

Meta-Analysis of Self-Efficacy and Anxiety Correlation

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Abstract

Anxiety is a factor that almost everyone experiences. This makes anxiety an interesting topic to research. Various studies related to anxiety have been carried out. One of the factors believed to affect anxiety is self-efficacy. This study aims to strengthen statistically with a meta-analytic method regarding the relationship between self-efficacy and anxiety. This study involved 20 research journals on the correlation between Self-efficacy and Anxiety. The statistical test found that self-efficacy and anxiety had a low effect size correlation ($r = -0.274958$), with high heterogeneity ($I^2 = 96.9\%$) and publication bias ($E = 0.4603$). Meta-analytic results show that self-efficacy does not play a significant role in anxiety.

Keywords

self-efficacy; anxiety; meta-analysis



I. Introduction

One of the anxieties that are common and easily found is anxiety in public speaking, or better known as public speaking anxiety (PSA). PSA is a derivative of social anxiety that is experienced by many people in the US with an estimated 11% to 30% of the US population (Niles, Craske, Lieberman, Hur, 2015). The estimated prevalence of PSA ranges from 20% to 80% of the population (England, Herbert, Forman, Rabin, Championscio, and Goldstein, 2012). A national survey conducted by Ruscio (in England, et al, 2012) in 2008 showed that PSA is a general social fear that will be experienced by individuals for life with a figure of 21% of the sample.

Anxiety is an emotional state and aversive motivation that occurs in situations that threaten the individual. Anxiety is divided into state anxiety and trait anxiety. State anxiety is a level of anxiety individuals have about something in a short time (seconds, minutes, and hours). State anxiety occurs because it is caused by several things, namely negative experiences at social events, and is a cognitive aspect or state performance aspect (current level of anxiety) determined interactively by the nature or test of anxiety and by situational stress (Fajkowsaka, 2018). Anxiety can be conceptualized as a condition in which individuals do not get a clear pattern to interpret an event or object that threatens them (Eysenck, et al, 2007). When individuals are in a state of anxiety, individuals will feel worried about threats to their goals and try to develop effective strategies to reduce the anxiety in achieving their goals (Eysenck, et al, 2007). Anxiety appears related to low self-esteem, fear of failure, and concerns about individual performance (Kankam and Boateng, 2016). Every day the individual will experience at least some level of anxiety. Anxiety that arises is generally triggered by social interactions, changes, performance evaluations, and uncertainty about what will happen (Brooks, et al, 2016).

Anxiety plays an important role in terms of cognitive and performance so it is often associated with adverse effects on cognitive task performance (Eysenck, et al, 2007). Anxiety on performance will generally be experienced by individuals when they are about to carry out activities or activities for the first time, such as public speaking, job interviews,

and even on a first date (Brooks, et al, 2016). It becomes important for individuals to overcome the anxiety they experience to achieve the goals that have been set.

According to Yani in Syardiansyah (2020) performance is a result of work achieved by a person in carrying out the tasks assigned to him based on skill, experience and sincerity as well as time. Performance management systems are set to aid organizations in order to design and organize what they should do, deliver precise and proper feedforward and feedback on how they are doing. And inspire remedial behavior as and when needed (Anthony & Govindarajan in Mansaray, 2020).

One of the factors that can affect an individual's level of anxiety is an individual's self-efficacy. Self-efficacy is defined as an individual's assessment of his ability to carry out an activity to achieve a certain goal (Zulkosky, 2009). In the case of overcoming anxiety in individuals, it will be different from each other, this depends on the individual's assessment of their respective abilities, or what is referred to as self-efficacy (Sarafino in Paradewari, 2017). Individuals with high self-efficacy can plan and complete tasks well (Ahmad & Safaria, 2013). Self-efficacy is also associated with motivation and behavioral changes to increase the influence of regulation and psychosocial functioning on individuals (Iancu, Ehud, Itzhak, 2015). Individuals with high self-efficacy can plan and complete tasks well (Ahmad & Safaria, 2013). Self-efficacy is also associated with motivation and behavioral changes to increase the influence of regulation and psychosocial functioning on individuals (Iancu, et al. 2015).

Low self-efficacy is associated with high levels of depression, anxiety, stress, and feelings of helplessness (Zulkosky, 2009). However, self-efficacy excessively false can cause dysfunction, while dysfunction of self-efficacy results in individuals overestimating their ability to complete a task which leads to failure, or underestimating their abilities which leads to missed opportunities (Razavi, Shahrabi, and Siamian, 2017). Several studies have shown that self-efficacy is significantly correlated with anxious individuals (Jain and Dowson, 2009; Ekizoglu and Ozcinar, 2010). The results showed a negative correlation, where the higher the self-efficacy individual's level, the lower the level of anxiety individual's.

The meta-analysis method is the collection of data from various studies that have been carried out using narrative compilation. The main objective of the meta-analysis method is to determine the effect size by synthesizing data from various existing studies. Effect size in the meta-analysis method serves as a measure of the strength and direction of the relationship between variables (Cogaltay and Karadag, 2015).

II. Research Method

2.1 Literature Study

A literature study was conducted to collect data that meet the research requirements. The research was conducted using three journal data sources, "Google Scholar", "Science-Direct", and "Emerald Insight". Researchers examined research journals involving self-efficacy and anxiety. The keywords used are "Self-efficacy Anxiety", "Self-efficacy and Anxiety", "Relationship Self-efficacy and Anxiety", "Correlation Self-efficacy and Anxiety". Keywords are used independently or in combination to maximize the range of the literature search.

Screening of research journals was carried out with the following steps: (1) evaluating the research title, whether it contained two research variables or not, (2) examining the research abstract. Literature with suitable abstracts was collected for further screening according to criteria inclusion and exclusion.

2.2 Inclusion and Exclusion

Literature obtained is then selected based on criteria inclusion. Eligible studies are studies that (1) have gone through a peer-review process, (2) were published during 2009-2019, (3) are written in English, (4) there are correlation coefficients (r) between each dimension, self-efficacy, and anxiety, (5) there is information on the number of samples (n) and participant characteristics. Incomplete data will be excluded from data analysis, (6) using the same or similar measuring instruments to each other.

2.3 Data Processing

Data is processed using the method meta-analysis. According to Hedges (1992), meta-analysis is a statistical method for combining the results of independent empirical research studies. The current meta-analysis using the Hedges-Olkin method resulted in combined correlation values, inconsistency (I^2), and publication bias. Literature obtained are summarized based on specific information provided such as the name of the author (including a year of publication), country, several samples, the average age of the sample, scale Self-efficacy used, scale Anxiety is used, and the correlation coefficient (r) Self-efficacy and anxiety.

The data were processed using statistical software Stats-Direct 3.0 version free trial. The data entered are the name of the author and the year of publication, the correlation coefficient (r) between Self-efficacy and Anxiety, and the number of samples involved. A model was a random effect used with a 95% CI, given that not every study has the same effect size. Effect size correlation can be seen from the random Hedges-Olkin correlation. The combined correlation is considered small if < 0.3 , medium if $0.3 < r < 0.49$ and high if $r > 0.5$.

Study heterogeneity was evaluated from the Cochran Q coefficient which was calculated as the weighted sum of the differences in squares between individual study effects and the combined effects across studies. Publication bias occurs when publication depends not only on the quality of the study but also on the hypothesis being tested, the significance and direction of the detected effect. This is indicated by the insignificant Egger bias value.

III. Result and Discussion

3.1 Result

The current study involved 20 studies, 20 eligible correlation coefficients (r), and a total of 7,145 participants. The 20 pieces of kinds of literature were obtained based on the results of the literature screening of 245 literature studies. The existing 245 literature studies were then screened again based on abstracts, and 33 literature studies were obtained. Of the 33 existing literature studies, screening was carried out to find literature studies that had an r -value of 20 kinds of literature.

The literature obtained from various countries in Asia, Europe, and America was published between 2011 and 2019. The sample size also varied from 14 to 1,066.

No	Authors	Year	N	r	Country	Self-efficacy	Anxiety	Age
1.	Ekizoglu, N and Ozcinar, Z	2010	590	0.20	Cyprus	ISES	IAS	-
2	Qudsyi, H and Putri, M. I	2016	102	0.200	Indonesia	MJSES	AONE	12-13
3	Mede, E and Karairmak, O	2017	205	-0.62	Turkey	SES	FLCAS	-
4	Vancampont, D, et al	2018	48	0.11	Uganda	ESES	BSI-18	M: 33
5	Achim, N and Kassim, A. A	2015	55	0.329	Malaysia	CSRS	CARS	-

6	Tahmassian, K and Moghadam, N. J	2011	549	-0.277	Tehran	SEQ-C	STAI	M: 16
7	Nicholls, A. R, et al	2010	307	-0.17	UK	CSES	CSAI-2R	M: 21
8	Ardhaseva, Y, et al	2018	252	-0.29	US	SSE	MSAQ	12-14
9	Pero, R. D, et al	2013	14	-0.827	Italy	SEM-S	STAI-Y	M: 26
10	Jameson, M. M and Fusco, B. R	2014	226	-0.20	US	MSES	AMAS	18-24
11	Akin, A. and Kurbanoglu, I. N.	2011	372	-0.49	Turkey	SES	R-MARS	M: 20
12	Hauser, R. et al	2012	205	-0.318	US	DBSE	CAS	M: 22
13	Dull, R. B. et al	2015	521	-0.331	US	SES	AS	M: 20
14	Rezaei, M. R. and Miandashti, N. Z	2013	604	-0.232	Iran	RSES	RAS	M: 27
15	Besharat, M. A. and Pourbolool, S.	2011	246	-0.37	Iran	SES	MCAQ	M: 23
16	Perepizczka, M. et al	2011	1.066	-0.679	US	SELS	STARS	M: 34
17	Simsek, A	2011	845	-0.53	Turkey	SES	COMPAS	-
18	Kurbanoglu, N. I. and Akin, A.	2010	395	-0.23	Turkey	SES	CLAI	M: 21
19	Zare, H. et al	2011	323	-0.21	Iran	SELS	STARS	-
20	Mazaheri, E. et al	2011	220	-0.398	Iran	SEQ-C	CAS	10-11
20	Mazaheri, E. et al	2011	220	-0.398	Iran	SEQ-CCAS	10-11	

Self-Efficacy measurement: ISES: Internet Self-Efficacy Scale; MJSES: Morgan-Jinks Student Efficacy; SES: Self-Efficacy Scale; ESES: Exercise Self-Efficacy Scale; CSRS: Computer Self-Efficacy Rating Scale; SEQ-C: Self-Efficacy Questionnaire for Children; CSES: The Coping Self-Efficacy Scale; SSE: Science Self-Efficacy; SEM-S: The Self-Efficacy for Physical Abilities Questionnaire; MSES: Mathematics Self-Efficacy Scale; DBSE: database-specific Self-Efficacy; RSES: Research Self-Efficacy Scale; SSSES: Sport Self-Efficacy Scale; SELS: The Self-Efficacy to Learn Statistic

Anxiety measurement: IAS: Internet Anxiety Scale; AONE: Anxiety of National Examination; FLCAS: Foreign Language Classroom Anxiety Scale; BSI-18: Brief Symptoms Inventory-18; CARS: Computer Anxiety Rating Scale; STAI: Spielberger's State-Trait Anxiety Inventory; CSAI-2R: Competition State Anxiety Inventory-2; MSAQ: Mathematics Self-efficacy and Anxiety Questionnaire; STAI-Y: State-Trait Anxiety Inventory form YI; AMAS: Abbreviated Math Anxiety Scale; R-MARS: The Revised Mathematics Anxiety Rating Scale; CAS: Computer Anxiety Scale; AS: Anxiety Scale; RAS: Research Anxiety Scale; MCAQ: Multidimensional Competitive Anxiety Questionnaire; STARS: The Statistics Anxiety Rating Scale; COMPAS: Computer Anxiety Scale; CLAI: Chemistry Laboratory Anxiety Scale; CAS: Catell's Anxiety Scale

The results obtained from data processing are Pooled Correlation Coefficient using Random Effect Size Model with Confidence Interval of 95%, Inconsistency (I²), Heterogeneity (Cochran Q), and Egger Publication Bias.

From the results of StatsDirect processing, the Pooled Correlation Coefficient is -0.274958, the value is I²96.9%, and the value is Egger Publication Bias 0.4603.

3.2 Discussion

The result of the Pooled Correlation Coefficient between Self-efficacy and Anxiety is -0.274958, which means that Self-efficacy and Anxiety have value effect size a small. A small effect size indicates that self-efficacy and anxiety have a low correlation. This result contrasts with research conducted by Qudsyi and Putri (2016) which gives the result that self-efficacy has a strong and significant correlation with anxiety experienced by individuals. Another contrast research conducted by Soysa and Wilcomb (2013) showed that self-efficacy is a significant factor that can predict levels of anxiety in individuals.

The PSA as one of the causes of anxiety is believed to have the strongest correlation with self-efficacy, as expressed by Iancu, et al (2015) that self-efficacy is related to motivation and behavior change to improve psychosocial functioning.

In this study, the low correlation between self-efficacy and anxiety is believed to be influenced by other factors such as gender, biological factors, and population. Various studies have shown that women have higher levels of anxiety than men (Nutt, et al (2008); Mohammadyari, 2012). Anxiety is not only experienced by adults but children and adolescents can experience anxiety. Nutt, Miguel, and Davies (2008) stated that adolescents show a pattern of anxiety wider than children and adults, especially in avoiding social situations.

Another factor that can affect the low correlation between self-efficacy and anxiety is the population of a country. The prevalence of anxiety in various countries ranges from 3.9 to 13.7% with a median of 6.65%. The prevalence at one year ranged from 0.6 (Spain) to 7.9% (Norway) with a median of 2.0%. In addition, other factors are biological, anxiety is influenced by serotonin, norepinephrine, and GABA which are the three main neurotransmitters (Shah and Han, 2015).

The heterogeneity factor can be considered as one of the factors influencing the low effect size. The research sources used in this study consist of various countries that have different social and cultural factors.

IV. Conclusion

A limitation in this study is the various types of variable measuring instruments used. In future research, it would be better to use a uniform measuring instrument, it is better to use one model research to specifically test the anxiety used, considering that anxiety has many models and is based on the existing conditions.

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