefore, if partners learn to support each other, this experience will bring them closer and strengthen the marital relationship. It was confirmed that infertile women reported better mental health when the relationship with their husband was closer and more supportive (Drosdzol & Skrzypulec, 2009). Mental compatibility is also a factor that affects the quality of life on infertile women (Onat & Beji, 2012).

Limitations and future directions of research

In this paper only depression, anxiety and self-esteem were assessed, therefore, a complete view of all the psychological problems that infertile women suffer from was not provided. It would have meant going through a much more complex process if all the psychological effects of women with reproductive problems had been taken into account and researched. At the same time, the physical, social or financial consequences of infertility have not been included, and these consequences, although not psychological, could influence the psychological impact of infertility. Therefore, a systematic review of all psychological effects would be of great necessity, but also the consideration of including the other consequences for trying to understand the differences that occur in the mental health of infertile women.

It is necessary to include women from different socio-economic backgrounds, as there are differences in their experiences. Risk factors, treatment and the experience of women under different treatments should be analyzed longitudinally.

Only studies published in journals and in English were reviewed. By excluding unpublished studies and those in languages other than English, there is a risk of omitting some information that may be relevant and important to this research. In addition, some studies with potential eligibility could not be accessed because the full version of the text could not be found.

CONCLUSIONS

The results of this systematic review showed that infertility has a negative psychological impact on women, moreover, almost half of women with reproductive problems suffer from high levels of anxiety and depression but also from low self-esteem. Of course, these experiences differ from woman to woman, but most of the time, the lifestyle and physical and mental health of infertile women is negatively affected.

Nine risk factors were found in the literature as having an influential role in women's experience with infertility. These factors are age, level of education, employment, duration of infertility, type of infertility, known or unknown cause of infertility, intentionality, perceived social support and treatment for infertility. After an in depth analysis of the studies included in this review, it can be seen that the results, somehow, confirm the mediating effect of these factors for the relationship between infertility and depression, anxiety and self-esteem. There were some conflicting results that, in some cases, were explained by the sample size limitation but, in other cases, there was no explanation or data supporting those results.

Beliefs regarding the social, cultural and sexual aspects of infertility are addressed in the literature as having an important role in women's life. When examining the emotional and psychological consequences of infertility, these concerns appear to be crucial in the way women cope with the diagnosis of infertility.

The results showed that it is important to consider counseling for improving quality of life and treating the emotional health issues of both women who are undergoing treatment or who have had failed treatments, but also women who are not under treatment. At the same time, it is necessary to advise family members to provide a broader understanding of the situation and experience but also to improve the quality of relationships.

Of the 17 studies included in this review, most studies focused on the analysis of depression ($n = 15$), but also on the study on anxiety level ($n = 14$), and very few articles studies self-esteem in association with infertility ($n = 4$). Of these studies, 15 of them were quantitative and 2

qualitative. Future research should be done to study the impact of infertility on women's health, including all psychological consequences, for a more complete look at the experiences of infertile women. At the same time, consideration should be given to including all the consequences that women with reproductive problems suffer.

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