Innovations

Impact of Psychological Dynamics on Computation Performance of Short Distance Runners in Tirunesh Dibaba Sport Training Center

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Abstract
Introduction: *Various psychological dynamics affects performance in athletics competitions. However, less is known about theimpact of psychological dynamics on computation performance of short distance runners.* ***Objectives:*** *The study was initiated to assess the impact of psychological dynamics on computation performance of short distance runners in TiruneshDibaba sport Training center.* ***Methods:*** *Whole athletes in sprinting discipline (N=48), male (n=31) and female (n=17) have been used as a population for this study. We used census sampling techniques. The result collected by questionnaire from the target respondents tabulated and analyzed using Mean and standard deviations (SD) as a statistical tool by the researcher.* ***Results:*** *The multiple regression result shows that competitive performance is affectedby a couple of psychological dynamics such as levels of stress and anxiety with 35.1% of variance (R^2=.351), F=90.037, p < 0.05). Levels ofstress andanxiety moderately and positivelyimpactemotions of competitive performance with effect sizeis of (R^2= .351, F =, 90.037 with Beta value (B) =1885, p < 0.05.* ***Conclusion:****The present study established the association between psychological dynamics and competition pereformance among novice short distance runners. Psychological dynamics such as anxiety and stress are symptoms of low athletic performance indicating the mental health condition of athletes. These findings suggest the necessity to understand the impact of psychological dynamics on competition performance of short distance runners in the context of Ethiopia. Future research is required to inspect the mental health level of elit and novice athletes.*

Keywords: *Anxiety, Athletes, Stress, Short distance, Competitive performance*

Introduction

Every athlete experiences some level of anxiety as they prepare for and compete in an athleticevent(Juezan & Osorno, 2022). Evidences shows that the way an athlete manages their anxiety will often determine their level of success(Lopes Dos Santos et al., 2020). Similarly, theability to relax under pressure becomes the basis of self-control and an effective tool for anyathlete. Numerous athletes performed poorly in sportbecause they were unable to relax or maintain control(Brown et al., 2020). Athletes who control their behaviors,actions,andmentalstatehavetheadvantage.
Researchershavereportedthatover50ofconsultations among athletes at an Olympic festival were related to stress or anxiety problems(Reardon et al., 2019a).

Accordingto(Arvinen-barrow, 2017)highlevelsofanxietyduringcompetitionareharmful, worsening performance and even leading to dropout. Therefore, it's very important toknowthelevelofanxietyespeciallythecognitiveanxietyinordertotakeallnecessarypreparationtoreduceit.
Evidence shows that competitive sportanxiety is commonly found in young athletes. These can be seen in the field of competition bybeen late starter, or false start, loose of concentration and not following orders

from our officialwho comes from stress(Khalid, Z., Arooj, N., & Fatima, 2020).The current evidence would seem to indicate that predispositions to experience high orlow competitive anxiety symptoms may have a mediating influence upon the interpretation of state anxiety response as either facilitating or debilitating to performance(Nixdorf et al., 2016).

Most of the time without understanding the nature of sports; athlete's shows different kinds ofemotions in competition and even training venues. Emotions are psychological and physiologicalresponsesthatmayoccur automaticallyor inresponseto aspecific event(Edwards et al., 2018). Our good and bad results in athletics competition and even as a whole in sport depend up on ourfeelings (emotions) which appear at a time of competition.Accoeding to (Olafsen et al., 2018) success and failure in competitive games and sports depend on series of emotions. Uncertaintycausesanxietyin athletes and enables tem to feelworried,tensioned, stressedandfearpriororduringacompetition.Additionally, the significance of the event, level of competition and crowd contribute to athlete'sanxiety(Gong et al., 2019).

Too much stress can cause performance anxiety, which hurts your health and doesnot allow you to stand still relaxed, confident, and focused in competition. Every competitiveathlete experiences some stress; good and bad(Li et al., 2021). The stress may be positive and helpful or instillanxiety and apprehension. Stress may be either external with environmental source, or caused byinternalperceptions of theindividual. Studies in the field of executivefunctioning and cognitive performance have investigated the role ofdifferent factors in thevarianceofquantityandqualityofsuchprocesses.Oneofthemajorrelatedfactorsinthese studies, is the role of stress on cognitive and higher cortical functions(Wood et al., 2020). Pre competition stress cancause some athletes to not sleep well the night before competition. Some athletes can't eat themorning before a big competition. The pre-competitionstress may make them feel like they have to throw up(Brown et al., 2020). The stress model demonstrates whatfactors affect stress in sport. Stress can affect performance, the way an athlete responds to thestress can affect it, and the management of the stress can negatively or positively affect theathlete'sstresslevel(Pereira-Ferrero et al., 2019).

Contemporary sports are highlysupported by psychology not less than that of fitness and technics(Olmedilla et al., 2015).Apart from this, the Ethiopian National Sport Policy didn't give an attention on the regulation ofathletes or players behavior that may reflected in the field of sport because athletes might be under the influence of several psychological factors thataffect their performance positively or negatively during a competition or tournament. Thesefactors sometimes can be related to the personality structure of an athlete or might occur becauseof an external stimulus as well. In Ethiopia, the sport training centers do not have any curriculum ofsport psychology to support the physical training with mental training. Athletes in TiruneshDibaba sport sraining center are selected from differentparts of the country with varied social, economic, cultural, and values oftheir respective society. They come from schools, projects and kids training centers, with less access to a competition experience. Additionally, an independent life apart from family at the age of 15, 16 and 17brings some feeling to athletes in camp. However, the impact of these psychological dinamicssucha as stress and anxiety duringcompetition and training is less known. Also, considerations that the coaches, training centers, athletes and responsiblebodies have towards a mental training as we do for physical training is less documented. Therefore, this study assesses theimpact of psychological dynamics on computation performance of short distance runners in TiruneshDibaba sport training center.

Materials and Methods

Study setting

The researcher was selected an area of research study site is in Oromia region Arsi Zone TiyoWoredaTiruneshDibaba sport training center. The reason for selecting these training center arebecause of the closeness to the researcher home, regular work place and large number of athletesarepresent.

ResearchDesign

A research design would refer to plan and structure of investigation used to obtain evidence toanswer research questions. In this study, a quantitative research approach, cross-sectional design has been used based. Theresearcherwasemployedresearch method and design for the study using census sampling method of the survey study asthe total number of population has been considered for the title 'impact of psychological dynamics on computation performance of short distance runners inTiruneshDibaba sport training center'.The researcher is used qualitative data to acquire insightabout theissuein thestudyarea.The researcher employed descriptive survey method of the study because it provided the researcher with a deep description of present conditions about the problem under investigation. It alsofacilitatesto sketch conclusion based on thefacts obtained from respondents.

Samplesizeandpopulation

The sample of the population was only includes the sprinters of athlete TiruneshDibaba sporttraining centerwhich located in Tiyoworeda that consider 100 m ,200m,100 m hurdle and 110 mhurdle ,400m and 400m hurdle selected by inclusive or censes data sampling method. Thewholesprintertraineeshavebeenparticipatedinthestudy.Accordingly,48participantsselectedinthestudy .Thismeans31maleand17femaleareincludedinthesample.

Datacollectingprocedure

Thestudywouldbeusedprimarydatasourcesthattherespondentrespondstothequestionnaires.
Inordertogetconsistentinformationfortheresearchtheresearcheremployswrittenquestionnaire method to collect the reliable data from the participants or sprinters. The researcherused questionnaire for data gathering instruments because of it was easy to identify on the effectsof stress and anxiety on the emotions of competitive performance of Athlete TiruneshDibabasprinters. The questionnaire has been designed so as to be answered by individuals who wereincludedin thestudy.

Questionnaires

A self-developed data collection questionnaireasetofquestionaredevelopedfortherespondentinordertogathertheappropriate information about the issue under investigation. To do so, a Liker scale questionnaires was developed after intensive literature study and administered. The questionnaireareclosed ended typeof question for sprinters preparedin local language and translated to English.

Pilottest

Before the actual study was carried out, a pilot study was conducted on 10 respondents who werenot part of the sample group. The purpose of the pilot study was to assess the relevance of thequestionnaires designed to collect data for the study. The objective was also to check the clarityof the questionnaire items. Accordingly, 20 questionnaires were distributed to 10 athletes. On thebases of the feedback of the pilot study the researcher and expert's take some modification on thequestionnaire.

Dataanalysis

Data analysis are the process of scientifically searching, arranging and organizing the questionnaires and other materials that the researcher was collected for the intended study andusedthecomputerprogramsuchasstaticallypackageforsocialscience(SPSSversion20)andas the main tool of summarizing the data. Descriptive statistics types of data analysis has beenused to analyze the data. Describing and interpreting the data by considering the mean andstandarddeviation was used. Also, multiple regression was used to see the pridictors of competitive performance of short distance runners.

Ethical issue

During conducting the study, there searcher should guarantee the participants that the information

attained was utilized for only the purpose of the researchissue. Names of therespondents were not documented during the data gathering to ensure the confidentiality andprivacyof theinformantconsider. Informed consent was obtained from each participants and permission to the study was granted from the director training of the center.

Results

In the **Table 1**, participant's sexare representedby a frequency levelof which 31 respondents were males (64.6%), and female represented by a frequency levelof 17 respondentsare(35.4%),so majorityof participants aremale. The participant's age group are from 14-16 age categories representedby a frequency level of 5 respondents are (10.4%), from 17-19 age categories represented by afrequency level of 41 respondents which are (85.4%), and above 20 age categoriesrepresentedby a frequency level of 2 respondents are (4.2%) participate on the survey study, so majority oftheathletes areparticipated in between theageof17-19 categories.

Table1:DemographicInformation

Items	**Frequency**	**Percent**
Sex:		
Male	31	64.6
Female	17	35.4
Age:		
14-16	5	10.4
17-19	41	85.4
>20	2	4.2

Athletes in the training center have a problem of drained with competition emotions. Since themean and st. deviation ranges from (M=2.48-3.31 and SD=1.07-0.989) for all anxiety relatedresponses. They get nervous and anxious, unable to control their worry, annoyed and irritable,entertain feeling of afraid and couldn't stand still in a competitive situation during competitionthis means as a mean and standard deviation approaches to positive 1 the emotions of the athleteduring competition is higher. Differently some of the athletes unable to relax in a competitivesituation which indicated in the table above the (M=2.71 and SD=1.071).

Table2:*Psychological dynamics symptoms (Meanandstandarddeviation (SD))*

No	***Items***	***N***	***Mean***	***SD***
1	Feelingnervous,anxious, oronedge.	48	2.75	*.934*
2	Notbeing ableto stoporcontrolworrying	48	2.48	*.989*
3	Worryingtoomuchaboutdifferentthings	48	2.85	*.922*
4	Troublerelaxing	48	2.71	*1.071*
5	Beingsorestlessthatit'shardtositstill	48	2.79	*.849*
6	Becomingeasilyannoyedor irritable	48	3.31	*.926*
7	Feelingafraidasifsomethingawfulmighthappen	48	3.06	*.836*
	Average	*48*	*2.85*	*.932*

Keys:Asmeanvalue>3.5=nearlyeveryday, 2.5-3.5=several days, 2-2.5 overhalfaday

According to table 3 data the average Mean=1.83 and St. Deviation=0.874.The distribution ofmeanbetweenthe10performancerelatedquestionnaireisMean=1.58-2.13andSt.Deviation=0.676-0.898 respectively.

Table3:*Psychological dynamics impact on performance (Mean and Standard Dviation)*

No	*Performancerelateditems*	*N*	*Mean*	*SD*
1.	Haveyouevermissedyourcompetitionb/cofstress	48	1.85	*.875*
2.	Haveyouever missedcompetingb/coffalsestart?	48	1.58	*.767*
3.	Didthehurdlekicksyou as youlosephysicalenergy?	48	2.04	*.898*
4.	Did youevermissedyourrunninglane?	48	1.96	*.771*
5.	Haveyoueverstartedlatebeingstressed?	48	1.73	*.676*
6.	Did youfallbeforethefinishlinebecauseyouarenervous?	48	1.63	*.815*
7.	Have youeverbreakbetweencompetitions?	48	1.88	*.815*
8.	Doesyouranxietypushesyouforwardtoscoregoodtime?	48	1.83	*.808*
9.	Doyoufeelstrongafterthefinishline?	48	2.13	*.789*
10	Haveyoueverdisobeyedtherefereebeinginstress?	48	1.69	*.719*
	Average	*48*	*1.83*	*.874*

***Keys*:**mean value 2.0-3.0 ='not sure', 1.0-2.0='yes'and 0.5-1.0='no'

The multiple regression result in **Table 4** shows that emotions of competitive performance is affectedby level of stress and anxiety since it 35.1% of variance (R^2=.351), F=90.037, $p < 0.05$). Hence,this result is significantat the p= 0.05levelstress andanxiety moderately and positivelyimpacting motions of competitive performance. Emotions of competitive performance effect sizeis significant (R^2= .351, F =, 90.037,Beta value (B) =1885, $p < 0.05$.

Table4.*Statisticalsummaryoftheresult*

Variable	**B**	**Std.Error**	**p**
(Constant)	1.885	0.658	0.000
Stress	-0.291	0.033	0.000
Anxiety	0.311	0.037	
Note:R²=.351, F =90.037, *p <.05,			
Independentvariable: Stress and AnxietyDependentVariable:Psychologyofcompetitiveperformance R^2=Rsquare,B=BetaValue,F=F-test,P=SignficanceandStd.Error=Standarderror			

Discussion

The main aim of this study was to assesses the impact of psychological dynamics on computation performance of short distance runners in TiruneshDibaba sport training center. The results of our study shows that short distance runner athletes in the training center have a problem of drained with competition emotions with (M=2.48-3.31; SD=1.07-0.989) for all anxiety relatedresponses. They get nervous and anxious, unable to control their worry, annoyed and irritable,entertain feeling of afraid and couldn't stand still in a competitive situation during competition.Differently some of the athletes unable to relax in a competitivesituation which indicated in the table above the (M=2.71 and SD=1.07). Supporting the findings of our study, (Venhorst et al., 2018) stated that majority of endurance athletes who are worringtoo much about different things during competitions frequently showed a decreases in

performance. However, contrasting the findings of our study, low level of cognative anxiety and negative correlation between cognitive anxiety and sport performance was observed among Track and Field players (Parnabas et al., 2015).

A comparative study among team and individual sport athletes shows that a higher proportion of individual sport athletes reported anxiety or depression than team sport athletes (13% vs. 7%, $p < 0.01$) (Pluhar et al., 2019). Individual sport athletes were more likely than athletes in team sports to play their sports for goal-oriented reasons, as opposed to for fun (30% vs. 21%, $p < 0.05$) (Pluhar et al., 2019). Individual sport athletes are more likely to report anxiety and depression than team sport athletes. This might imply that the mental health benefits of participation in organized sports may vary between individual sport athletes and those playing team sports (Nixdorf et al., 2016; Pluhar et al., 2019). Athletes show different kind of physiological expressive actions that they are anxious, worry andirritated. Because of a lack in awareness about the nature and management of stress and anxietythey afraid of their own feeling that something bad may happen to them in competitions.

Anxiety should be considered in both ways, eitherdebilitative or asenhancer of performance. According to (Röthlin et al., 2020)the increased stress of competitions can cause athletes to react bothphysically and mentally in a manner which can negatively affect their performance abilities. Asstress and level of competition anxiety increases athletes lose physical energy and hard to standstill incompetition(Khalid, Z., Arooj, N., & Fatima, 2020).The results of our study depicts that almost all the value of mean of each responsesare between 3 and 4 which indicate that there is a strong relationship between the theathletesandthe levels of stress with an aggregate(M=3.51; and SD=1.123). Majority ofthe athlete are tensephysically and with a sweaty palms. Spend less time to think about life goals rather theyworry about different things that push them to have temper and low self- confidence. The resulthavinglow self-steamand self –confidence will result inno thrustingoneself andothers too.

Majority of the athletes in TiruneshDibaba sport training center are novice. Thus, they areexpected to lose their self-confidence during completion. According to (Reardon et al., 2019a)the amount of self-confidence that an individual possesses has been found to differ among eliteandnoviceathletes.In novice athletes it's common to frustrated and afraid of competition; hard to relax for them;annoyed and irritated with a simple and resolvable situations. It's true that stress will not totallyremovedfrom anyone'slife.The reason could be that most of the athlete in a training center do not want to share their issues and they lack confidencetogetanyhelpabouttheirsituations.Theykeepandstressedwiththeirsituation/problem/;theyarenotfeelingrelaxedtotelltofamilyorfriends.Becauseofthesefactors theydo notget a proper sleep which may inturn leads them to loss of physical energy and affects their pereformance.

The results of our study revailles that the impact of psychological dynamics on pereformance is high with (M=1.83; and SD=0.87). Substantiating the results of our study, (Boullosa et al., 2020) showed that anxiety have effect on athletes' performance before and during competition. This psychological dynamic is arised because majority of the athletes doesn't remain calm before they compete, as they fell nervous before they compete.

Incontrastsome othersknowingly or unknowingly they break through incredibly. Actuallyanxiety can play a role in making the athletes ready for their career. According to (Reardon et al., 2019b) anxiety is apsychological dynamics that affects the majority of athletes pereformance. Athletes withhigh level of anxiety is going to a high risk of underperformance.According to (Correia & Rosado, 2019)athletes with a high degree of trait anxiety have a higher level of state anxietyand consequently a higher risk of performing below his or her potential in the competition. Theseathletesare predisposedtoperceive a wide range of competitive circumstancesasthreateningand to respond to them with states of anxiety and a disproportionate magnitude with regard to thedemand(Bedir & Erhan, 2021).

The findings of our study scrutinizes that emotions of competitive performance is affectedby level of stress and anxiety with 35.1% of variance (R^2=.351), F=90.037, $p < 0.05$). Supporting the results of our study, evidences show that psychological dynamics such as stress andanxiety moderately and positivelyimpact motions of competitive performance(Nixdorf et al., 2016). More evidences witnessed

that (Davis et al., 2018) athletics performance isnot a solo product of physiology (stress and fitness) and biomechanical (technique factors) but psychological factors also play a crucial role in determiningperformance.

Conclussion

The present study established the association between psychological dynamics and competition pereformance among novice short distance runners. Psychological dynamics such as anxiety and stress are symptoms of low athletic performance indicating the mental health condition of athletes.This is because, most of the athletes are frightened, afraid, nervous, disinterested to be competent, worry about what will going to happen and changes in physiological aspects like breathing, heart beat and sweat on different parts of the body. These can drive them to make a mistake in competition venue and the effect of stress and anxiety. While these identified psychological dynamics might be used for improving mental health symptoms of novice project athletes, further research is needed to better understand and support the mental health for this target group. These findings suggest the necessity to understand the impact of psychological dynamics on competition performance of short distance runners in the context of Ethiopia. Future research is required to inspect the mental health level of elit and novice athletes.

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