

Coaches' Psychological Well-Being and Positive Thinking Skills

Abdulsalam Kahraman

Institute of Health Sciences, Mugla Sıtkı Kocman University

P.O. Box 48000, Kötekli, Mugla, Turkey

Tel: 90-544-477-7573 E-mail: a.selamkarharman@gmail.com

Veysel Temel (Corresponding author)

Faculty of Sports Sciences, Karamanoglu Mehmetbey University

P.O. Box 70100, Karaman, Turkey

Tel: 90-534-666-1111 E-mail: veyseltemel@kmu.edu.tr

Received: August 6, 2022 Accepted: September 27, 2022 Published: October 16, 2022

doi:10.5296/jei.v8i2.20150

URL: <https://doi.org/10.5296/jei.v8i2.20150>

Abstract

This study was conducted to examine the psychological well-being and positive thinking skills of the participants who participated in the inter-institutional volleyball tournament organized by the Karaman volleyball provincial representative in 2022. The population of the research consists of 288 participants (28 teams), 15 of whom are female and 273 are male. Positive Thinking Skills Scale Developed by Bekhet and Zauszniewski (2013) and adapted to the Turkish by Akin et al. (2015) for 145 of the participants and the short form of "Psychological Well-Being Scale" developed by Ryff (1989) and created by Akin et al. (2012) were applied. According to the results of the research, it can be concluded that she has psychological well-being levels below the mid-level and she has a positive thinking level above the mid- level. As a result of the correlation analysis, it was determined that there was a statistically low level of positive correlation at the $p < .01$ level ($r = .229$; $p < .01$) between the psychological well-being test scores and the positive thinking test scores. In terms of variables, it can be concluded that individuals who do team sports have higher levels of psychological well-being and positive thinking than those who do individual sports, and participants who do sports 4 days a week have higher levels of psychological well-being than those who do sports 3 and 1 days a week.

Keywords: Sports, Volleyball, Psychological well-being, Positive thinking

1. Introduction

Sports is an occupation followed by a large audience in the world (Türkmen, 2005). In addition, it is a phenomenon in which there is competition arising from situations such as winning, being successful and developing. This phenomenon is sometimes based on the ambition and emotion arising from the desire to be the best, and sometimes on the technical tactical work and logic specific to the sport type to be successful (Sel, 1993). This situation enabled psychologists, coaches, organizations related to sports and sports fans to strive to increase success in sports (Türkmen, 2005). Due to the increasing level of competition in sports in recent years, new research has been done for success and it has been seen that the psychological state in sports is as important for success as the physical state (Bakker et al., 1990; cited by Temel, 2018). Therefore, a great increase has been observed in the number of people who work on sports psychology in recent years (Erdoğan et al., 2014). According to Konter, inadequate psychological preparation can have more serious negative consequences than inadequate physical, technical and tactical preparation and lead to reduced performance. As it is known, many athletes and even teams can get unsuccessful results despite a very good physical, technical and tactical preparation process (Konter, 2006).

Psychological well-being is a totalitarian evaluation action regarding psychological functionalism, which consists of six different models for the individual's self and past, the limit of growth and development, the level of relationship with the individuals around him, the accuracy and meaning of his life, the dominance and freedom of his life and his environment (Ryff & Keyes, 1995). On the other hand, a person's positive perception of himself, being satisfied with himself even when he is aware of his limitations, developing reliable bonds with other people, shaping his environment to meet his own needs and desires, being able to produce actions without being attached to anyone, having the purpose and meaning of life, and being aware of what he can do, develop them. It also means work (Keyes, et al., 2002).

The concept of psychological well-being is that one has the strength to strive to establish a balance between life anxiety and individual and social interests. Well-being has also been defined as an effort to realize one's true potential rather than just being happy. Factors of psychological well-being were stated as positive relationships with others, autonomy, environmental dominance, life purpose, personal development and self-acceptance. If people feel good psychologically, they will be happy. This will naturally enable him to reflect his full potential to the business environment in a positive way (Ryff, 1989).

Positive thinking is an important psychological phenomenon that increases the enjoyment of life and increases the quality of life and motivation of the person. As a matter of fact, people accept positive thinking as an important factor that increases brain power in the world of sports, art and business. Positive thinking is a mentality that believes that people always have something good to do and improves their quality of life positively (McGrath, 2004). Because individuals who have positive thoughts and look at the events around them in a positive way gain more positive experiences than other people, it is observed that they are more successful

in their daily lives, it is seen that they are more energetic and feel happier in daily activities and social environment (Öğretir, 2004; cited by Tazegül, 2018).

In our age, as a result of technological developments, diseases increase in people due to inactivity, so physical activities gain great importance in terms of society (Yıldız, 2008). Physical education teachers, coaches and people involved in sports need to benefit greatly from many principles of their psychology in order to exhibit the behaviors they expect from athletes and to develop these behaviors (Baştuğ, 2002). It is thought that individuals in different occupational groups, being in the psychological situations expected from the athletes in the competition and encountering the psychological situations expected from them may be important for the development of sports. Accordingly, it is thought that the psychological status of individuals who work in different institutions and organizations and play volleyball may be important, and accordingly, in this study, it is aimed to examine the psychological well-being and positive thinking skills of the participants working in different institutions and participating in the inter-institutional volleyball tournament.

1.1 Purpose of the Research

The aim of this study is to examine the psychological well-being and positive thinking skills of the participants who participated in the inter-institutional volleyball tournament organized by the Karaman volleyball provincial representative in terms of various variables. For this purpose, answers to the following questions were sought:

- (1) Is there a significant relationship between the psychological well-being and positive thinking skills of the participants participating in the inter-institutional volleyball tournament?
- (2) Is there a significant difference according to the psychological well-being and positive thinking skills of the participants participating in the inter-institutional volleyball tournament, the type of sports and the frequency of doing sports per week?

2. Method

2.1 Model of the Research

In this study, the relational survey model, which determines the existence and degree of change between two or more variables (Karasar, 2009), was used as a model. In this study, the relational screening method was preferred since the psychological well-being and positive thinking skills of the participants were evaluated in terms of each other and various variables. The research includes a descriptive study. The analysis of the data in the research was carried out on the computer with the SPSS for Windows 21.00 statistical package program.

2.2 Research Group

The universe of the research is 288 participants (28 teams, 15 women and 273 men) in the Inter-Agency Volleyball Tournament organized by Karaman Volleyball Provincial Representative in 2022 in Karaman province, and the sample of the research is 134 men and 11 women. a total of 145 participants (\bar{x} age = 35.36±5.82 years). In the study, easily

accessible case sampling, one of the random sampling methods, was chosen as the sample selection method. Convenience sampling is preferred in cases where it is difficult to use other sampling methods, as it adds speed and practicality to the study (Patton, 1987). However, this technique has limitations in terms of the representation of the universe. This aspect can be expressed as a limitation of the study. Demographic information about the participants participating in the research is given in Table 1.

Table 1. Demographic information of teachers in the research group

	Variables	f	%
Gender	Male	134	92,4
	Female	11	7,6
Age	28 age and 30 age	30	20,7
	31 age and 33 age	21	14,5
	34 age and 36 age	36	24,8
	37 age and 39 age	24	16,6
	40 age and +	34	23,4
Sports Type	Individual Sports	69	47,6
	Team Sports	76	52,4
Frequency of Doing Sports	1 Day	20	13,8
	2 Day	25	17,2
	3 Day	24	16,6
	4 Day	76	52,4

2.3 Data Collection Tools

“Psychological Well-Being Scale”, “Positive Thinking Scale” and “Personal Information Form” were applied to the participants.

2.3.1 Psychological Well-Being Scale (PIOS)

The Psychological Well-Being Scale was developed by Diener et al. (2010) to measure socio-psychological well-being as a complement to existing measures of well-being. The Turkish adaptation of the scale was done by Telef (2013). As a result of the exploratory factor analysis, the total explained variance was found to be 42%. The factor loads of the scale items were calculated between .54 and .76. In confirmatory factor analysis, fit index values were found to be RMSEA = 0.08, SRMR = 0.04, GFI = 0.96, NFI = 0.94, RFI = 0.92, CFI =

0.95 and IFI = 0.95. Psychological Well-Being Scale sub-dimensions of Psychological Well-Being Scales with autonomy .30, environmental mastery .53, individual development .29, positive relationship with others .41, life goals .38, self-acceptance .56 and total psychological well-being .56 relationship was found. Also with autonomy from the sub-dimensions of the Need Satisfaction Scale .30, .69 with efficacy, .57 with affiliation, and .73 with total need satisfaction. The Cronbach alpha internal consistency coefficient obtained in the reliability study of the scale was calculated as 80. According to the test-retest result, there was a high level, positive and significant relationship between the first and second application of the scale ($r = 0.86$, $p < .001$). It was determined that the item-total correlations of the Psychological Well-Being Scale varied between .41 and .63, and the t-values were significant ($p < .001$). The items of the Psychological Well-Being Scale are answered between 1 and 7, as I strongly disagree (1) to I strongly agree (7). All items are expressed positively. Scores range from 8 (strongly disagree to all items) to 56 (strongly agree to all items). A high score indicates that the person has many psychological resources and strengths. Although the scale does not provide individual measures of aspects of well-being, it does provide an overview of positive functioning in different areas that we believe are important (Diener et al., 2010).

The internal consistency (Cronbach Alpha) reliability coefficient of the psychological well-being scale of this study was found to be 0.70.

2.3.2 Positive Thinking Skills Scale (ADBS)

Positive Thinking Skills Scale, which was developed by Bekhet and Zauszniewski (2013), is an 8-item measurement tool to evaluate how often positive thinking skills are used, which have an important effect on the adaptability of an individual's functionality and the development of quality of life. The scale has a 4-point rating ("0" Never, "1" Somewhat, "2" Mostly, "3" Always). There is no reverse coded item in the scale. Higher scores indicate that positive thinking skills are used more frequently. The highest score that can be obtained from the scale is 24, and the lowest score is 0. In the study conducted for the concordance validity of the scale, there was a negative correlation between positive thinking skills and depression ($r = -.45$). Positive relationships were found between general well-being ($r = .40$) and resourcefulness ($r = .63$). The corrected item-total correlations of the scale ranged from .54 to .68. The Cronbach alpha internal consistency reliability coefficient of the scale was found to be .76. The Cronbach's alpha internal consistency reliability coefficient of the scale was found to be .76 (Akın, Uysal, & Akın, 2015). The Cronbach's alpha internal consistency reliability coefficient of the scale was found to be 0.87.

2.4 Analysis of Data

In the research, the demographic information of the participants was first described using percentage and frequency values. Then, the psychological well-being and positive thinking levels of the participants were determined. In order to determine whether the data exhibited a normal distribution, skewness and kurtosis values were examined. Tabachnick and Fidell (2013) state that skewness and kurtosis values should be between -1.5 and +1.5. Since the skewness and kurtosis values for all variables in the study ranged from -1.5 to +1.5, it can be

said that univariate normality was achieved. In addition, the Levene test was used to test the equality of variances assumption, and it was seen that the p value was greater than 0.05 in all independent variables for both dependent variables. Pearson Correlation coefficient was calculated to examine the relationship between psychological well-being and positive thinking. In addition, Multivariate Analysis of Variance (MANOVA) test was preferred for the significant difference test of both dependent variables and independent variables.

3. Results

Table 2 presents the mean and standard deviation values of the participants' psychological well-being and positive thinking scales. According to the results of the Multidirectional Analysis of Variance (MANOVA), which was conducted to test the participants' self-presentations according to gender; There was no statistically significant difference between the self-presentation scores of female and male participants (Hotelling's $T^2 = 0.002$; $F(2.414) = 0.52$; $p > .05$).

Table 2. Descriptive statistics of psychological well-being and positive thinking scales

	N	\bar{X}	Ss	Skewness	Kurtosis	Min.	Max.
Psychological Well-Being	145	20.65	6.48	.416	.696	7.14	38.71
Positive Thinking	145	16.94	4.05	-1.06	.500	7.25	21.75

Looking at Table 2, it is seen that the dimensions of positive thinking and psychological well-being are $p > .05$ according to the Skewness and Kurtosis normality test results related to the psychological well-being scale. Tabachnick and Fidell (2013) state that skewness and kurtosis values should be between -1.5 and +1.5. In this direction, it can be said that it is suitable for normal distribution for both psychological well-being and positive thinking.

Table 3. Spearman product moment correlation analysis results table to determine the relationship between scores from psychological well-being scale and positive thinking scale total dimensions test scores

	Positive Thinking		
	N	R	P
Psychological Well-Being	145	.229**	.006

When the Table 3 is examined, as a result of Spearman Product Moment Correlation analysis performed to determine the relationship between the scores obtained from the psychological well-being scale and the total dimension test scores of the positive thinking scale, there is a

statistically low level of $p < .01$ between the psychological well-being test score and the positive thinking test sub-dimension scores. It was determined that there was a significant relationship ($r = .229$; $p < .01$) at a high level.

Table 4. Test of equality of covariance matrices

Box's Test of Equality of Covariance Matrices (Age)	
Box's M	4.671
F	1.533
Sig.	.204
Box's Test of Equality of Covariance Matrices (Frequency of Exercise)	
Box's M	10.715
F	1.149
Sig.	.324

According to Table 4, Sig. $0.204 > 0.05$ and Sig. being greater than $0.324 > 0.05$ indicates that the observed covariance matrices of the dependent variables for the analysis are equally distributed among the groups.

Table 5. Mancova test

Multivariate Tests							
	Test	Value	F	Hypothesis df	Error df	Sig.	Par. Eta Square (η^2)
Sport Type	Pillai's Trace	.083	6.440 ^b	2.000	142.000	.002	.083
	Wilks' Lambda	.917	6.440 ^b	2.000	142.000	.002	.083
Doing Active Sports	Pillai's Trace	.093	2.289	6.000	282.000	.036	.046
	Wilks' Lambda	.907	2.329 ^b	6.000	280.000	.033	.048

When Pillai's Trace and Wilks' Lambda test statistics are examined in Table 5, the values of both tests (Sig. $0.02 < 0.05$) show that; type of sport variable causes a significant difference in at least one of the evaluations of positive thinking and psychological well-being scales. According to the partial eta square results, approximately 8% of the change on the dependent variables is due to the sport type groups. In order to understand which sport type variable is effective on positive thinking and psychological well-being scales, the results of the impact

test are presented in Table 6.

When Pillai's Trace and Wilks' Lambda test statistics are examined in Table 5, the values of both tests (Sig. $0.03 < 0.05$) show that; The variable of frequency of doing active sports causes a significant difference in at least one of the evaluations of positive thinking and psychological well-being scales. According to the partial eta square results, approximately 5% of the change on the dependent variables is due to the active sports groups. The results of the impact test performed to understand which of the positive thinking and psychological well-being scales have an effect on the active sports variable are presented in Table 6.

Table 6. Impact test

Source	The dependent variable	Sum of Squares	df	Mean Squares	F	Sig.	Partial Eta Square (η^2)
Sport Type	Psychological Well-Being	6.802	1	6.802	9.036	.003	.059
	Positive Thinking	1.935	1	1.935	6.319	.013	.042
Doing Active Sports	Psychological Well-Being	7.763	3	2.588	3.420	.019	.068
	Positive Thinking	2.068	3	.689	2.227	.088	.045

Table 7. Main effects chart

			Mean	Std. Deviation	N	
Type of Sports Variables	Psychological Well-Being	Individual Sports	2.65	.904	69	-
		Team Sports	3.08	.833	76	
	Positive Thinking	Individual Sports	2.22	.614	69	-
		Team Sports	2.45	.492	76	
Frequency of Doing Sports	Psychological Well-Being	1 Day	2.64	1.039	20	4/3-1
		2 Day	2.79	.852	25	
		3 Day	2.51	.858	24	
		4 Day	3.08	.833	76	
	Positive Thinking	1 Day	2.24	.554	20	-
		2 Day	2.26	.588	25	
		3 Day	2.16	.703	24	
		4 Day	2.45	.492	76	

Examining Table 7, Sig. Our dependent variables “Psychological Well-Being” and “Positive Thinking” with a value greater than 0.05 show a significant difference according to the sport type groups of the participants. In other words, the evaluations of the participants regarding positive thinking and psychological well-being differ according to the type of sport they are in.

Examining Table 7, Sig. While the “positive thinking” dependent variable with a value greater than 0.05 does not show a significant difference according to the frequency of active sports per week, our “Psychological Well-Being” dependent variable shows a significant difference according to the active sports groups of the participants. In other words, the evaluations of the participants on the psychological well-being scale differ according to the frequency of active sports in which they are involved.

4. Discussion

This study was carried out in order to determine the positive thinking levels of the participants’ psychological well-being levels, to determine the relationship between their psychological well-being levels and their positive thinking levels, and to reveal whether they differ according to personal characteristics.

The mean scores of psychological well-being and positive thinking levels of the athletes participating in the volleyball tournament participating in the research were examined. As a result of this examination, it was concluded that the psychological well-being levels of the participants included in the study were below the medium level and their positive thinking levels were above the medium level.

When a field survey was conducted, Güvenç concluded that the psychological well-being levels of the participants were above the moderate level, according to the study conducted by Güvenç (2021) on teachers. Karaçam and Pular (2019), in their study on physical education and sports teachers, determined that the psychological well-being levels of physical education and sports teachers are above the medium level. Aydın, Birol, and Temel (2018) in their study on athletes playing in university teams, They found that students generally have psychological well-being levels above the medium level. Gönener, Öztürk, and Yılmaz (2017), in their study on the students of the faculty of sports sciences, concluded that the students’ psychological well-being levels are at a high level.

In his study on university students, İnce (2020) revealed that university students have a high level of positive thinking skills. In his study on university students, Montenegro (2019) found that university students’ positive thinking skills were above the medium level. Tazegul (2018), in his study on elite tennis players, found that the positive thinking skill levels of elite tennis players were above the medium level.

When the results of the studies are considered in terms of general positive thinking skill levels and evaluated together with the findings obtained from the current study; it is understood that some studies support the current study and some studies do not support the current study.

As a result of the correlation analysis, it was determined that there was a statistically low level of positive correlation ($r = .229$; $p < .01$) at the $p < .01$ level between the psychological well-being test score and the positive thinking test dimension scores.

According to Güvenç's (2021) study, as a result of the Spearman Product Moment Correlation analysis performed to determine the relationship between the scores obtained from the psychological well-being scale and the scores of the Positive thinking skill scale, it was found that there was a statistically significant positive relationship at the $p < 0.01$ level between the scores. It is understood that it is in parallel with the results of the current study.

It can be concluded that there is a significant difference in at least one of the evaluations regarding the psychological well-being and positive thinking scales according to the sport type variable of the participants. According to these results, it is understood that individuals who do team sports have higher levels of psychological well-being and positive thinking than participants who do individual sports. In addition, it can be concluded that approximately 8% of the change in dependent variables is due to sport type groups.

According to the study conducted by Güvenç (2021) on teachers, it was seen that there was no significant difference in terms of the participants' sports type variables.

When the results of the studies are considered, considering the psychological well-being levels of sports sciences and physical education and sports school students according to the variables of gender, department they study, class they study and type of sport, and when evaluated together with the findings obtained from the current study; it is understood that some studies support the current study, and some studies do not support the current study.

According to the variable of frequency of doing sports, it can be concluded that there is a significant difference in at least one of the evaluations of the psychological well-being scale. According to these results, it can be concluded that the participants who do sports 4 days a week have higher levels of psychological well-being than the individuals who do sports 3 and 1 days a week. In addition, it can be concluded that approximately 7% of the change in the dependent variable is due to the frequency of doing sports.

In the literature review conducted by the researcher, no study was found that deals with the differences in psychological well-being and positive thinking scale levels in terms of the variables of frequency of doing sports.

References

Akın, A., Demirci, I., Yıldız, E., Gediksiz, E., & Eroğlu, N. (2012). *The short form of the scales of psychological well-being (spwb-42): The validity and reliability of the Turkish version*. Paper Presented At The International Counseling And Education Conference, Istanbul.

Akın, A., Uysal, R., & Akın, U. (2015). Validity and reliability of the turkish form of the positive thinking skills scale. *Academic Perspective International Refereed Journal of Social Sciences*, 51(3), 265-270.

Aydın, E., Birol, S. S., & Temel, V. (2018). Determination of psychological well-being levels of athletes playing in university teams. *Journal of Human Sciences*, 15(3), 1541-1550. <https://doi.org/10.14687/jhs.v15i3.5236>

Baştuğ, G. (2002). *An investigation of reward and punishment as a psychological motivation factor in sports according to gender and age of starting sports* (Master's Thesis, Institute of Health Sciences, Department of Physical Education and Sports, Selcuk University, Konya).

Bekhet, A. K., & Zauszniewski, J. A. (2013). Measuring use of positive thinking skills: Psychometric testing of a new scale. *Western Journal of Nursing Research*, 35(8), 1074-1093. <https://doi.org/10.1177/0193945913482191>

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswasdiener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research*, 97(2), 143-156. <https://doi.org/10.1007/s11205-009-9493-y>

Erdoğan, N., Zekioğlu, A., & Dorak, F. (2014). According to handball coaches, what are the factors affecting the performance of athletes psychologically? *International Journal of Science Culture and Sport*.

Gönener, A., Öztürk, A., & Yılmaz, O. (2017). The Effect of mental (psychological) well-being levels on happiness levels of Kocaeli university faculty of sport sciences students. *Sportive Perspective: Journal of Sport and Educational Sciences*, 4(1), 44-55.

Güvenç, A. (2021). *The relationship between psychological well-being levels and positive thinking skills of physical education and sports teachers* (Unpublished Master's Thesis, Institute of Social Sciences, Karamanoğlu Mehmetbey University, Karaman).

İnce, M. (2018). *Positive thinking and communication*. Ankara: Ellips Book Publishing House.

Karaçam, A., & Pular, A. (2016). Investigation of physical education teachers' perception of success, academic optimism, psychological well-being and physical respect levels. *Usak University Journal of Educational Research*, 3(1), 1-22.

Karasar, N. (2009). *Scientific research method*. Ankara: Nobel Publication Distribution.

Keyes, C. L., Shmotkin, D., & Ryff, C. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality and Social Psychology*, 82, 1007-1022. <https://doi.org/10.1037/0022-3514.82.6.1007>

Konter, E. (2006). *Sports psychology handbook* (p. 84). Nobel Publishing, Ankara.

McGrath, P. (2004). The burden of "Ra Ra" positive: survivors' and hospice patients' reflection on maintaining a positive attitude to serious illness. *Support Care Cancer*, 12, 25-33. <https://doi.org/10.1007/s00520-003-0547-4>

Montenegro, S. (2019). The Relationship between Positive Thinking Skills and Interpersonal Communication Skills in University Students. *Anemon Mus Alparslan University Journal of*

Social Sciences, 7(1), 131-136.

Patton, Q. M. (1987). *How to use qualitative methods in evaluation*. Newsbury Park, London, New Dehli: Sage Publications.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069. <https://doi.org/10.1037/0022-3514.57.6.1069>

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69, 719-727. <https://doi.org/10.1037/0022-3514.69.4.719>

Sel, S. (1993). *Physical education, play and teaching, teacher writers series* (No. 2260). Ministry of Education Publication, Istanbul.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics*. USA: Pearson.

Tazegül, U. (2018). The determination of the relationship between positive thinking and engagement levels of elite tennis players. *Academic Review Journal*, 67.

Telef, B. B. (2013). Psychological well-being scale: Turkish adaptation, validity and reliability study. *Hacettepe University Faculty of Education Journal*, 28(3), 374-384.

Temel, V. (2018). Investigation of sport participation motives of table tennis and wushu athletes. *Gazi Journal of Physical Education and Sports Sciences*, 23(3), 143152.

Türkmen, M. (2005). *Comparison of success motivation levels of professional male footballers and amateur male footballers (Izmir-Manisa Example)*. (Master's Thesis, Psycho-social Fields in Sports, Physical Education Teaching and Department, Celal Bayar University, Manisa).

Yıldız, S. M. (2008). Service quality models and measurement tools that can be used to evaluate sports services quality. *Gazi Journal of Physical Education and Sports Sciences*, 38-48.

Copyright Disclaimer

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/3.0/>).