Competitive Anxiety, Self-change Awareness, Response to Change-events, and Social Comparison among Student-Athletes

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Abstract. Competitive anxiety is a pivotal inhibitor of student-athletes achievement. However, not many theoretical models which incorporate perceptual factors of self, events in the environment, and other people in an integrative manner in explaining the anxiety. This study aims to investigate the role of self-change awareness, response to change-events, and social comparison in predicting the dimensions of competitive anxiety in student-athletes actively engaging in sports games and academics. The dimensions of the anxiety are somatic anxiety, worry, and concentration disruption. The design of this study is predictive correlational. Multiple linear regression analysis was done to analyze the data. A total of 83 student-athletes (55 males, 28 females; mean of age = 20.45 years old, standard deviation of age = 1.50 years) who actively competed in sports, domiciled in Greater Area of Jakarta, Indonesia were recruited through purposive sampling technique. The result showed that the three predictors can predict two out of three dimensions of competitive anxiety. The results of this study have implications in the field of sport psychology to prevent competitive anxiety among student-athletes.

1. Introduction

The number of exercises an athlete usually does is very useful to measure how far his or her performance would show. Through regular exercises, an athlete’s skills would be enhanced. However, it frequently happened that on the day of the game, they could not show their best performance without a clear reason. The factor that could contribute to this failed expectation for the best performance as shown during the regular exercises is anxiety.

Anxiety is a phenomenon that could occur in the world of sports, especially if an athlete is engaged in a sport game, and he or she must deal with a tense situation. Lazarus, as cited in [1], defined anxiety as the negatively emotional reaction to a stern and intimidating situation. Anxiety as the subjective feeling based on fear and the increased psychological arousal. Anxiety is generated when an individual doubts his ability to cope with a stressful situation, while the stress itself is an emotional tension which later influences both physiological and psychological processes [2].

A number of studies have been conducted to study the anxiety formation in a competition, commonly called as competitive anxiety. A study revealed that the difference between a successful and unsuccessful athlete might be due to his or her cognitive interpretation in an apprehensive situation [3]. The study is meaningful as anxiety could influence the overall psychological stability of an athlete, and thus, it could bring a huge impact on his or her achievement.
Many studies on competitive anxiety are based on two components, which are somatic anxiety and cognitive anxiety. A measurement of competitive anxiety has been produced based on the two anxiety components [4]. The measurement consists of three aspects, namely somatic, worry, and concentration disruption. The somatic aspect refers to a variety of autonomic arousal indexes centered on the belly and muscles. Worry is indicated by anxiety over underperformance and the corresponding negative consequences. Concentration disruption indicates a difficulty in focusing on the relevant task instruction. Worry and concentration disruption are the two aspects that describe cognitive anxiety.

It is known that student-athletes (students who actively participate in both academic and non-academic life, which is sport) have a greater possibility of showing a high anxiety level due to the academic and athletic demands [5]. The two demands are so critical to be balanced that they require changes to deal with. The changes on the individuals could happen either internally or externally. The self-change occurring in an individual could slowly alter his or her perception so he or she wrongly thinks that the changes occur in the surrounding environment. In fact, they themselves who change, and the environment does not. Because the self-changes are often unnoticeable, in stages, and less prominent, an individual often does not realize his or her self-changes in a way that he or she perceives the world as seen through their eyes, and not from the way it is [6]. For example, a student-athlete could get worried due to the assumption that the game opponents get stronger (or the competition gets tougher). In fact, he or she has decreased in the game ability due to the extra burdens on their part. Therefore, the first hypothesis (H1) of this present study was “the less a person is aware of his or her self-change, the more likely he or she undergoes competitive anxiety (in which it is attributed to the surrounding tougher competition).”

Not only self-change but also a number of events in the athletic journey of an individual could contribute to make him or her worried. When athletes have events that change their athletic condition (hereby called “change-events”), they might decide to ignore the change, or react to it by producing their own subjective change. The change is represented in varied dimensions of athletic participation, including emotional, cognitive, physiological, relational and behavioral dimensions [7]. Compared to the subtle self-change, change-events are more obvious, objective, noticeable, and measurable to identify. Change-events are more likely to contribute to the athlete’s competitive anxiety, as he or she anticipates and monitors self-responses to events that change his or her self in their life both as a student and an athlete. Therefore, the second hypothesis (H2) of this present study was “the more intensive a person gives responses to change-events, the more likely he or she has competitive anxiety.”

Self-change awareness, and responses as well as perceptions to change-events, are the two phenomena that have an inherent factor in an individual’s self. The self-change awareness had been related to a person’s attitude to his or her self-perception [8]. The change-event also relates to a person’s attitude to events that bring changes to his or her athletic career. The attitude cannot be separated from an individual’s view of his or her surroundings. Dunning, as cited in [9], stated that every time a person deals with information about others, what others can and cannot do, or what others have achieved and failed, he or she would relate the information to themselves. The comparison between self and others, commonly called as social comparisons, is the basic psychological mechanism that influences assessment, experiences, and individual behavior [9]. If an athlete makes a social comparison with others who are better than himself, regarding achievement, time, social status, career aspirations, and so on, it is no wonder that he or she would have competitive anxiety. Therefore, the third hypothesis (H3) of this present study was “the more a person conducts an upward social comparison, the more likely he or she has competitive anxiety.”

2. Methods

2.1. Design and Participants
The design of this study is predictive correlational design. The sampling method used in the study was the purposive sampling. In this study, participants chosen were males and females with the
characteristics of active student participants from a minimum of third semesters to the final year, and being active in a competitive sport activity.

2.2. Materials and Procedure
The data collection was conducted by distributing psychological scales in a questionnaire in Indonesian. To measure the dependent variable of competitive anxiety, the author adapted the measurement instrument of Sport Anxiety Scale-2 (SAS-2) developed by [4]. The measurement consists of 15 items describing the condition before or during the game, which are divided into three dimensions, namely somatic anxiety, worry, and concentration disruption. The introductory statement of this scale is “*Many student-athletes get tense or nervous before or during games, meets or matches. This happens even to pro athletes. Please read each question. Then, circle the number that says how you USUALLY feel before or while you compete in sports. There are no right or wrong answers. Please be as truthful as you can. Before or while I compete in sports: ...*” [4] (p 501). The examples of items are “I feel tense in my stomach”, “My muscles feel shaky” (Somatic); “I worry that I will mess up during the game”; “I have a hard time focusing on what my coach tells me to do” (Worry); “It is hard to concentrate on the game”; “It is hard for me to focus on what I am supposed to do” (Concentration disruption). Response options of this measurement are as follows: (1) “Not at all”; (2) “A little bit”; (3) “Pretty much”; and (4) “Very much”. Each item of the three dimensions has the Corrected Item-Total Correlations (CIT) greater than 0.25, so that the items are considered valid (having sound item validities) and there is no eliminated item. The dimension of Somatic Anxiety has the Cronbach’s Alpha value of 0.781 with the minimum CIT value of 0.448 and the maximum CIT value of 0.686. The dimension of Worry has the Cronbach’s Alpha value of 0.822 with the minimum CIT value of 0.473 and the maximum CIT value of 0.716. The dimension of Concentration Disruption has the Cronbach’s Alpha value of 0.803 with the minimum CIT value of 0.457 and the maximum CIT value of 0.652. The Cronbach’s Alpha with the value index greater than 0.6 measurement scale is considered reliable.

For the first independent variable, the self-change awareness, the measurement used is the adapted version of Self-Awareness Scale developed by [10]. The measurement consists of 54 items grouped in five factors, i.e. Self-critical, Insight, Reflection, Feedback, and Performance Indifference. All items are presented in the context of the question “*For the last six months, to what extent have you been aware of the changes in ...?*” Examples of the items: “your reflection on your performance standards after a failure” (Self-critical), “your own values and beliefs” (Insight), “the ways your thoughts and emotions influence your behaviour” (Reflection), “your enjoyment in participating in activities that are challenging” (Feedback), “your difficult experience in criticizing your own performance” (Performance indifference) [10] (p 16-17). The items used six response options, as follows: “Strongly unaware” (score of 1), “Unaware” (score of 2); “Somewhat unaware” (score of 3); “Somewhat aware” (score of 4); “Aware” (score of 5); “Strongly aware” (score of 6). In the measurement of Self-Change awareness, each item of the six dimensions has the Corrected Item-Total Correlations greater than 0.25, so there is no eliminated item. The test results of validity and reliability show the Cronbach’s Alpha value of 0.963 with the minimum CIT value of 0.305, and the maximum CIT value of 0.719. The Cronbach’s Alpha has the value index greater than 0.6, so that the measurement is considered reliable.

For the second independent variables, which is the response and perception to change-event, the measurement used is the Change-event Inventory developed by [7] consisting of two dimensions. For the first dimension, the Response includes indicators as follows: emotional reaction, cognitive reaction, and coping. The second dimension, which is Perception, includes indicators as follows: significance, emotional severity, and control. The introductory statement of this scale is “*Change events are events which student-athletes encounter in their sporting career and need attention and consideration ... Please indicate first to which change-event you are referring to. Then, please answer the following questions based on the related scale. Most importantly, try to answer from your point of view at the time of the event*” [7] (p 402-405). The examples of items are as follows: “How significant was this event in your career, at the time it happened?”, “How positive or negative was this event in your career, at the time it happened?”, “What emotions did you experience when this event first appeared?”, “How
concerned were you when this event first appeared”, “How much control did you feel that you had over this event, at the time it happened?”, and “How motivated were you to make the necessary adjustments to effectively cope with this event?”. The questions can be answered by choosing a response item, ranging from “Not at all” (score of 1) to “Very much” (score of 5). There are totally 28 items on the two dimensions. The dimension of Response to Change-event generates the Cronbach’s alpha value of 0.858 with the minimum CIT value of 0.343, and the maximum CIT value of 0.693 after eliminating the item number 20. The dimension of Perception to change-event has the Cronbach’s alpha value of 0.829 with the minimum CIT value of 0.407 and the maximum CIT value of 0.407. Every item has the Corrected Item-Total Correlations greater than 0.25, so there is no need for eliminating any items. The Cronbach’s alpha has the index’s value greater than 0.6, so the scale is psychometrically reliable.

For the third independent variable, which is the social comparison, the instrument adapted is the scale developed by [11] which has been adapted to measure the social comparison under the sport context. The measurement covers 11 aspects. The example is as follows: Aspect 1. Sport Environment; Aspect 2. Physical Safety. The questions can be answered by choosing an option ranging from “I always compare myself with others who are worse in this aspect” (score of 1) to “I always compare myself with others who are better in this aspect” (score of 7). On the social comparison items, each item has the Corrected Item-Total Correlation greater than 0.25, so there is no need for eliminated item. The test results of validity and reliability show the Cronbach’s Alpha value of 0.875 with the minimum CIT value of 0.481, and the maximum CIT value of 0.716. The Cronbach’s Alpha has the value index greater than 0.6, so the measurement is considered reliable.

3. Results and Discussion
The study, lasting for two weeks and four day, obtained data from 83 participants (55 males and 28 females; mean of age = 20.45 years old, standard deviation of age = 1.50 years), domiciled in Greater area of Jakarta (Jakarta, Bogor, Tangerang, Bekasi), Indonesia. The majority of participants (71%) were student-athletes of the sport of futsal, basketball, floorball, and softball. Multiple linear regression analyses showed that the three predictors as a whole can predict 2 out of 3 dimensions of competitive anxiety (see Figure 1). The hypotheses (H1, H2, and H3) were partially supported by the empirical data.

As a whole, the self-change awareness, response and perception to change-event, and social comparison can not predict the Somatic dimension of Competitive Anxiety ($F = 1.214; df(3, 82); p = 0.310, p > 0.05$). The self-change awareness, response and perception to change-event, and social comparison as a whole do not play roles in predicting the Somatic dimension of Competitive Anxiety. The self-change awareness is the capacity to focus inside and study oneself for any change of his or her attitude toward his or her view [10]. Meanwhile, response and perception to change-event refer to the affective reaction and behavior with interpretation and impact estimation within the event that generates changes to the existing situation of the individual’s athletic career [7]. The social comparison refers to the idea that we study our own ability and attitude by comparing them with others [12].

The above three variables do not play a direct role in the variable of Somatic Anxiety. This is due to the fact that Somatic Anxiety is indicated by the Competitive Anxiety occurring in the physiological and physical changes on the student-athletes, such as increased sweating, breathing difficulty, increased heart rate, changing brain waves, high blood pressure, increased urination, nausea in the stomach, less saliva in the mouth, and muscle tension. Those symptoms show the working functions of the sympathetic nervous system. The sympathetic nervous system is stimulated by the perception of fear in the cerebral cortex that encourages the stress response [5]. In the process of Somatic Anxiety, the three independent variables above would influence the cognitive aspect to produce the perception of fear, which later stimulates the sympathetic nervous system to generate Somatic Anxiety. Hence, self-change awareness, response and perception to change-event, and social comparison might play a role indirectly in the
somatic function of a student-athlete. Further research is needed to investigate the neuropsychological path that links the three independent variables to somatic-competitive anxiety on student-athletes.

The self-change awareness, response and perception to change-event, and social comparison as a whole can predict the Worry dimension \( (F = 3.479; df(3, 82); p = 0.02, p < 0.05; R^2 = 11.7\%) \). However, in details, the self-change awareness \( (\beta = -0.150; p = 0.190, p > 0.05) \), response and perception to change-event \( (\beta = -0.053; p = 0.646, p > 0.05) \) can not predict the worry dimension of competitive anxiety. This is due to the reason that self-change awareness, response and perception to change-event are more internal or personal in oneself. Worry in the sport world is a social phenomenon because the student-athletes would feel worried if seen underperformed by their spectators, fans, coach, club, and even public in their country. This is supported by an empirical research that found that the worry dimension could be significantly predicted by one dimension of Social problem-solving, namely Problem Orientation, in which social problem solving refers to that occurring in the environment [13]. Therefore, it is not surprising that the further investigation of this present study found that social comparison \( (\beta = -0.261; p = 0.019, p < 0.05) \) can predict the worry dimension of competitive anxiety in a negative direction. This means that the more a person makes an upward social comparison, the less he or she has competitive anxiety.

![Figure 1. Multiple linear regression results predicting competitive anxiety (SE = Self-change awareness; CE = Response to change-event; SC = social comparison; ≠ no predictive-relationship)](image)

**Figure 1.** Multiple linear regression results predicting competitive anxiety (SE = Self-change awareness; CE = Response to change-event; SC = social comparison; ≠ no predictive-relationship)
In the theory of social comparison process promoted successfully by Festinger, as cited in [9], he added the ability aspect in his theory and highlighted how an individual uses others to fulfill his own needs to acquire information about himself. The same case applies to individuals with a high score on the problem-solving dimension, where they carefully and systematically collects all facts and information about a problem, as well as anything else [13]. It can be concluded that the more an individual compares himself with others, the more information he would obtain for himself. With all of the gained information, the individual has a good problem orientation, and as a result, his worry gets lower.

**The self-change awareness, response and perception to change-event, and social comparison as a whole can predict the dimension of Concentration Disruption** ($F = 4.909; \, df(3, 82), \, p = 0.004, \, p < 0.05, \, R^2 = 15.7\%$). **However, in details, the self-change awareness ($\beta = -0.081; \, p = 0.467, \, p > 0.05$) can not predict the concentration disruption dimension of competitive anxiety.** The self-change awareness tends to occur slowly, and unnoticeably, so it is more likely to happen internally, and the others are not able to realize the changes. On the other hand, the dimension of Concentration disruption is more likely to be predicted by thoughts and actions that involve our surrounding environment [14], just as in the situation when the student-athletes try to establish an impression before their audience in a sport game, or on their game imagination, commonly called as self-presentation. In other words, the study tries to generate an interpretation that concentration difficulties occur contextually, and are not based on either awareness or unawareness of self-change which is more general, abstract, and not contextual/situational in a sport game.

**Response and perception to change-event ($\beta = -0.250; \, p = 0.028, \, p < 0.05$) and social comparison ($\beta = -0.216; \, p = 0.045, \, p < 0.05$) play roles in predicting the concentration disruption dimension of competitive anxiety.** The change-event has some connection with the surrounding environment (e.g. “How positive or negative was this event perceived by other people, at the time it happened?”). In dealing with change, we do not only think about the risks that could happen to ourselves but are also concerned with what others view about the event that happens to us. This makes us think that what others think matters. When comparing self with others, we do not only see the difference between ourselves and others but also what others think about ourselves. This is because we try to maintain a good image within ourselves that others would see. These evaluative behaviors allow the variables like competitive anxiety.

4. **Conclusion and suggestion**

Based on the study results and analysis, it can be concluded that (1) the self-change awareness does not play a role in predicting the three dimensions of competitive anxiety (somatic, worry and concentration disruption); (2) response to change-event plays a role in predicting one out of three dimensions of competitive anxiety (concentration disruption); (3) social comparison plays a role in predicting two out of three dimensions of competitive anxiety (worry and concentration disruption); (4) the self-change awareness, response and perception to change-event, and social comparison as a whole play roles in predicting two out of three dimensions of competitive anxiety (worry and concentration disruption).

Based on this present study’s results, competitive anxiety is more likely to be a social phenomenon rather than personal. Therefore, we might need not to take too much account of clinical-micro level intervention; while socio-psychological (meso/macro level) intervention needs to be more encouraged at the group and community level to reduce the competitive anxiety on student-athletes.

**References**

[1] Gillham E and Gillham A D 2014 Identifying athletes’ sources of competitive state anxiety *J. Sport Behav.* 37 37-55

[2] Setyobroto S 2002 *Psikologi Olahraga* Jakarta: Unit Percetakan Universitas Negeri Jakarta
[3] Humara M 1999 The relationship between anxiety and performance: a cognitive-behavioral perspective Athletic Insight: The Online Journal of Sport Psychology 1 1-14
[4] Smith R E, Smoll F L, Cumming S P and Grossbard J R 2006 Measurement of Multidimensional Sport Performance Anxiety in Children and Adults: The Sport Anxiety Scale-2 J. Sport Exerc. Psychol. 28 470-501
[5] Parnabas V A, Mahamood Y and Parnabas J 2013 The relationship between cognitive and somatic anxiety on performance of student-athletes of Universiti Malaysia Perlis (UNIMAP) International Journal of Human Movement and Sports Sciences 1 61-66
[6] Eibach R P, Libby L K and Gilovich T D 2003 When change in the self is mistaken for change in the world J. Pers. Soc. Psychol 84 917-931
[7] Samuel R D and Tenenbaum G 2011 How do athletes perceive and respond to change-events: An exploratory measurement tool Psycho. Sport Exerc 12 392-406
[8] Eibach R P, Libby L K and Ehrlinger J 2012 Unrecognized changes in the self contribute to exaggerated judgments of external decline Basic Appl. Soc. Psy. 34 193-203
[9] Corcoran K, Crusius J and Mussweiler T 2011 Social comparison: motives, standards, and mechanisms Theories in Social Psychology, ed D Chadee (Oxford, UK: Wiley-Blackwell) p 119-139
[10] Ashley G C and Reiter-Palmon R 2012 Self-awareness and the evolution of leaders: the need for a better measure of self-awareness Journal of Behavioral & Applied Management 14 2-17
[11] Geurts S A, Buunk B P and Schaufeli W B 1994 Health complaints, social comparisons, and absenteeism Work & Stress: An International Journal of Work, Health & Organisations 8 220-234
[12] Aronson E, Wilson T D and Akert R M 2013 Social Psychology Essex, UK: Pearson Education Limited
[13] Belzer K D, D’Zurilla T J and Maydeu O A 2002 Social problem solving and trait anxiety as predictors of worry in a college student population Pers. Individ. Dif. 33 573-585
[14] Podlog L, Lochbaum M, Kleinert J, Dimmock J, Newton M and Schulte S 2012 The relationship between self-presentation concerns and pre-game affect among adolescent football players Journal of Sport & Health Science 2 168-175