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Existential anxiety and time perception: an empirical examination of Heideggerian philosophical concepts towards clinical practice*



Alireza Farnam

Professor of Psychiatry, Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences-Iran

Samira Zeynali

Medical Doctorate (MD), Department of Psychiatry, Tabriz University of Medical Sciences

Mohammad Ali Nazari

Associate Professor at Department of Neuroscience, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences

Prinaz Vahid Vahdat

Pharmacy Doctorate (PharmD), Department of Neurosciences, Tabriz University of Medical Sciences

Masumeh Zamanlu (corresponding author)

MD Ph.D in Neurosciences, Self-awareness Research Committee, Tabriz University of Medical Sciences, E-mail: m_zamanlu@yahoo.com

Abstract

Existential anxiety is an outstanding issue both in psychology and philosophy. It implies the mental rummage following the notion of existence, inexistence and related concepts. Martin Heidegger is a philosopher incorporating the meaning of existential anxiety and time perception in a unique comprehensive view, suggesting that there is a relation between being, time and anxiety. To the best of our knowledge, no empirical study has assessed any association between time perception and existential anxiety. The current study aims at investigating the mentioned association. Eighty four students in Tabriz University of Medical Sciences voluntarily participated in this study and gave their written informed consent. Time perception was assessed by verbal and production tests. The score of existential anxiety was obtained by the Good & Good Existential Anxiety Questionnaire. Association of time perception and existential anxiety was analyzed statistically. Mean score of existential anxiety of subjects was 7.57 ± 4.75 out of 32. Accuracy of time perception was significantly related to existential anxiety score ($P = 0.034$); in the manner that inaccurate time perceivers had higher existential anxiety scores. The results of this study are preliminary in line with the existential concepts presented by Heidegger; indicating that existential anxiety and time perception may have common roots. This understanding about existential anxiety suggests further explorations and deeper existential reasonings, as well as more efficient psychological and psychiatric clinical practice.

Key words: Existential philosophy, spiritual anxiety, Martin Heidegger, duration, time estimation, time accuracy

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Introduction

Existential anxiety, introduced as a core human issue, brings philosophy and psychology to a joint focus, where clinical symptoms seem to originate from philosophical thoughts. There have been publications about existential anxiety since 1840s until now, written theoretically, empirically and practically. Existential anxiety is the mental rummage following the notion of existence, inexistence and related concepts. Paul Tillich (Tillich, 1952; Weems, Costa, Dehon, & Berman, 2004) describes existential anxiety as “the state in which a being is aware of its possible nonbeing”. He provides an integrative view of existential concerns around three categories: first the “ontic” category, including concerns related to fate and death, second the “moral” category, including concerns related to guilt and condemnation, and last the “spiritual” category, including concerns related to emptiness and meaninglessness, and the spiritual anxiety is predominant in modern times. An outstanding existential philosopher, Martin Heidegger, incorporates the meaning of existential anxiety and time perception in a comprehensive view, suggesting that there is a relation among being, time and anxiety. In Heideggerian philosophy, anxiety (Angst) is one of the fundamental moods (Grundbefindlichkeit), which brings Dasein before its awareness. Dasein, as Heidegger describes, is “a being for whom being is a question”, which can only refer to a contemplative human being. He delineates anxiety as a mode of being (Seinsweisen) of Dasein, together with fear (Furcht), as an ontological quality of existence. By this anxiety, Heidegger means a fundamental characteristic which shows us who we are, our freedom and possibility to live an authentic or inauthentic life; in fact Heidegger mentions anxiety as the precursor of authenticity. Thereupon, anxiety is essential for an authentic life in Heideggerian concepts, which is actually inspired from concepts from the famous philosopher, Kierkegaard.

In Heideggerian existential analytic, anxiety has a crucial position in the relationship of Dasein with time. Heidegger tries to criticize the idea of time as a straight and limitless chain of "now-points". He regards past, present and future as ek-static or ectasies (Greek meaning: standing outside) of temporality, each of which "stands outside" of the others, all united to constitute primordial or original time. He provides a transcendental interpretation of time, asserting axial role of subject's historicity, in other words he claims that "We are Time", so Dasein's time perception could challenge Aristotelian viewpoint of time. The transcendental and phenomenological interpretation of time and the centrality of subject's own temporality, given by Heidegger can be related to existential anxiety of Dasein. Time comes to an end in future by death, constructing one of the time dimensions exposed to Dasein as a being towards death. Therefore, anxiety is awareness of possibility of death or non-being in the world, which is the only certainty in Dasein's being, and ultimately pushes Dasein to choose an authentic life up to death (Brenicio, 2014; Haugeland, 2000). However, empirical evidences for these concepts are lacking.

Inquiry of the association between time perception and existential anxiety, experimentally, based on Heidegger philosophy, could provide an exquisite insight into existential philosophy as well as an exquisite insight into existential psychology and related clinical practice.

Personality psychology as theorized by Cloninger (Cloninger, 1998; Cloninger, 1986, 1988) could be considered in practical approaches of philosophical concepts. This model is the most update and practical personality theory in psychiatry texts based upon experimental and philosophical theories presented previously. Cloninger, the temporary psychiatrist and geneticist has formulated personality as a biogenetic “Temperament” and an acquired “Character”. The latter domain brings about the meaning of growth, forming the “hierarchical levels of awareness”. The five levels of awareness are: awareness of being, awareness of free will, awareness of beauty, awareness of truth and awareness of goodness. Individuals thriving up, experience escalations in five personality layers or planes of being as follows: sexual plane, material plane, emotional plane, intellectual plane and spiritual plane. Existential anxiety actually emerges from personality domains as basic as awareness of being, and as advanced as search for meaning in the spiritual plane. Accordingly, better understanding of existential anxiety could provide an opportunity for clinical practices which assimilate growth and transcendence, exemplarily as interlaced with Cloninger’s theory.

To the best of our knowledge, no empirical study has assessed any relation between time perception and existential anxiety. Time perception has been the subject of researches in physics, philosophy (metaphysics), psychology and neurosciences. There are a great deal of methodology and scientific discussions about time perception. This study integrates experimental investigation of existential anxiety together with time perception in volunteer academic students, as a sample of a thoughtful community, in search of any relation, as proposed in Heideggerian philosophy.

Methods

Participants

Data was collected from a sample of 84 postgraduate, medical and pharmacy students of Tabriz University of Medical Sciences, with the mean age of 28.16 ± 5.90 years. Demographic characteristics of subjects are summarized in the “total” column of **Table 1**.

Table 1. Demographic characteristics of volunteer participants

Demographics	Accurate time perceivers	Inaccurate time perceivers	Total	<i>P</i> value
Age	28.53 ± 6.50	27.74 ± 5.21	28.16 ± 5.90	0.548
Male-Female	38.6%-59.1 (<i>n</i> =17-26) 1 missing	35.0%-65.0% (<i>n</i> =14-26)	36.9%-61.9% (<i>n</i> =31-52) 1 missing	0.670
Single-Married	68.2%-29.5% (<i>n</i> =30-13) 1 missing	70%-30% (<i>n</i> =28-12)	69.0%-29.8% (<i>n</i> =58-25) 1 missing	0.982
Education (years)	18.18 ± 2.82	18.25 ± 2.43	18.21 ± 2.63	0.906

Measures and Procedures

After brief explanation of the experiment, written informed consent was obtained from all participants. Then they filled a demographic questionnaire. Existential Anxiety was assessed by Good & Good Existential Anxiety Questionnaire (1974) (Good & Good, 1974), which has been developed as a True-False rating scale with 32 items that mainly relate to meaninglessness: 26 items were designed positively (i.e. a “yes” implies existential anxiety) and 6 items were designed negatively (i.e. a “no” implies existential anxiety). The final score of existential anxiety was obtained out of 32.

Time perception in the manner of short duration estimates could be tested verbally, by production, by reproduction or by comparison (Zakay & Block, 1997). In this study the verbal and production methods were used. For all duration estimates, subjects were seated in a relatively quiet room, making sure they are calm and comfortable. In order to experiment verbal estimation, the subjects were instructed to observe a stimulus, a lamp on the monitor of a computer, which was turned on for durations of 30, 60 and 90 seconds. Then the subjects were asked to estimate the duration of the stimuli they had observed, and express it in terms of seconds. To experiment production estimation, the subjects were given a determined duration in seconds, and were instructed to consider a start point expressed by the experimenter and afterwards, inform the experimenter when they judged that the determined duration had elapsed. Production estimates were repeated for two different durations of 30 and 60 seconds.

Statistical analysis

Mean values were compared by Independent-Sample *T* Test (Student’s *T* Test) and analysis of variance (One-way ANOVA). Pearson Chi-Square method was performed for assessing the demographic characteristics between groups. Linear

regression was used for analyzing the distribution of numeric variables against each other. Significance level was defined as $P < 0.05$.

Results

Descriptive analysis

Mean score of existential anxiety of subjects was 7.57 ± 4.75 out 32. Eight subjects had scores equal to or more than 16 (50%). Demographic characteristics showed no statistical relation with existential anxiety score ($P = 0.337-0.561$) as illustrated in **Table 2**.

Table 2. Existential anxiety score related to demographic characteristics of volunteer participants

Demographics	Existential anxiety score		P value
Male- Female	22.52 ± 12.31	24.59 ± 16.35	0.561
Single- Married	24.59 ± 14.21	21.28 ± 16.76	0.391
Education (years)	-		0.337

Table 3. Time estimates in various tests of time perception

Type of time estimate	Duration of estimation tests (seconds)	Estimated Mean (seconds)	Standard Deviation (SD)
Verbal	30	37.68	23.17
Verbal	60	71.86	47.80
Verbal	90	96.38	48.38
Production	30	34.26	12.95
Production	60	57.34	20.63

The average of time estimates by subjects for verbal and production experiments are shown in **Table 3**. Time perception of subjects was categorized into accurate and inaccurate perception similar to Veach et al (Veach & Touhey, 1971). Subjects with perception errors higher than $\pm 30\%$ of the whole duration were considered inaccurate time perceivers, unless they were considered accurate time perceivers. Nearly half of the subjects were accurate time perceivers as illustrated in **Figure 1A**. Demographic characteristics showed no statistical difference in accurate time perceivers and inaccurate time perceivers (**Table 1**).

Associations between existential anxiety and time perception

Association between existential anxiety and time perception was examined by various statistical tests. Statistical relations were insignificant when the estimated times in verbal and production tests were considered with scores of existential anxiety, or when the values of errors in the estimated times were considered with scores of existential anxiety ($P = 0.15-0.89$). When time perception in verbal and production tests were categorized as 1) rapid perception (perception errors $> 30\%$

for verbal estimates and/or < -30% in production estimates), 2) correct perception (perception errors < $\pm 30\%$) or 3) slow perception (perception errors < -30% for verbal estimates and/or > 30% in production estimates), existential anxiety scores showed no statistical difference among the three groups ($P = 0.55-0.66$). However, when estimated times were categorized as accurate (perception errors < $\pm 30\%$) and inaccurate (perception errors > $\pm 30\%$) time perception, existential anxiety scores were statistically higher in the inaccurate time perceivers ($P = 0.034$), as illustrated in **Figure 1B**.

Discussion

The results of this study are preliminarily in line with the concepts of Heidegger; indicating that existential anxiety and time perception are related. This is promising for further explorations about existential philosophy. As far as we have reached in the intensive literature review, this is the first experimental evidence in line with Heideggerian philosophy.

According to Paul Tillich, spiritual anxiety including concerns about emptiness and meaninglessness is predominant in modern times (Tillich, 1952; Weems et al., 2004). Notably, emptiness and meaninglessness are the core definitions in most of the past publications about existential anxiety including *Good & Good Existential Anxiety Questionnaire* (1974), and this questionnaire is incorporated in the current investigation (Good & Good, 1974). In the book *“Existential Psychotherapy”*, Yalom starts the chapter of meaninglessness with a suicide note, emphasizing the fact that **meaning** is actually the matter of life and death. Then Tolstoy’s description about his own tendency for suicide (Pridmore & Pridmore, 2011; Tolstoy, 2012) is recited, among which the question about existential anxiety, meaning and even death is presented in the most brilliant way: “Is there any meaning in life which will not be destroyed by the inevitable awaiting death?” Meaning crisis has been described as a tormented arrest of life (Yalom, 1980). High scores of existential anxiety in the current study could actually indicate meaning crisis in the participants of the current study.

Our findings indicate that higher scores of existential anxiety are related with inaccurate time perception. This might simply be interpreted as anxiety distracting the individual from recognizing time accurately. However, another lookout to the results could indicate more: no subject estimated the durations exactly correctly; each individual experiences a distinct time passage, and the correct and accurate quantities of the durations are actually an agreement of humans based upon the simultaneousness of the invented devices. This could point to the Heideggerian concept “We are Time” (Brenco, 2014). The person with higher scores in *Good & Good Existential Anxiety Questionnaire* is involved with questions about meaning of being, which are somehow far from daily affairs and agreements. This person similarly experiences time as much far from the general agreement. Time perception should be considered a basic cognition, forming a fundament for cognition of other representations, so is the cognition of one’s being. Therefore,

Dasein, the contemplative individual, experiences existential anxiety as reforming the very basic cognition of “being” and probably at the same time reforms the very basic cognition of “time” as well.

Bergson, a French philosopher, has posited a theory of time and consciousness (i.e. self-awareness). This theory is known as “duration” and actually narrates time perception as a subjective and distinct experience. He believes that time eludes mathematics and science. Duration is ineffable and can only be specified indirectly through images, which can never reveal a thorough picture; it can only be seized through a simple intuition of the imagination. Bergson claims that the traditional concept of time, presented as a line including past, present and future, is a spatial representation of time while time could not be figured in space. Ultimately he concludes that time is the restlessness which we feel when we stir sugar in a cup of tea to dissolve it (Bergson & Andison, 2010; Bergson & Pogson, 2001). Connecting time and restlessness in Bergson’s theory is very similar to that of time perception and anxiety in Heideggerian concept.

It is notable that time is a social matter. Brain structures supporting timing has been divided into social and nonsocial, and the socio-temporal brain connects people in time (Schirmer, Meck, & Penney, 2016). Here a practical conclusion could be made: the patients with existential anxiety, alone or during experiencing other mental challenges, suffer from their own distance with general agreements and affairs. Of their outstanding demands is to be aided to understand that they are passing a cognitive turnover, and to be guided to cope with their life and responsibilities despite missing their previous pertinence and alignment with being and time. Similar to attacker footballists who recognize the golden moment of goal shooting in seconds but fail to get organized by conventional time arrangements, individuals with existential anxiety seem to have difficulty coping with spatial time. They may be significantly more efficient if they function with Bergsonian time perception through intuition. As bible denotes: “To everything there is a season, and a time to every purpose under the heaven: a time to be born, and a time to die; a time to plant, and a time to pluck up that which is planted” (H. Bible, 2000; K. J. Bible, 1996). Understanding appropriate times for affairs means time perception by intuition, and if practiced properly it can produce a different kind of organization of duties and agreements.

Existential philosophy has deep roots in human knowledge as well as in human inner explorations and questions. Human is the creature with highest awareness; the unique response of human to mirror test is an evidence for this superiority (Gallup Jr, Anderson, & Shillito, 2002). Awareness, especially self-awareness starts with pain. Otto Rank denotes this pain by determining the “psychological trauma of birth” which is an eminent humane symbol of existential anxiety. Birth is the exposure to being, demands, diversities and uncertainties; bringing about desire as well as fear of individuation by separation and differentiation of the creative human being (Rank & Atkinson, 1932). Therefore, the advanced awareness granted to human being can have the unique capability to stand outside itself, as the term

ekstasis (or ecstasy) indicated in existential philosophy. Heidegger describes temporality as an ekstastic process of awareness coming towards and back to itself to confront being and worldhood, and here anxiety is involved as a fundamental mood (Brencio, 2014), as a turbulence resulted from the apprehension of being and non-being by this awareness. Tillich believes that existential anxiety could be welcomed as a humane experience, or be resisted, despite the disturbing consequences (Tillich, 1952; Weems et al., 2004). Studies in adolescents, students and various subjects show that concerns of existential anxiety are quite common and are associated with general anxiety, depression and identity crises (Berman, Weems, & Stickle, 2006; Denollet, 2005; "Discussions arising from: Cloninger, CR. A. *unified biosocial theory of personality and its role in the development of anxiety states*," 1987; Weems et al., 2004); hence it is argued that clinical symptoms of emotional disturbances originate from philosophical thoughts which are maladaptive (Weems et al., 2004).

Notwithstanding the pain of awareness, the self-aware psych, equipped with the consequence of the most advanced cognition development, is actually provided to equitate through mental growth, transforming the cognition and the human being even more developed. Ergo, mental growth is the exclusive humane miracle. At this point, the sparkle connecting existential anxiety and personality could be discussed, especially by Cloninger's opinions. Existential anxiety could be considered a mental process activated by the "self-aware psych", the third component of personality theorized by Cloninger. It involves the basic "awareness of being" and the advanced concerns of "spiritual plane" at the same time (Cloninger, 2004; Cloninger, 2009; Farmer & Goldberg, 2008). Accordingly, growth and transcendence are outstandingly in order. It incepts with the explicit question: "Is there any meaning in life which will not be destroyed by the inevitable awaiting death?" What is the true answer? Is there any? The chapter of meaninglessness in the "Existential Psychotherapy" of Yalom recites Pascal's opinion that "the branch cannot hope to know the tree's meaning" as well as Frankl's opinion indicating that such meaning is beyond comprehension (Yalom, 1980). However, the authors of this paper believe that the meaning of life and being could be received by a mature human being, not in terms of mere brain propagation but through the mental processes described as "self growth", "personality development" and "psych greatening". Sri Chinmoy said: "paradise is not a place, it is a state of consciousness", similarly the wisdom for meaning of being is not knowing the points but an emanation of an advanced awareness. The indescribable "oceanic feeling" introduced by Cloninger as happening in the progressive stages of personality development, named "contemplation", could be considered a conspectus of an awareness receiving the meaning of being and wholeness; not in the matter of words but in the matter of existing in that meaning, beyond explanations and even beyond understanding. Thereupon, we suggest that meaning of being exists, and is acquirable, but only through mental growth. It could be concluded here that the challenge of meaning crisis is not finding something, but

rather *being* something. Anyhow, existential issues all deal with mere “being”! Thereby, the true solution for relief and remedy of individuals suffering from existential anxiety is aiding them towards mental growth.

The German philosopher, Arthur Schopenhauer begins his central masterpiece, the book of “*World as Will and Representation*” with this sentence: “The world is my idea”. He continues: “This is a truth which holds good for everything that lives and knows, though man alone can bring it into reflective and abstract consciousness.” He explains that no first-hand experience of the universe exists; each and every person gets to know the universe through the inner representations made by sensory perception (Schopenhauer, 2012). This is in line with Kant's concept, considering a double aspect of the universe (Schulting, 2010): the phenomenon which is the world of experiences and the noumenon which is the true world, independent of experience. An interpretation of Schopenhauer philosophy is that the noumenon, the thing-in-itself, is the basis for will and the endless desires. Similar concepts could be found in arts as well. The expressionistic paintings, as the *Scream* by Edvard Munch or the *Starry Night* by Vincent Van Gogh carry the explicit message that the world looks different in the artist's representation. Another example is Iranian architectures and cultural constructions which include mirror as a key feature in many occasions. Mirror holds a representation of the world and is a good symbol for humane representation of the universe. Persian poets point to this idea very strikingly, the notion that meeting the truth and the eternal beloved necessitates simonizing the “mirror of heart”. Hafiz says: “The dust of oppressions has covered my heart, Oh God do not approbate my mirror of benignity get obscured!” (Homayoun Far, 2010). As a conclusion to this part of discussion, it is claimed and further confirmed that the meaning of being, the appropriate answer to the great question, whether it is named existential anxiety or spiritual anxiety or meaning crisis, could be found in the well-grown humane representation. There are also points about time perception indicated in the concept of humane representations as follows.

There are theories about time and how it is perceived in many disciplines. In physics, Relativity theory, particularly introduced by Albert Einstein explains the “space-time” as a unified entity, which questions the concept of time as an absolute phenomenon (Einstein & Davis, 2013). However, the word phenomenon reminds, once more, the double aspect theory of Kant and the representation concept of Schopenhauer. Eke, it could be proposed by the results of this study that time perception is a representation of the true time, and as the duration theory of Bergson indicates, this representation is a subjective and distinct experience. The biologic appliance for forming the representation of time is the subject of research explorations. Some authors suggest that there are internal clocks in the nervous system which act like pace makers (Craik & Hay, 1999).

Conclusion

The results of this study are preliminary in line with the concept of Heidegger; indicating that existential anxiety and time perception may have in common roots. This understanding about existential anxiety suggests further explorations in this regard and could facilitate deeper existential reasoning, as well as more efficient psychological and psychiatric clinical practice, especially in the manner of aiding and relieving patients with existential anxiety by personality growth.

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