

“SOLDIERS OF PAINT”: RELATIONSHIP BETWEEN LEISURE ADVENTURE COMBAT SPORT AND QUALITY OF LIFE

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ABSTRACT

Adventure sports tourism has shown consistent growth during the last several decades as a leisure activity that stands as an antithesis of traditional leisure tourism. This emerging tourism trend has revealed a field of research still in its infancy. Paintball as an adventure (combat) sport has developed over the past three decades as a growing leisure time activity across the globe. The purpose of this research was to determine what influenced these ‘soldiers of paint’ to participate in paintball during their leisure time and the subsequent impact on their quality of life. The electronic measuring instrument, applying a five-point Likert scale, was made available via social media. A total of 506 respondents from across the globe participated in this research. An exploratory factor analysis on the leisure aspects of paintball, positive sport lifestyle, leisure and recreation life domain positive/negative effect and quality of life was conducted. The identified factors obtained acceptable reliabilities and medium to high correlations between the factors are evident.

Keywords: Leisure; Adventure combat sport; Quality of life; ‘Soldiers of paint’.

INTRODUCTION

Page and Connel (2014) state that it is nearly impossible to determine the practice of leisure activities that took root in human society, as the scope and scale thereof have evolved through time, based on changing needs, desires and norms of society. The research and conceptualisation of leisure is one of the oldest social science research pursuits, according to Beckers and Mommas (1996) and Esteve *et al.* (1999). According to McLean *et al.* (2015), the ancient Greeks were the first to articulate leisure as a distinct element of the human experience. Patmore (1983) and Russell (2013) traced the historic academic research of leisure to its Greek origins namely view of σχολή, which when translated means ‘schole’. ‘Schole’ is linked with the Latin *licentia* and *licere*, which is further associated with the French *loisir* and the English ‘leisure and school’.

It was deduced that the ancient Greeks perceived leisure as the pursuit of wisdom through reading, studying, thinking, debating and discussion. McLean *et al.* (2015) mention that leisure theorists have difficulty agreeing on what exactly leisure is. Russell (2013) describes leisure as a multifaceted concept, the meaning and practice of which differ through time, place and society. Venter (2017) defines leisure as a period in which an individual can engage in an

activity or non-activity out of free will, which they deem as being leisurely and where the result of such leisure is characterised by personal fulfilment and self-improvement either physically, emotionally or spiritually.

According to Andrews *et al.* (2014) and Leversen *et al.* (2012), leisure activities are an important factor in the successful promotion of social inclusion and peer friendships among children, adolescents and adults. Brajša-Žganec *et al.* (2011) identified that leisure activities help individuals build social relationships, acquire new skills and improve knowledge, which could enhance their Quality of Life (QoL). Various authors (Lloyd & Little, 2010; Funk *et al.*, 2011; Vujko & Plavša, 2011; Walker *et al.*, 2011; Martin *et al.*, 2012; Yazicioglu *et al.*, 2012; Cater, 2013; Day, 2013; Maher *et al.*, 2013; Smith, 2013; Sato *et al.*, 2014; Meyer & Meyer, 2016) have shown that individuals who participate in activities that require physical participation, such as sports or active leisure, experience an improved QoL. Rootenberg (2012) state that QoL is generally recognised in literature as a complex concept with no one definition or agreed on standardised way of measurement. Venter (2017) refers to QoL as a predominantly subjective state with objective elements whereby individuals perceive their lives based on the combined positive and negative experiences in life domains that are significant to them.

As stated by Page and Connel (2010), QoL comprises different life domains, such as social life, emotional life, health and safety life, financial life, leisure and recreational life, travel life and family life, which have been used by QoL researchers, such as Sirgy *et al.* (2011), Dolnicar *et al.* (2012), Shim *et al.* (2012), Kim *et al.* (2013), Kruger *et al.* (2013) and McCabe and Johnson (2013). There is a link between QoL and positive and negative effect concerning life domains was made during the 1960s (Venter, 2017). Sirgy (2012) mentions that life domains, such as leisure and recreation life often produce more positive than negative effects, which in turn enhance a person's QoL. Positive and negative effects can best be described as the residual feelings either positive or negative that a person attributes to an experience. Sirgy (2012) found that leisure and recreation life value as a positive effect generator of experience has more value than any negative effect that might be produced. Ultimately, such experiences (either positive or negative) impact a person's opinion of their QoL.

Various authors (Leitner & Leitner, 2012; George, 2015; Xiang *et al.*, 2015) indicate that modern leisure increasingly consists of adventure sports activities, which Saayman (2012) argues can be seen as a subset of the overall adventure tourism and travel industry. According to Taylor *et al.* (2013), participation in adventure activities can be viewed as part and parcel of human nature and although the form that adventure activities have taken has evolved through time, it still is a major factor in human development. Venter (2017) defines adventure sport as a combination of elements found in leisure, tourism, travel, sport and recreation, which are merged into physically challenging activities with elements of physical/emotional risk and uncertainty, performed by individuals or groups in either a manmade or natural environment for the purpose of experiencing danger, stress, anxiety, fear and excitement dependent on the participant's skill level. George (2014) has stated that adventure sport is one of the fastest growing segments in tourism and has an estimated 165 million adventure sports enthusiasts worldwide.

Over the last decade, there has been a substantial growth in the participation in physically active leisure and adventure sports (Saayman, 2012; Sato *et al.*, 2014), such as paintball (Koh, 2013;

Ilie & Mihaela, 2014). Sbicca and Hatch (2012) convey that there were more than five million paintball players in the United States alone during 2011. Thomas (2014) states that paintball had again entered a growth phase (1.9%) as of 2013. Participation in adventure sport is a way in which modern society is improving their physical fitness and psychological health, such as self-esteem and confidence, which help them deal with the stress brought on by modern living (Vujko & Plavša, 2011). Adventure combat sports can be regarded as the personification of modern escapism. The associated thrill and challenge of participating in an adventure (combat) sport replace such survival need and have an overall positive effect on participants' QoL (Tsaour *et al.*, 2015).

According to Modern Combat Sports (2014), adventure combat sports, such as paintball and airsoft provide adrenaline pumping action by simulating modern combat without the associated violence and death of real armed conflict. Venter (2014) explains that paintball is an adventure sport and leisure activity in which participants compete individually or as part of a team to eliminate their adversaries by marking them with a breakable round capsule containing water-soluble dye more popularly known as 'paintballs'. Paintballs are launched at up to 300 feet per second by a device called a marker, which can resemble a firearm. Paintball is characterised by objectives that need to be achieved that require physical activity and fast-paced individual or team movement. It is played at local, regional, national and international level tournaments by professional, semi-professional players, as well as casually for leisure purposes. These 'soldiers of paint' as referred to by DeChant and Gritzmacher (2013), often wear military clothing and apparel when participating in military simulation (MILSIM) or scenario-based matches and serve the same function as with real soldiers. Alternatively, brightly coloured branded clothing is worn by speedballers who play on purpose-built flat fields littered with inflatable obstacles known as Doritos.

As stated by Vujko and Plavša (2011), participation in such strenuous physical activities fuels the production of endorphins that stimulate certain brain cells, leaving the participant with a feeling of positive emotions or euphoria that is often compared to making love. Vujko and Plavša (2011) further explain that simulated combat produces fear, which leads to a fight or flight response in participants as the body produces adrenaline that expands the blood vessels of the heart, brain and muscles, which grant the individual more strength and speed. Burr *et al.* (2013) explain that evolutionary theorists suggest humans developed fear as a mechanism to protect themselves from injury until they had sufficient mastery of a situation to cope with the effects that are induced, such as fear, anxiety and stress. Cater (2013) argues that the challenges sought through such experiences, which produce fear, anxiety and stress, are closely linked to what our prehistoric ancestors experienced to survive. The inactive lifestyle brought on by modern living has to an extent deprived individuals of those experiences. No research, according to the knowledge of the authors, has yet been attempted to measure the relationship between leisure, adventure combat sport and QoL.

PURPOSE OF RESEARCH

The aim of this research was to determine the relationship between leisure, adventure combat sport and QoL with a focus on 'soldiers of paint'. The majority of respondents were affiliated with a paintball field or team, which indicates a benefit to their QoL.

METHODOLOGY

The research design for this research was exploratory, descriptive and includes a quantitative approach.

Subjects

The study population of this research consisted of paintballers across the globe who are members of paintball fields or teams on dedicated paintball social media groups. The survey took place from 1 July 2016 to 31 July 2016 and followed a convenience sampling technique. Potential participants were invited to join a dedicated Facebook group page called Global Paintball Research Project (GPRP). The page contained, among others, the purpose, aims, objectives and ethical clearance acceptance by participants of this research. Additionally, the welcoming page informed respondents that they could only complete the questionnaire once.

Ethical clearance

The North-West University Ethics Committee approved the application to conduct research on the quality of life (NWU-00115-12-114).

Procedures

An electronic questionnaire was designed making use of Google Forms, which was accessible via a short link on GPRP. To maximise the distribution of the link, members of GPRP were encouraged to share the link in their social media communities. The GPRP group page had over 2 000 members of whom 506 completed the questionnaire in full. According to Krejcie and Morgan (1970), when a population size (N) is 100 000, a sample size (S) of 384 is required to be considered representative, therefore, the 506 responses received were more than sufficient to be representative of the particular study population.

Measuring instrument

The questionnaire was designed by the authors based on a well-tested measuring instrument used by Sirgy *et al.* (2011), but adapted to suit the particular niche of this research. The questionnaire consisted of five sections:

Demographic profile (7 measures): Section A consisted of questions to determine respondents' demographic profile and included gender, age, work status, years playing paintball, times played in last six months, style of paintball, MLT background and country of origin.

Leisure aspects of paintball (13 measures): Section B contained statements with regard to the leisure aspects of paintball, such as it helps to improve my fitness; it serves as good exercise; it has a great fun factor; it helps me to relax. A five-point Likert scale was used that ranged between 1=Strongly disagree and 5=Strongly agree.

Positive sport lifestyle (4 measures): Section C sought to analyse popular themes identified in the literature on adventure sport that would best serve to measure the positive sport lifestyle, like paintball has made my life better and paintball helps me to escape from daily life and reality. A five-point Likert scale was used that ranged between 1=Strongly disagree and 5=Strongly agree.

Life domain: Section D explored one prominent life domain associated with adventure combat sport, namely leisure and recreation life containing several probing statements, measuring positive and negative effect using the five-point Likert scale, ranging between 1=Strongly disagree and 5=Strongly agree. An example of a positive effect statement includes “paintball fills up most of my leisure time positively”, while a negative effect statement was given, such as “playing paintball reduces the time that I spend with my family”.

Quality of life (5 measures): The last section (E) sought to capture respondents’ perception of their QoL and contained several statements, such as “In most ways, my life is close to ideal, and the conditions of my life are excellent”. The five-point Likert scale was used here as well. The statements were analysed and summarised in one factor, namely QoL. The psychometric properties of the Likert scale that were used are based work done within the South African context by Kruger *et al.* (2014), Kruger and Sonono (2016) and Venter (2017) who reported an acceptable Cronbach alpha (α) of ≥ 0.8 . As all the research conducted by these authors showed α as a high internal consistency of the Likert scales used, it was considered suitable for this research.

Statistical analysis

The data captured from the 506 respondents who completed questionnaires were analysed and used to conduct an EFA. The purpose was to reveal the interrelationship among the variables that have been measured using a Likert scale revealing the latent variables and to determine the suitability of the data to conduct an EFA (Pallant, 2010). The reliability of the study’s five-point Likert scale (ranging from 1=strongly disagree to 5=strongly agree) was calculated according to DeVellis (2012), who recommends a minimum Cronbach alpha (α) coefficient of 0.7. The “ α ” is the most common measurement used to determine the internal consistency reliability of the scale. George and Mallery (2003:231) rate the suitability of α as >0.9 =Excellent; >0.8 =Good; >0.7 =Acceptable; >0.6 =Questionable; >0.5 =Poor; and <0.5 =Unacceptable. According to Pallant (2010), SPSS calculates two statistical measures from the EFA, namely the Bartlett’s Test of Sphericity (BTS) should be significant ($p \leq 0.05$) and the Kaiser-Meyer-Olkin (KMO), which ranges between 0 and 1, where, in accordance with Hutcheson and Sofroniou (1999), values between 0.7 and 0.8 are considered good, 0.8 and 0.9 are great and ≤ 0.9 are superb. The BTS for this research was found to be statistically significant at $p \leq 0.001$.

An EFA was conducted on Sections B to F where the eigenvalues larger than 0.3 were used. No cross loading was found among the identified factors in any of the sections. For the purpose of this research, items with a factor loading greater than 0.3 were considered as contributing to a factor. According to Clark and Watson (1995), the desired mean-inter-item correlation values should be between 0.15 and 0.55. However, Pallant (2010) is of the opinion that when few items (less than 10) are used, the mean-inter-item correlation value could rise between 0.48 and 0.76. The Pearson’s Correlations, which is produced by SPSS as a correlation coefficient (r), measures the strength of the linear relationship between measurable variables and reveals the direction and strength of the relationship from 0 (Maree, 2010; Kumar, 2011). According to Cohen (1988), the strength of the effect between the r -values can be classified as small effect between 0.10 and 0.29, medium effect between 0.30 and 0.49 while a large effect is found between 0.50 and 1.00. The ‘ r ’ measure was conducted to test the relationships between the identified factors found in Sections B to E of the measuring instrument.

The statistical software used for capturing and analysing the data was the Statistical Package for the Social Science (SPSS) 23.0 software (SPSS Inc., 2013). The analysis included descriptive indicators, exploratory factor analysis (EFA), α and Pearson correlations (r).

RESULTS

Study sample profile

The vast majority (93%) of the 506 respondents were males, while only 7% were females. This is consistent with Goldbecker's (2013) findings that males are more interested in participating in adventure combat sport than females. The majority of respondents were in the age groups of 25 to 34 (38%), 35 to 49 (36%) and 20 to 24 (13%). Of the respondents, 81% had full-time jobs, followed by students (6%), part-time jobs (4%) and retirees (1%).

Considering that paintball is an expensive adventure combat sport, which requires a steady income, the above finding can be considered accurate and consistent with the findings of Venter (2014). A good number of the respondents (36%) have played paintball for between six and 10 years, followed by fewer than five years (31%) and those who have played between 11 and 15 years (20%). On average, respondents have played paintball for 9.3 years, which is very similar to Goldbecker's (2013) findings of the average number of years played.

With regard to the number of times respondents have played during the last six months, it was revealed that most (47%) had played five times or less followed by 22% who played between six and 10 times. Respondents who have played between 11 and 15 and 16 and 20 times each made up 11% of responses. Venter (2014) noted that the MILSIM/scenario is one of the most popular forms of paintball when respondents were asked what style of paintball they prefer. More than half of the respondents (55%) preferred MILSIM/scenario paintball. Interestingly enough, nearly a quarter of respondents (24%) had a military, law enforcement and tactical (MLT) background, which is again consistent with Goldbecker's (2013) findings. Of the respondents, 33% reside in the United States of America, followed by South Africa and Canada, each with 17%, and the United Kingdom with 14%. This is consistent with Venter's (2014) observation that paintball is well developed in North America and Europe. The finding that it is as popular in South Africa as in North America and Europe is enlightening and shows a healthy level of adventure sport participation.

Results of the Exploratory Factor Analysis (EFA)

A total of 29 statements in Table 1 were subjected to a Principle Component Analysis (PCA) in order to extract the maximum variance of the data (factors loaded) to determine the suitability of the data generated by SPSS in order to conduct an EFA. The correlation matrix revealed Eigenvalues larger than 0.3 and was retained for the EFA. The KMO for the identified factors was statistically significant (0.88), which is regarded as being great. The Oblimin rotation with Kaiser Normalisation rotation technique was applied to identify groups of variables (Pallant, 2010) with no cross-loadings. The factors identified include *leisure aspects of paintball*, *positive sport lifestyle*, *leisure and recreation life positive effect*, *leisure and recreation life negative effect* and *QoL*.

Table 1. RELATIONSHIP BETWEEN LEISURE, ADVENTURE COMBAT SPORT AND QOL

Statements of questionnaire	Leisure aspects of paintball	Positive sport lifestyle	Leisure & recr. life positive effect	Leisure & recr. life negative effect	Quality of life
It helps to improve my fitness.	0.672				
It serves as good exercise.	0.720				
It has a great fun factor.	0.706				
It helps me to relax.	0.627				
It helps to relieve stress.	0.732				
It provides an adrenaline rush.	0.689				
It provides mental stimulation.	0.745				
It provides a platform to socialise.	0.701				
It provides a challenge.	0.735				
It helps me to escape from reality.	0.566				
It gives me a chance to go outdoors.	0.579				
I love the simulation (MILSIM).	0.351				
It is fast paced.	0.644				
Paintball has made my life better.		0.483			
Paintball has changed the way in which I view life.		0.761			
Adrenaline rush is a key reason why I enjoy paintball so much.		0.493			
Paintball helps me to escape from daily life and reality.		0.722			
Paintball fills up most of my leisure time positively.			0.751		
I prefer paintball above other recreational activities.			0.795		
Paintball offers various activities that enhance leisure and recreation life.			0.435		
The money I spend on paintball is worth the experiences I get to enjoy.			0.536		

(Continued)

Table 1. RELATIONSHIP BETWEEN LEISURE, ADVENTURE COMBAT SPORT AND QOL (cont.)

Statements of questionnaire	Leisure aspects of paintball	Positive sport lifestyle	Leisure & recr. life positive effect	Leisure & recr. life negative effect	Quality of life
Playing paintball reduces the time that I spend with my family.				0.692	
I am in conflict with my family because I play so much paintball.				0.768	
Sometimes feel guilty about playing paintball and neglecting my family.				0.783	
In most ways, my life is close to ideal.					0.882
The conditions of my life are excellent.					0.876
I am satisfied with my life.					0.887
So far, I have obtained the important things that I want in life.					0.819
If I could live my life over, I would change almost nothing.					0.768
Cronbach alpha coefficient	0.86	0.71	0.75	0.74	0.89
Mean inter-item correlation	0.38	0.39	0.43	0.48	0.65
Mean±SD	4.40±0.49	3.86±0.76	4.13±0.64	2.19±0.87	3.66±0.83

All the factors BTS were statistically significant ($p < 0.05$). Of the four factors identified, *quality of life* obtained the highest mean, which supports the findings of Brajša-Žganec *et al.* (2011) that participation in leisure and sport activities could enhance the QoL of participants.

The identified factor *leisure aspects of paintball* consists of 13 statements, which accounted for 43.5% of the total percentage of variance explained. The factor measured a good α (0.86), which indicates a high internal consistency of the five-point Likert scale used. The mean inter-item correlation for leisure aspects of paintball (0.38) fell within an acceptable range for the 13 items measured, which is another measure indicating the internal consistency using the Likert scale. Leisure aspects of paintball obtained a KMO of 0.896, which falls within the range of being great.

Table 1 also shows the extracted factor, *positive sport lifestyle*, which consists of four statements and accounted for 58.7% of the total variance explained. The α coefficient of this factor was above the required minimum (0.70), which shows an acceptable internal consistency of the five-point Likert scale used. The mean inter-item correlation result for positive sport lifestyle fell within an acceptable range (0.39) for the four items measured. Positive sport lifestyle obtained a KMO of 0.890, which is also considered as being great.

The identified factor, *leisure and recreation life positive effect*, accounted for 70.5% of the total variance explained and contains five statements. The α coefficient of the extracted factor leisure and recreation life positive effect was 0.75 and is indicative of a good internal consistency of the five-point Likert scale used. The mean inter-item correlation for leisure and recreation life positive effect falls within an acceptable range (0.43) for the five items measured. Leisure and recreation life positive effect obtained a KMO of 0.910, which is described as being superb.

The identified factor, *leisure and recreation life negative effect*, accounted for 57% of the total variance explained and contains three statements. The α coefficient of the extracted factor leisure and recreation life negative effect was 0.74 and is indicative of a good internal consistency of the five-point Likert scale. The mean inter-item correlation for leisure and recreation life negative effect falls within an acceptable range (0.48) for the three items measured. Leisure and recreation life negative effect obtained a KMO of 0.795, which is characterised as being good.

The final factor, consisting of five statements, was labelled, *Quality of Life (QoL)*, which accounted for 71.9% of the total percentage of variance explained. The factor measured an acceptable α (0.89), which is indicative, from a psychometric point of view, of the high internal consistency of the five-point Likert scale used. The mean inter-item correlation for Quality of Life (0.65) fell within an acceptable range for the five items measured. QoL obtained a KMO of 0.882, which is considered as great.

Pearson correlation between identified factors

The Pearson correlations among the latent constructs used in this research are presented in Table 2. With regard to the strength of the linear relationship between the identified factors, a small positive correlation was observed between *leisure aspects of paintball* and *positive sport lifestyle* ($r=0.12$), medium positive correlation with *leisure and recreation life positive effect*

($r=0.49$), small positive correlation with *leisure and recreation life negative effect* ($r=0.15$) and *QoL* ($r=0.23$).

Table 2. PEARSON CORRELATIONS BETWEEN FACTORS

Factors	Leisure aspects of paintball	Positive sport lifestyle	Leisure & recr. life positive effect	Leisure & recr. life negative effect	Quality of Life
Leisure aspects of paintball		–	–	–	–
Positive sport lifestyle	0.116**		–	–	–
Leisure & recr. life positive effect	0.489**	0.179**		–	–
Leisure & recr. life negative effect	0.150	0.152**	0.030		–
Quality of life	0.232**	0.060	0.304**	-0.157**	

** Significance: 0.01 level (2-tailed)

* Significance: 0.05 level (2-tailed)

Positive sport lifestyle revealed a small positive correlation with *leisure aspects of paintball* ($r=0.12$), *leisure and recreation life positive effect* ($r=0.18$) and *leisure and recreation life negative effect* ($r=0.15$), while *QoL* was minor ($r=0.06$).

The factor, *leisure and recreation life positive effect*, showed a medium positive correlation with *leisure aspects of paintball* ($r=0.49$), small positive correlation with *positive sport lifestyle* ($r = 0.18$), and a medium positive correlation with *QoL* ($r=0.30$), while *leisure and recreation life negative effect* was minor ($r=0.03$). *Leisure and recreation life negative effect* showed a small positive correlation with *leisure aspects of paintball* ($r=0.15$), *positive sport lifestyle* ($r=0.15$) and *QoL* ($r=-0.16$), while *leisure and recreation life positive effect* was minor ($r=0.03$).

A small positive correlation was observed between *QoL* and *leisure aspects of paintball* ($r=0.23$) and *leisure and recreation life negative effect* ($r=-0.16$), while *positive sport lifestyle* was minor ($r=0.06$). A medium positive correlation was, however, measured with *leisure and recreation life positive effect* ($r=0.30$). The medium positive correlations between the factors *leisure aspects of paintball* and *leisure and recreation life positive effect* ($r=0.49$), as well as *leisure and recreation life positive effect* and *QoL* ($r=0.30$) indicate a linear relationship between the leisure and sport benefits, the leisure aspects of paintball and leisure and recreation life positive effect and *QoL*. According to Kyle *et al.* (2007), the choice of and participation in a leisure activity carry a symbolic value for participants and serve as a way of expressing individuality within a group and improve *QoL*. This validates the findings by Sirgy (2011),

Dolnicar *et al.* (2012), Mackenzie *et al.* (2013) and Sato *et al.* (2014) that a positive leisure and recreation life plays and important role in the QoL of the participants.

DISCUSSION

An extensive literature study regarding leisure has revealed that leisure is a constantly evolving phenomenon, taking on different meanings throughout human history. It seems that the pursuit of modern leisure is ever more leaning towards exploring and experiencing the unknown, seeking challenges and excitement. The recent growth in adventure sport as a form of leisure to improve participants' QoL has prompted an expanding field of academics in leisure to determine the motivation behind participants' drive to take part. An online literature search of the key concepts, 'soldiers of paint', the relationship between leisure, adventure combat sport and QoL generated no hits. The absence of academic research prompted this research undertaking. Therefore, the empirical results of this research should, according to the authors, contribute to the academic literature in the fields of leisure, adventure combat sport and QoL.

The findings of this research include the demographic profile of respondents, the results of EFA and Pearson's correlations. With regard to the demographic profile, it was determined that the overall majority of 'soldiers of paint' are male (93%) between the ages of 25 and 49 (74%) who are employed full-time (81%) and have participated between one and five times over a six-month period for the past 9.3 years. More than half of respondents (55%) prefer MILSIM/scenario and nearly a quarter (24%) have an MLT background. The number of 'soldiers of paint' who originate from First-world countries gives credence to the notion that participation is most often motivated by a need to release stress brought on by modern-day working and living.

With regard to the EFA on leisure aspects of paintball, a high level of reliability points to the fact that the leisure aspect is as important to 'soldiers of paint' as a modern leisure phenomenon to break away from their daily routine. Page and Connel (2010) are of the opinion that leisure is pursued by individuals to provide, among other things, enjoyment, fulfilment and relaxation, which are addressed in the EFA of positive sport lifestyle. It is evident that the leisure benefits found in traditional sports are also found in adventure combat sport. The acceptable level of reliability of the factor, positive sport lifestyle, shows that the pursuit of paintball as a leisure activity is a lifestyle for many respondents. Venter (2017) and Vujko and Plavša (2011) found that participation in adventure combat sport helps individuals to address modern physical and psychological health problems, such as obesity and stress.

Research conducted by Monson *et al.* (2009), Day (2013) and Caddick and Smith (2014), highlight various psychological benefits brought on by participation in a sport. Paintball is a high intensity and fast paced adventure combat sport (Venter, 2014), which requires both physical and psychological aptitude that contributes to participants' experience of escaping from reality and daily life. Page (2011) found that adventure activities often highlight high levels of risk, adrenaline rush, excitement and offer a personal challenge for the participant. The demands of adventure combat sports help stimulate the production of adrenaline and endorphins, which grant 'soldiers of paint' the signature experience of having a rush and feeling good. The result thereof contributes to the positive view that 'soldiers of paint' have regarding paintball's influence on their sport lifestyle. A practical implication of these findings is that

adventure combat sport can be promoted by stakeholders as an alternative to traditional sport by offering a more exciting way to escape from modern living, while practising a positive sport lifestyle.

The *leisure and recreation life positive effect* also showed a high level of reliability in the EFA, which provides continued evidence of the importance of leisure and recreation life and its positive effect on the QoL of 'soldiers of paint'. The positive role of leisure and recreation life (positive effect) towards QoL has been reported by Sirgy (2011), Dolnicar *et al.* (2012), Mackenzie *et al.* (2013) and Sato *et al.* (2014). Notably, it was found that paintball has an impact on leisure and recreation life (positive effect) of 'soldiers of paint', which in turn, enhances their QoL. According to Kruger *et al.* (2013), there is a direct positive link between a participant's life domains (such as leisure and recreation life) and their QoL. A practical application here would be to include the promotion by stakeholders of adventure combat sport as a positive leisure and recreation life activity that can enhance the QoL of participants.

With regard to *leisure and recreation life negative effect*, a high level of reliability was found in the EFA, indicating that participation in adventure combat sport also has a negative effect, specifically with regard to time spent away from family. According to Sato *et al.* (2014), family plays an important role towards the way a person views their QoL. Practically, adventure combat sport stakeholders can encourage 'soldiers of paint' to include their families in the sport or make provision for facilities and services that cater for their needs.

The *QoL* factor achieved the highest mean of all the factors measured, which is indicative of the benefits of participating in adventure combat sport. Research conducted by Yazicioglu *et al.* (2012) concluded that participants in the sport have significantly higher QoL compared to individuals who do not participate. Furthermore, Sánchez *et al.* (2009) found that the more a person participates in a sport or physical activity, the greater the assessment of their QoL.

Based on the above findings, it can be confidently stated that paintball as an adventure combat sport has the same positive effect on QoL of 'soldiers of paint' as other physical leisure and recreational activities that have been reported by Funk *et al.* (2011), Vujko and Plavša (2011), Walker *et al.* (2011), Maher *et al.* (2013), Omorou *et al.* (2013) and Wei-Chih (2016).

The results of the Pearson correlations show a medium positive correlation between the factors *leisure aspects of paintball* and *leisure and recreation life positive effect*, as well as *leisure and recreation life positive effect* and *QoL*. This indicates a progressive, positive relationship between the leisure aspects of paintball, its positive effect as a leisure and recreation activity and ultimate positive influence on QoL. Adventure combat sport stakeholders can benefit from the findings of the Pearson correlations by promoting the positive leisure aspects of paintball, its positive effect linkage with leisure and recreation life of 'soldiers of paint' and its ultimate positive influence on the QoL of 'soldiers of paint'.

CONCLUSION

The research conducted experienced some limitations, which included a lower than expected response rate from 'soldiers of paint' in Asia. Additionally, a lower than expected number of non-English-speaking 'soldiers of paint' took part in this research. It should be stressed that in the academic domain, adventure combat sport is a new phenomenon and that the statements used in the measuring instrument can only be compared to other forms of adventure combat sports, such as airsoft. The research done has made important contributions to academic methodology and literature on adventure combat sport (paintball).

According to Venter (2017), the results of the study validates the physical and psychological benefits experienced by 'soldiers of paint', which they experience but could not prove to those who have not participated before. The positive effect experienced by 'soldiers of paint' can be used to improve the appeal and growth of paintball globally. According to Venter (2017), the results of this research could help to break down the stigma that paintball is a violent and mindless sport. This can be achieved by making the findings of this research available to stakeholders, such as policy-makers, industry role-players, manufacturers, sponsors and paintball field owners and the public at large. Of interest would be a comparative analysis research study (using the current research measuring instrument), directed towards airsoft participants ('airsoft warriors'), which is also an adventure combat sport. Such a study could provide interesting results regarding the possible similarities and/or differences between 'soldiers of paint' and 'airsoft warriors'.

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