

An Investigation into the Effects of Subjective Feelings of Physical
Activity Enjoyment and the Objective Features of Physical Activity on Positive
and Negative Mental Health

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Abstract

Objective: Extensive research suggests that physical activity (PA) has substantial benefits for our psychological health, this study also investigates the effects that enjoyment of PA has on our mental health. *Methodology:* 201 participants (99 males and 102 females) completed standard demographic questions and then a number of questionnaires; the General Health Questionnaire-12 (GHQ-12), the Satisfaction with Life Scale (SWLS), the Oxford Happiness Questionnaire-short form (OHQ-S), the UCLA Loneliness Scale (LS), the Social Support Questionnaire (SSQ), the International Physical Activity Questionnaire-short form (IPAQ-S) and the Physical Activity Enjoyment Scale (PAES). The data was analysed using standard multiple regression. *Results:* PA had no predictive effect on mental health when enjoyment of PA was controlled for. Social support and enjoyment of PA were the two highest predictors of positive mental health. *Conclusion:* Results suggest that it is the individual's subjective feelings rather than the objective PA that predicted positive mental health. Existing literature, the implications and intentions for future research are also discussed.

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Introduction

Physical exercise has been recommended as a means to maintain and boost good mental health (Raglin, 2012). A substantial amount of literature has established the above statement. The following study will also look at enjoyment of physical activity (PA) in relation to an individual's positive and negative mental health. Wininger and Pargman, (2003) a number of studies has shown, enjoyment of PA to be a necessary factor in determining attachment to PA, Kimiecik and Harris, (1996) enjoyment is the key notion for understanding and demonstrating the motivation and experiences of sport and exercise participants, Enjoyment is also recognised as one of the most decisive emotions in achievement setting such as sports (Puente-Diaz, 2013). Firstly the literature is going to give a general overview of mental health.

Negative Mental health:

Chapman et al., (2007) illustrated the risk factor concept and exemplifies the ways in which risk factors for psychiatric conditions are often nonspecific for an array of negative mental health outcomes and that risk factors often can occur. In this study they looked at women who reported childhood abuse and found that they had significantly raised scores for depression, anxiety, somatization and interpersonal sensitivity compared to the controls. Thus results suggest that all childhood abuse are risk factors for a multitude of conflicting mental health consequences in childhood and adulthood. This study explaining that adverse life events can lead to a number of negative mental health consequences, compared to those who have not experienced traumatic events. Hochwalder (2013) also looked at negative mental health among women and similar to Chapman et al., (2007) Hochwalder found that the experience of negative life events can be a risk factor to mental-ill health. The findings showed that women who had recently experienced negative life events had high levels of mental ill-health compared to controls. Atchley, (1976) state that women are more likely to report negative psychological symptoms.

Chambers (2007) stated that 11,000 people self-harm resulting in hospital visits each year, 500 suicides are reported each year and in Europe 1 in 5 develop a depressive episode. Suicide, alcoholism and depression are considered to be the most important

mental health problems that need to be tackled in Ireland. All these studies give an insight into the development of a mental illness and also the prevalence of it in Ireland.

Loneliness:

Queen et al., (2014) states that the chronic state of loneliness has been associated with poorer physical health and well-being. Loneliness is not an experience specific to the older generation, but across the adult lifespan. Thus the aim of this study was to interpret engagement in daily physical activities and emotional experiences through the lens of loneliness. The findings suggested that loneliness did not influence the activities in which individuals engaged, lonelier individuals did not spend more time alone during the day, but they engaged in more activities alone than others. Suggesting that doing activities in a group, may result in less negative experiences than doing the activities alone. Loneliness has a real impact on physical well-being and has shown to increase rates of depression, hypertension and death (O'Regan, 2014).

Positive Mental Health:

Johada (1958) the following is what was described as the psychological content of positive mental health. Firstly the attitudes of the individual towards himself; then the degree to which a person realises his potentialities through action; the unification of function in the individuals personality; the individuals degree of independence of social influences; how the individual sees the world around him and finally the ability to take life as it comes and master it. More recent research by Chambers (2007) stated the aspects of life that are perceived as having a positive effect on mental health and which aspects have detrimental effects. The most important positive influence is having a supportive family and the second most important is being physically healthy. Not having a supportive family, death of a loved one and being physically sick are the top three aspects of life that can have a negative effect on an individual's mental health. Being physically healthy plays a crucial role in an individual's well-being.

Research reveals the benefits of positive emotions on mental and physical health. Catalino et al., (2014) found that prioritising positivity was linked with a host of beneficial well-being indicators, ranging from more frequent positive emotions to less depressive symptomology. A related study by Diener and Seligman, (2002) found that

happier people show less psychopathology. This study compared consistently very happy people with average and very unhappy people. The very happy people were highly social, had stronger romantic and other social relationships than the less happy groups. Very happy people were more agreeable, extroverted, and less neurotic and scored lower on several psychopathology scales. Also the very happy people's ability to feel unpleasant emotions at certain times is undeniably functional, suggesting happier people have a more functional life.

Catalino and Fredrickson, (2011) looked at optimal mental health and flourishing. Keyes (2007) stated that "people who flourish do not only feel good, at how people flourish. Flourishing is a state of but also do well, they excel in their daily lives". Catalino & Fredrickson (2011) explain it as the experience of pure engagement in which a sense of time and space is lost. Such as playing a sport, it is intrinsically rewarding and is associated with positive emotions, exercise and positive emotions is well established and research has shown that these changes last for up to 30 minutes post exercise. Ruthig, (2014) found that a positivity ratio of around 3 positive emotions and 1 negative emotion has been found to distinguish between flourishing and languishing. Findings suggested that older adults that began with a suboptimal positivity ratio were unlikely to experience an optimal ratio. Yet for those who began with an optimal positivity, the majority of them retained optimal positivity ratios overtime and appeared to flourish.

Social Support:

Nakashima, (2013) established that higher in-group identifications, which derived from a high level of perceived social prominence leads to more expected support from group members, which in turn contributes to a lower tendency towards depression and fewer perceived stressful events. Thus the results suggest that the mere membership in a high value group alone does not directly inhibit psychological maladjustment for group members, but expectation of group support derived from identification with the group plays an important role. This helps understand group identification and its support for an individual's well-being and mental health. Strazdins and Broom (2007) similarly found that building positive emotions in other people is

associated with lower depressive symptoms, thus social support is beneficial in the prevention of psychological maladjustment.

PA and Enjoyment of PA:

Exercise, the physical health and well-being of an individual has long been accepted. This research is imperative as physical exercise has been well justified to be linked with a number of physiological health benefits and recently a great deal of research has focused on the potential beneficial effects of physical exercise on mental health and psychological well-being (Swan and Hyland, 2012). The World Health Organisation define health as not only being the absence of illness, but also a state of complete physical, mental and social well-being (WHO, 1946). Physical exercise is defined as a subset of physical activities that are planned and purposeful attempts to improve health and well-being (Edwards, 2006). Also according to the World Health Organisation, PA “interacts with strategies to improve, diet, discourages the use of tobacco, alcohol and drugs, helps reduce violence, enhances functional capacity and promotes social interaction and integration” as cited in HSE, (2011, p.4). Brustad, (1996) also found that parents exert an huge influence on their children’s intentions to engage in physical activity, and that children of two active parents are six times more likely to participate in regular physical activity than those with inactive parents. Suggesting that individual’s attraction to physical activity stems from an early age.

Wankel, (1993) “enjoyment is a positive emotion and a positive effect state. It may be homeostatic in nature resulting from the satiation of biological needs of growth orientated, involving a cognitive dimension focused on the perception of successfully applying one’s skills to meet environmental challenges (p.153).

Van De Pol and Kavussanu, (2012) task orientation predicted enjoyment in sports training, ego orientation predicted enjoyment levels in competition, and thus their enjoyment depends on their success. Overall they found that those in a team sports experienced higher levels of enjoyment than those in an individual sports. Treppe, (2011) also found that game performance seemed to be crucial in understanding enjoyment, as well as game related self-efficacy.

Focusing on goals, such as what one wanted to achieve had a positive effect on enjoyment. Enjoyment is considered as the fuel to keep one going (Puenta-Diaz, 2013). Smith and Stein, (1991) as cited in Horn, (2008) state that as long as individuals perceive high benefits and enjoyment, they will stay committed for longer.

Physiological Benefits of PA:

Bassuk (2013, p.74) stated that being physically active is the most important thing that most of us can do to improve or maintain our health. Regular movement lowers the risk of developing or dying from “heart disease, stroke and diabetes it also prevents certain cancers, improves mood, builds bones, strengthens muscles, expands lung capacity reduces risk of falling and fractures and helps to keep excess weight down”. Exercise also appears to boost brain power, it gives us a better ability to carry out tasks that require attention, organisation and planning, reduces symptoms of depression and anxiety and it also enhances the immune system’s ability to detect and fend off certain types of cancer, it improves cognitive function and decreases everyday fatigue (Bassuk, 2013). Physical exercise changes the body inside and out, this article showing the physiological benefits and the benefits of PA on our mental health. Yet Raglin, (2012) states that exercise can results in either beneficial or detrimental changes in mental health, the outcome is related to the dosage employed. The abuse of exercise can results in disturbed mood and worsened physical health.

SLAN (2007) showed that only 41% of Irish adults take part in moderate to strenuous PA for at least 20 minutes three or more time a week. The HBSC (2006) revealed that over half of primary school aged children did not receive the recommended level of PA. Yet the HSE (2011) state that children and young people need at least 60 minutes of moderate PA a week. Adults start to get benefits from at least 150 minutes a week of moderate PA. This is as little as 30 minutes of activity five days a week. Yet SLAN (2007) indicated that 38% of Irish people are overweight and another 23% are obese.

PA, Mental Health and Enjoyment:

Uebelacker, (2013) determined whether social support and/or PA buffer the link between stressors and increasing risk of depression symptoms at baseline and a 3 year

follow up. Previous research has established that negative life events and chronic stressors increase risk for onset, persistence and worsening of depression. Yet there are protective factors, including PA and the study found that individuals whom engaged in regular PA had less depressive symptoms over time. Social support and PA were associated with lower levels of depression and lower risk of incident depression symptoms over a 3 year period. These are important implications as it's not just the PA that appears to alleviate depressive symptoms, social support plays a crucial role also. Mc Kercher, (2014) also looked at PA and risk of depression, this study focused on young children over 20 years. Findings showed that compared to those persistently inactive males, those who were increasingly and persistently active had a 65% reduced risk of depression in adulthood. Females who were persistently active has a 51% reduced risk of depression in adulthood. These studies giving an example that PA is a good protective factor against depression.

Haugen, (2013) suggests that sports participation during adolescence is indirectly associated with lower levels of loneliness through higher levels of perceived social competence. Haugen, (2013) states that sports participation can contain important social components to help meet young people's social needs and expectations, which may prevent feelings of loneliness.

Health club members were more mentally healthy and psychologically well than non-members (Edwards, 2006). Suggesting that maybe being physically active as part of a team is more beneficial than being physically active alone. Yohong, (2014) found that self-esteem scores of participants in the minimally active and highly active groups were considerably higher than those of participants in the inactive group. It was stated that PA should be used as an intervention as a way of improving individuals self-esteem.

Boyd, (1996) states that enjoyment is beginning to receive a revival of interest in sport psychology literature and that understanding the origins of sports enjoyment is crucial in understanding its positive affect and its relation to sports involvement. In this study Boyd, (1966) found that sports participants who perceived themselves to be more capable in sport and those who reported more task orientation in sports revealed greater levels of sports enjoyment. Sports enjoyment was also associated with number of years

participating. Hu Motl, (2007) found that individual's with low self-efficacy reported lower enjoyment and those with high self-efficacy reported higher enjoyment, implying that efficacy may be a crucial influence of PA enjoyment. Loehr and Baldwin, (2014) stated that individuals who experienced enjoyment during exercise had a stronger relation with intention to exercise regularly.

Wankel, (1993) states that emphasis on enjoyment of PA may have positive outcomes by assisting continuing involvement in activity and by counteracting stress and assisting positive psychological health. Oerelmans, (2014) established that social and PA were associated positively with recovery from work when happiness during the activities remained high but negatively when happiness was low indicating that such activities only had a positive effect when they were enjoyed, meaning it's not the activity it's the feelings towards the activity that are important. Slavich and Cole, (2013) found that loneliness was associated with people's subjective perceptions (feelings) rather than the objective features (being alone). This study similar to the one above maybe suggesting that positive mental health is associated with individual's subjective feelings (enjoyment) rather than the objective (physical activity).

Given the limited percentage of the population engaged in such beneficial physical activities the crucial challenge remains to find a better and more effective way to promote such knowledge and behaviour for the benefit of all. Given the continuing and growing evidence for the health benefits of PA, it is clear that maintaining an active lifestyle is a crucial part of being physically and mentally healthy. Yet are there benefits to an individual's mental health if the PA is not enjoyed as Oerelmans, (2014), Salvich and Cole, (2013) it is the subjective rather than the objective, and Wankel, (1993) established that the association between enjoyment of PA and positive psychological health was adequately strong enough to call for serious consideration by those using PA as a treatment for such maladjustments as anxiety and depression.

These studies leading to the rationale for the current study; a substantial amount of literature has established that PA is very beneficial to an individual's mental health, yet there is little that look at the actual enjoyment of the activity is it good to prescribe PA to an individual to boost their mental health even if they do not enjoy it? As seen in the literature above enjoyment effects commitment, involvement which will indirectly

help with physiological benefits and enjoyment has also been proven to have psychological benefits. Participants had to be involved in a team sport, and was because individuals in a team sports were considered to have higher levels of enjoyment, (Van De Pol and Kavussanu, 2012). The present study will focus on, if it is the PA (objective) or the enjoyment (subjective) of the PA that benefits an individual's mental health. The aims of the present study are:

- 1) What better predicts a more positive mental health?
- 2) What better predicts negative mental health?
- 3) What predicts enjoyment of PA?

Given the amount of research that supports the psychological benefits of PA, it would be valuable research whether it is the main predictor in the present study, to a more positive mental health or whether there are other factors involved.

Method

Participants:

Data from a total of 201 participants was collected for the present study. Of those individuals 49.3% were male n=99 and 50.7% were female n=102. The mean age for the entire sample was 24.61, the standard deviation was 4.42 with a range of 18-36 years. All participants took part in a team sport (Gaelic football and hurling) and they were obtained using convenience sampling. The mean years the participants played in a team sports was 11.19 with a standard deviation of 5.88 and the range being 1-30 years.

Frequencies for the current sample (N =201).

Variable	Frequency	Valid Percentage
Gender		
Male	99	49.3
Female	102	50.7
Work Status		
Working	89	44.3
Working/student	43	21.4
Student	36	17.9
Unemployed	33	16.4
Relationship Status		
Married	37	18.4
Single	91	45.3
Divorced/separated	4	2
Co-habiting	69	34.3

Measures:

The General Health Questionnaire-12 items (GHQ-12) (Goldberg and Williams, 1988) is a self-administered questionnaire aimed at measuring psychiatric well-being (Sanchez-Lopez and Dresch, 2008). It is a 4 point likert scale that comprises of 12 items, the scoring ranges from 0-3 with a possible score range of 0-36, a typical score being 11-12 and a score of 20 plus indicating psychological distress. Hardy et al., (1999) found the GHQ-12 to have good reliability and validity with a cronbach's alpha of .88, indicating that items have an acceptable internal consistency. Sanchez-Lopez and Dresch, (2008) found a cronbach's alpha of .75 for the entire sample, .75 for the females and .76 for the males, thus demonstrating good consistency overall. In the present study the GHQ-12 showed high internal consistency with a cronbach's alpha of .96.

The Satisfaction with Life Scale-short form (SWLS) is a self-report measure of global satisfaction (Diener, et al., 1985). It is a 7 point likert scale ranging from strongly disagree to strongly agree, it comprises of 5 items with a possible score ranging from 5-35, the higher the score indicating that the individual is more satisfied. Corrigan et al., (2013) found a cronbach's alpha of .78, Shevlin et al., (1998) found that the reliability of the scale was .92. In the current study SWLS had an acceptable internal consistency of .97.

The Oxford Happiness Questionnaire-short form (OHQ-S) (Hills and Argyle, 2002). Is a measure of personal happiness. It comprises of 8 items, it is a 6 point likert scale ranging from strongly disagree to strongly agree. Scores range from 8-48 and a high score indicates greater happiness. Cruise, (2006) evaluated the internal consistency and test re-test reliability of the OHQ-S. There was no significant difference in the mean scores between time 1 (m=34.5) and time 2 (m=34.6). Cronbach's alpha at time 1 was .62 and .58 at time 2. Loewenthal, (1996) states that a reliability of .60 is considered acceptable for scales with less than 10 items. A cronbach's alpha of .70 in the present study shows that the scale has an acceptable level of internal consistency.

The UCLA Loneliness Scale (LS) (Russell, et al., 1978) is designed to measure an individual's feelings of loneliness and social isolation. It comprises of 20 items, participants rate each item from 1 (I often feel this way) to 4 (I never feel this way). The scores range from 0-60, the higher an individual scores the lonelier they are. Russell,

(1946) evaluated the scale, the results showed the LS was highly reliable with a Cronbach's alpha of .90 and a test re-test reliability of .73. In the current study the scale had a high Cronbach's alpha of .89.

The Social Support Questionnaire (SSQ) (Cohen et al., 1985) is designed to measure perceived social support. It has 12 items and it is a 4-point Likert scale ranging from definitely false to definitely true. The possible range of scores is from 12-48 with higher scores indicating better social support. Zimet et al., (1988) found the total scale reliability to be .88 the test re-test reliability of the scale was .85, remaining consistent over the two time periods. The reliability of the scale in the present study was high .92.

The International Physical Activity Questionnaire-short form (IPAQ-S) (Craig et al., 2003). This is a 7-item self-report scale measuring the respondents' time spent doing vigorous, moderate and walking activities. The participant's activity is recorded by METs, Jette et al., (1990) define METs as expressing the energy cost of physical activities as a multiple of the resting metabolic rate. This is calculated by vigorous METs (8.0) X days X minutes + moderate METs (4.0) X days X minutes + walking METs (3.3) X days X minutes. Ekelund et al., (2005) found that the IPAQ-S had a moderate criterion validity of .35 and Lee et al., (2011) established a validity of .40 to .49 and stated due to the variance in the scale the internal consistency tends to be low. In the present study the Cronbach's alpha was .55.

The Physical Activity Enjoyment Scale (PAES) (Mullen et al., 2011). Is a measure of individuals' enjoyment of PA, it comprises of 7 items, it is a 7-point Likert scale ranging from strongly disagree to strongly agree, and higher scores indicating higher levels of enjoyment. Mullen et al., (2011) stated that the results revealed good internal reliability at both times .93 and also was strongly correlated with the original PA enjoyment scale that had 18 items (.98 and .97) (Kendzlerski and DeCarlo, 1991). The internal consistency of PAES in the current study was high .93.

Procedure:

Firstly ethical approval was granted for the present study by the ethics committee at The National College of Ireland. The participants were recruited from a number of sports clubs, participants completed the questionnaires either before or after

a training session with their team, as it was the most effective way to get a large number of volunteers. Approximately 240 people were asked to complete the study and 201 volunteered to take part. The participants were firstly informed of the research being undertaken, that their engagement was kept anonymous, and what their participation involved, if they were willing to take part. They were asked to fill out the measures stated in the above, including some demographic questions such as; age, gender, relationship status, work status and how long they have participated in a team sport, all completed via paper and pencil. Altogether it took the participants approximately 15 minutes to complete. The data was collected over a period of 2 months.

Design:

The study was quantitatively based, it was a cross sectional design, as this allowed for there to be numerous variables looked at, at once. The study was survey based and was all completed by paper and pencil. The analysis conducted on the data was standard multiple regression analysis, as the aim was to learn more about the relationship between several predictor variables and a single criterion variable (e.g. Predictor variables – PA, PA enjoyment, social support, and demographics; criterion variable – mental health, thus which of the predictor variables will best predict an individual's mental health). The software used to complete all the analysis was SPSS.

Results

Descriptive statistics were carried out to measure the means (M), standard deviations (SD), possible range, range and the reliability of all eight variables (General health, satisfaction with life, happiness, loneliness, social support, PA, enjoyment of PA and how long the participants have played in a team sports). Results were obtained from the 201 participants whom completed the study, the average age of the participants was 24.61(M) with a SD of 4.42 and a range from 18-36 years. As can be seen in table 1 participants demonstrated a good mental health ($m= 12.19$, $SD= 7.87$), they had high levels of satisfaction ($m= 27.99$, $SD= 6.37$), happiness ($m= 39.65$, $SD= 7.85$) and social support ($m= 39.74$, $SD= 9.69$). They had relatively moderate levels of loneliness ($m= 10.25$, $SD= 10.86$), they also showed average PA enjoyment levels ($m= 14.30$, $SD= 8.04$). Their average METs ($m= 4086.87$, $SD= 2417.98$), participants played in a team sport for an average of 11.19 years ($SD= 5.84$). This data suggesting that on average the current sample had good mental health and were very happy and satisfied with their lives. Yet upon looking at the descriptives it is visible that the standard deviations are relatively high, indicating that the score deviated widely from the mean.

Table 1. Displaying information of descriptive statistics and reliability for all variables.

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Possible Range</i>	<i>Range</i>	<i>Cronbach's Alpha</i>
General Health	201	12.19	7.87	0-36	0-35	.96
Satisfaction with Life	201	27.99	6.37	5-35	10-35	.97
Happiness	201	39.65	7.85	8-48	18-48	.70
Loneliness	201	10.25	10.86	0-60	0-41	.89
Social Support	201	39.74	9.69	12-48	12-48	.92
Physical Activity	201	4086.87	2417.98	-	297-12558	.55
Physical Activity Enjoyment	201	14.30	8.04	7-49	8-49	.93
Years Playing in a Team Sport	201	11.19	5.84	-	1-30	-

Inferential Statistics:

Multiple regression was performed to investigate firstly the ability of age, being female, being single, and being unemployed, PA, social support and enjoyment of PA to predict levels of an individual's positive and negative mental health. Preliminary analysis was completed for all five models being tested to ensure there was no violation

of the assumptions of normality, linearity and homoscedasticity. All correlations in all the models were weak to moderate, ranging between $r = .01$, $p < .001$ and $r = -.76$, $p < .001$. Social support exhibiting the strongest association and gender exhibiting the weakest. This indicates that multicollinearity was unlikely to be a problem, (Pallant, 2010 p. 151) states that multicollinearity exists when the predictor variables are highly correlated $r = .9$ or above.

In the model below (table 2) all predictor variables were statistically correlated with the criterion variable GHQ-12, which indicates the data was suitably correlated with the criterion variable for examination to be reliably undertaken.

Since no priori hypotheses had been used to determine the order of entry of the predictor variable, a direct method was used for the standard multiple regression analysis. The seven predictor variables explained 57% of variance in mental health, $F(7, 193) = 36.99$, $p < .0005$.

In the final model three of the seven predictor variables were statistically significant with social support recording the highest Beta value ($\beta = -.48$, $p < .0005$), PA enjoyment was next ($\beta = -.27$, $p < .0005$), and finally unemployment ($\beta = .18$, $p < .001$). These results indicate that higher levels of social support and greater enjoyment of PA predict better mental health. Yet being unemployed is a weak predictor of worse mental health.

Table 2. Multiple regression model predicting GHQ scores.

	<i>R</i> ²	<i>B</i>	<i>B</i>	<i>SE</i>	CI 95% (<i>B</i>)
Model	57.3***				
Age		.07	.12	.10	.08 / .33
Female		.01	.14	.75	-1.35 / 1.62
Single		-.04	-.57	.94	2.43 / 1.29
Unemployed		.18**	3.83	1.16	1.54 / 6.11
Physical Activity		.00	9.12	.00	.00 / .00
Social Support		-.48***	-.39	.05	-.47 / -.29
Enjoyment of Physical Activity		-.27***	-.26	.06	-.14 / -.38

Note. Statistical significance: ***p* < .001; ****p* < .0005

Multiple regression was again performed to investigate the ability of age, being a female, being single, and being unemployed, PA, social support and enjoyment of PA to predict levels of loneliness.

The seven predictor variables explained 67% of the variance in loneliness, $F(7, 193) = 56.42, p < .0005$.

In this model three of the seven predictor variables were statistically significant, social support was again the highest ($\beta = -.60, p < .0005$), enjoyment of PA ($\beta = -.27, p < .0005$), and being female ($\beta = .19, p < .0005$). These results suggesting that high levels of social support and greater levels of enjoyment of PA predict lower levels of loneliness, while being female is a weak predictor of higher levels of loneliness.

Table 3. Multiple regression model predicting loneliness

	<i>R</i> ²	<i>B</i>	<i>B</i>	<i>SE</i>	CI 95% (<i>B</i>)
Model	67.2***				
Age		.03	.08	.13	-.16 / .33
Female		.19***	4.00	.91	2.21 / 5.80
Single		-.02	-.42	1.14	-2.67 / 1.83
Unemployed		.05	1.48	1.40	-1.28 / 4.25
Physical Activity		.00	6.15	.00	.00 / .00
Social Support		-.60***	-.67	.06	-.79 / -.55
Enjoyment of Physical Activity		-.27***	-.36	.08	-.21 / -.51

Note. Statistical significance: *** $p < .0005$

Multiple regression was performed to investigate the ability of age, being a female, being single, being unemployed, PA, social support and enjoyment of PA to predict levels of life satisfaction.

The seven predictor variables in this model explained 62% of variance in satisfaction with life, $F \{(7, 193) = 45.11, p < .0005\}$.

In the model above three of the seven predictor variables were statistically significant in predicting satisfaction with life, social support was again the highest predictor ($\beta = .47, p < .0005$), the enjoyment of PA ($\beta = .28, p < .0005$), and finally being unemployed ($\beta = -.17, p < .001$). Thus the results suggest that high social support and high enjoyment of PA leads to high levels of satisfaction with life and being unemployed is a weak predictor of lower levels of satisfaction with life.

Table 4. Multiple regression model predicting satisfaction with life.

	<i>R</i> ²	<i>B</i>	<i>B</i>	<i>SE</i>	CI 95% (B)
Model	67.2***				
Age		.00	.00	.08	-.15 / .16
Female		-.09	-1.68	.57	-2.21 / .06
Single		.05	.61	.72	-.81 / 2.02
Unemployed		-.17**	-2.93	.88	-4.67 / -1.18
Physical Activity		.07	.00	.00	.00 / .00
Social Support		-.47***	.31	.04	.23 / .38
Enjoyment of Physical Activity		-.28***	.22	.05	.32 / .13

Note. Statistical significance: ***p* < .001; ****p* < .0005

Multiple regression was performed to investigate the ability of usual seven predictor variables to predict levels of happiness. The seven predictor variables in this model explained 59% of variance in levels of happiness $F \{(7, 193) = 39.13, p < .0005\}$.

Of the seven predictor variables, six were statistically significant in predicting happiness the highest being social support ($\beta = .47, p < .0005$), the enjoyment of PA ($\beta = .40, p < .0005$), being single ($\beta = -.12, p < .05$), PA ($\beta = -.12, p < .05$), being female ($\beta = -.11, p < .05$), and being unemployed ($\beta = -.11, p < .05$). This indicating that high levels of social support and enjoyment of PA predict higher levels of happiness. Being single, low levels of PA, being a female and being unemployed were all weak predictors of happiness.

Table 5. Multiple regression model predicting happiness.

	<i>R</i> ²	<i>B</i>	<i>B</i>	<i>SE</i>	CI 95% (B)
Model	58.7***				
Age		.03	.05	.10	-.15 / .25
Female		-.11**	-1.76	.74	-3.21 / -2.99
Single		.13**	2.07	.92	.24 / 3.89
Unemployed		-.11**	-2.42	1.14	-4.66 / -.18
Physical Activity		-.12**	.00	.00	.00 / .00
Social Support		.47***	.38	.05	.28 / .48
Enjoyment of Physical Activity		.40***	.39	.06	.51 / .27

Note. Statistical significance: ***p* < .05; ****p* < .0005

Multiple regression analysis was finally performed to test the ability of age, being a female, being unemployed, PA, social support, general health and number of years in a team sport to predict enjoyment of PA. The eight predictor variables in this model explained 50% of the variance in levels of PA enjoyment, $F \{(8, 192) = 24.13, p < .0005\}$.

Of the eight predictor variables three were statistically significant in predicting PA enjoyment, levels of PA was the highest predictor ($\beta = -.35, p < .0005$), then general health ($\beta = -.30, p < .0005$) and finally social support ($\beta = .22, p < .005$). Lower levels of PA and better mental health predict better enjoyment of physical activity, and high levels of social support was a weak predictor of enjoyment of PA.

Table 6. Multiple regression model predicting physical activity enjoyment levels.

	<i>R</i> ²	<i>B</i>	<i>B</i>	<i>SE</i>	CI 95% (B)
Model	50***				
Age		-.08	-.14	.13	-.39 / .11
Female		-.06	-.94	.85	-2.61 / .74
Single		-.01	-.20	1.05	-2.27 / 1.86
Unemployed		.05	1.17	1.33	-1.46 / 3.80
Physical Activity		-.35***	-.00	-.00	-.00 / -.00
Social Support		-.22**	-.18	.06	-.30 / -.06
General Health		.30***	.31	.08	.16 / .46
Years in Team Sports		-.04	-.05	.09	-.22 / .12

Note. Statistical significance: ***p* < .005; ****p* < .0005

Discussion

The current study investigated the effectiveness of PA and enjoyment of PA, on an individual's positive and negative mental health. So much focus over the past few decades, has gone to the benefits of PA on an individual's mental health (Swan & Hyland 2012; Bassuk, 2013). This study focused also on the effectiveness of enjoyment of PA, to see whether it was the objective features or the subjective feelings that impacted on our mental health. Standard multiple regression was performed to test the predictive power of five different models.

The first model (table 2) aimed to predict GHQ-12 scores, the model explained 57.3% of variance in the GHQ-12. High levels of social support and enjoyment of PA were predictors of better mental health, Nakashima, (2013); Edwards, (2006) social support inhibits psychological maladjustment. Wankel, (1993) enjoyment of PA may have substantial positive outcomes such as assisting positive psychological health. Being unemployed was a weak predictor of worse mental health.

Table 3 indicates that this second model explains 67.2% of loneliness. Social support was the highest predictor, indicating that lower levels of social support anticipated loneliness, which was as expected Queen et al., (2014) doing activities in a group results in less feelings of loneliness. Lower levels of enjoyment of PA also predicted loneliness, which Wankel, (1993) also found. Being female was a weak but visible predictor of loneliness, Atchley, (1976) women are more likely to report psychological symptoms.

The third model (table 4) which again explained a high amount of the criterion variable, satisfaction with life (62%). High levels of social support and enjoyment of PA predicted higher satisfaction with life, which Strazdins and Broom, (2007) and again Wankel, (1993) also found. Being unemployed was a weak predictor of lower levels of satisfaction with life.

Table 5 tested the factors that predicted happiness, the model explained 58.7% of the levels of happiness. High levels of social support and enjoyment of PA predicted happiness, Edwards, (2006) found that those who were part of a team were more mentally healthy than those who weren't part of a team, and Wankel, (1993) enjoyment

of PA helps, our positive psychological health. Being single, lower levels of PA, being female and being unemployed were all weak predictors of happiness.

Finally table 6 illustrates the factors that best predicted enjoyment of PA. This model explained 50% of the variance of enjoyment of PA, lower levels of PA predicted higher enjoyment levels, this not supporting previous findings, Wininger and Pargman, (2003) enjoyment of exercise is important for determining attachment to exercise, Loehr and Baldwin, (2014) individuals who enjoyed exercise had stronger relations to do so regularly and Boyd, (1966) sports enjoyment was also associated with number of years participating. Better mental health also predicted higher levels of enjoyment of PA, Hu Motl, (2007) individuals with low self-efficacy reported lower enjoyment, and thus engaged in PA less regularly. High levels of social support was a weak predictor of enjoyment of PA, Queen et al., (2014) doing activities in a group results in less negative experiences than doing the activities alone.

Astonishingly PA had no effect on mental health when enjoyment of PA was controlled for, thus supporting the initial hypothesis that it is the subjective perceptions rather than the objective features. Yet from the literature in the above it is visible that there is an extensive amount supporting the benefits of PA. Bassuk, (2013) being physically active is the most important thing that the majority of us can do to maintain our health, Wininger, (2003) participating in regular PA results in many positive physical and psychological effects, yet even though this is widely known Wininger, (2003) states that the majority of Americans do not engage in regular PA, and many of those who start an exercise program quit shortly after, SLAN, (2007) only 41% of Irish adults do the recommended amount of regular PA, and 61% are overweight and obese. PA is also said to have substantial benefits for psychological well-being, Uebelacker, (2013) social support and PA were associated with lower levels of depression and lower levels of incident depressive symptoms over time. Consistently active individuals had above 50% reduced risk of developing depression (Mc Kercher, 2014), yet Chambers, (2007) stated that in Europe 1 in 5 people develop a depressive episode. With the extensive evidence to suggest the comprehensive benefits of PA there is still a substantial amount of the population that does not engage in the recommended amounts. This may be due to enjoyment of PA, as Boyd, (1966); and Loehr and Baldwin, (2014)

found that enjoyment indicated how long one played a sport and also their intentions to exercise regularly.

Yet looking at the findings of the present study, PA enjoyment was a predictor of positive mental health. Relating to it to existing literature, Boyd, (1996) sports enjoyment is crucial in understanding its positive affect in relation to involvement, also Wankel, (1993) PA enjoyment has positive outcomes, by assisting positive psychological health and assisting continuing involvement in PA, leading to obvious physiological benefits. Slavich and Cole, (2013) found that it was individuals subjective feelings that led to their loneliness, rather than their objective, which in turn led to the current study's hypothesis, that it will be the subjective (enjoyment) instead of the objective (PA) that will predict positive mental health, which was supported. Another interesting finding was the fact that social support was a predictor in all models, which could be because the study looked at team sports, this in agreement with Van De Pol and Kavussanu, (2012) individuals involved in a team sport had higher levels of enjoyment, Edwards, (2006) health club members were more psychologically healthy and Haugen, (2013) sports involvement is associated with lower levels of loneliness.

This leads us to the implications of the findings, as you can see there are numerous benefits to PA, yet the current study leads us to believe that enjoyment of PA is more important when looking at mental health. Boyd, (1966) participants who perceived themselves to be more capable in sport, revealed greater levels of enjoyment. Loehr and Baldwin, (2014); Boyd, (1966); and Salmon et al., (2003) state high levels of enjoyment of PA was highly correlated with high levels of regular PA. There is a strong association between enjoyment of PA and positive psychological health (Wankel, 1993); Hagberg et al., (2009) enjoyment of PA is more important for long term influence of health care-based interventions. Thus, prescribing PA to individuals even though they do not enjoy it, may not be beneficial for our psychological health. The present study suggests that enjoyment of PA is more important than PA when predicting positive mental health, more research needs to be done in this area and look at the factors that may contribute to enjoyment of PA. The finding show as well as other literature that enjoyment of PA needs to be considered when participating for psychological well-being, and that the association between PA and positive mental health is not as direct a relationship as once believed. Also high levels of enjoyment is

also associated with regular engagement in PA, which in turn provides the obvious physiological benefits of PA.

There are several limitations that should be considered when interpreting the results; firstly all the measures used in the study were self-report, in which comes some problems such as honesty, participants may have altered their responses to manage their appearance. Also response bias, as in the participants gave consistently similar responses to be quicker at completing the questionnaire, this was particularly noted in the PAES (Mullen et al., 2011). Advances in understanding the importance of enjoyment in PA has been hindered by the use of measures that are not adequately validated, Motl et al., (2001). The IPAQ-S (Craig et al., 2003) had a low reliability (.55), also the calculation of participants activity levels (METS) seemed unreliable, Jette et al., (1990) the energy expenditure values for a given activity vary, according to body size, fitness levels, skill and whether the activity is competitive or not, the IPAQ-S didn't question what specific activity the participants were engaged in, their fitness levels, their weight or whether it was competitive or not. Thus the MET values for each participant may be inaccurate. Finally participants were tested before and after a training session, which may have an effect on their enjoyment levels, as Van De Pol and Kavussanu, (2012) found differences in enjoyment levels for training and competition.

This study also had several strengths; it is among a few studies that have researched the effectiveness of PA when enjoyment of PA was controlled for, it was done using a relatively large representative sample. It has many implications for the field of sports psychology and future research can further benefit our understanding. Also each regression model included a number of other variables as well as PA and enjoyment of PA while predicting mental health, such as age, gender, relationship status, work status and social support, thus minimising the risk of confounding variables.

In conclusion, the findings of this study indicate that enjoyment of PA is a better predictor of mental health than PA itself. Suggesting that it is the subjective rather than the objective that is effecting our mental health (Oerelmans, 2014; and Slavich and Cole, 2013). This having implications for health care, as in interventions that may be utilized for psychological maladjustment, Hagberg et al., (2009) enjoyment of PA may

be important for long term effectiveness of health care-based interventions. Although a modest finding, there is other research to suggest the importance of enjoyment of PA (Wankel, 1993), thus this needs to be researched further, as this type of information is important to advance our understanding of participation of PA and also the benefits of enjoying the PA we engage in and whether PA should be used as an intervention or prevention for mental health problems, even if it is not enjoyed. Despite the limitations, the current study is important as it focused on an aspect of sports psychology that seems to be considered as insignificant compared to the all-round benefits of PA. Future research in this field should repeat this study, amending the limitations, the factors that may contribute to PA enjoyment, and also the difference between enjoyment in training and competition in individual and team sports, to give a better understanding of prolonged engagement in PA and sports, and also how it can provide psychological benefits. As Boyd, (1996) did find that those who felt more capable in what they were participating in, found PA more enjoyable. The study shows the importance of enjoyment in PA on our continuing involvement, commitment and our mental health and thus should be considered as a substantially influential factor when looking at PA, as Puente-Diaz stated enjoyment is the fuel to keep going.

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Appendices

Appendix A

Information Sheet

This research study is being conducted as part of the requirements for the Bachelor's Honours Degree in Psychology in the National College of Ireland. The main purpose of this study is to better the understanding of the effects of physical activity in a team based sport and enjoyment of the exercise on an individual's positive and negative mental health.

You will be asked to complete the following questionnaire, which should take approximately 20 minutes to complete. The questionnaire will assess your levels of physical activity; enjoyment of physical activity; and also measure certain indicators of positive and negative mental health.

Your participation is completely voluntary and if you do choose to take part, all information will be kept confidential. Your participation is greatly appreciated.

Thank you.

Appendix B

Demographics

1. Gender: (please circle one) Male Female

2. Age: _____ years

3. How long have you been participating in a team sport? _____ years

4. Relationship status? (please circle one)

Married
Single
Divorced/separated
Co-habiting

5. Circle one that best applies to you:

Working
Student/working
Student
Unemployed

Appendix C

General Health Questionnaire

We want to know how your health has been in general over the last few weeks. Please read the questions below and each of the four possible answers. Circle the response that best applies to you. Thank you for answering all the questions.

Have you recently:

1. been able to concentrate on what you're doing? better than usual (0); same as usual (1); less than usual (2); much less than usual (3).
2. lost much sleep over worry? Not at all (0); no more than usual (1); rather more than usual (2); much more than usual (3).
3. felt that you are playing a useful part in things? more so than usual (0); same as usual (1); less so than usual (2); much less than usual (3).
4. felt capable of making decisions about things? more so than usual (0); same as usual (1); less than usual (2); much less than usual (3).
5. felt constantly under strain? Not at all (0); no more than usual (1); rather more than usual (2); much more than usual (3).
6. felt you couldn't overcome your difficulties? Not at all (0); no more than usual (1); rather more than usual (2); much more than usual (3).
7. been able to enjoy your normal day to day activities? more so than usual (0); same as usual (1); less so than usual (2); much less than usual (3).
8. been able to face up to your problems? more so than usual (0); same as usual (1); less than usual (2); much less than usual (3).
9. been feeling unhappy or depressed? not at all (0); no more than usual (1); rather more than usual (2); much more than usual (3).
10. been losing confidence in yourself? not at all (0); no more than usual (1); rather more than usual (2); much more than usual (3).
11. been thinking of yourself as a worthless person? not at all (0); no more than usual (1); rather more than usual (2); much more than usual (3).
12. been feeling reasonably happy, all things considered? more so than usual (0); same as usual (1); less so than usual (2); much less than usual (3).

The Satisfaction with Life Scale

Directions: Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number in the line preceding that item. Please be open and honest in your responding.

1 = Strongly Disagree 2 = Disagree 3 = Slightly Disagree 4 = Neither Agree or Disagree 5 = Slightly Agree 6 = Agree 7 = Strongly Agree

- _____ 1. In most ways my life is close to my ideal.
- _____ 2. The conditions of my life are excellent.
- _____ 3. I am satisfied with life.
- _____ 4. So far I have gotten the important things I want in life.
- _____ 5. If I could live my life over, I would change almost nothing.

The Oxford Happiness Questionnaire-short form

Instructions: Below are a number of statements about happiness. Would you please indicate how much you agree or disagree with each by entering a number alongside it according to the following code:

1= strongly disagree; 2= moderately disagree; 3= slightly disagree; 4= slightly agree; 5= moderately agree; 6= strongly agree.

You will need to read the statements carefully because some are phrased positively and others negatively. Don't take too long over individual questions; there are no 'right' or 'wrong' answers and no trick questions. The first answer that comes into your head is probably the right one for you. If you find some of the questions difficult, please give the answer that is true for you in general or for most of the time.

1. I feel that life is very rewarding _____
2. I feel fully mentally alert _____
3. I don't feel particularly pleased with the way I am _____
4. I find beauty in some things _____
5. I am well satisfied about everything in my life _____
6. I can fit in everything I want to _____
7. I don't think I look attractive _____

8. I do not have particularly happy memories of the past _____

Loneliness Scale

INSTRUCTIONS: Indicate how often each of the statements below is descriptive of you. 1 indicates "I often feel this way" 2 indicates "I sometimes feel this way" 3 indicates "I rarely feel this way" 4 indicates "I never feel this way"

1. I am unhappy doing so many things alone 1 2 3 4
2. I have nobody to talk to 1 2 3 4
3. I cannot tolerate being so alone 1 2 3 4
4. I lack companionship 1 2 3 4
5. I feel as if nobody really understands me 1 2 3 4
6. I find myself waiting for people to call or write 1 2 3 4
7. There is no one I can turn to 1 2 3 4
8. I am no longer close to anyone 1 2 3 4
9. My interests and ideas are not shared by those around me 1 2 3 4
10. I feel left out 1 2 3 4
11. I feel completely alone 1 2 3 4
12. I am unable to reach out and communicate with those around me 1 2 3 4
13. My social relationships are superficial 1 2 3 4
14. I feel starved for company 1 2 3 4
15. No one really knows me well 1 2 3 4
16. I feel isolated from others 1 2 3 4
17. I am unhappy being so withdrawn 1 2 3 4
18. It is difficult for me to make friends 1 2 3 4
19. I feel shut out and excluded by others 1 2 3 4
20. People are around me but not with me 1 2 3 4

Social Support Questionnaire

Instructions: This scale is made up of a list of statements each of which may or may not be true about you. For each statement circle "definitely true" if you are sure it is true about you and "probably true" if you think it is true but are not absolutely certain. Similarly, you should circle "definitely false" if you are sure the statement is false and "probably false" if you think it is false but are not absolutely certain.

1. If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me.

1. definitely false 2. probably false 3. probably true 4. definitely true

2. I feel that there is no one I can share my most private worries and fears with.

1. definitely false 2. probably false 3. probably true 4. definitely true

3. If I were sick, I could easily find someone to help me with my daily chores.

1. definitely false 2. probably false 3. probably true 4. definitely true

4. There is someone I can turn to for advice about handling problems with my family.

1. definitely false 2. probably false 3. probably true 4. definitely true

5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me.

1. definitely false 2. probably false 3. probably true 4. definitely true

6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.

1. definitely false 2. probably false 3. probably true 4. definitely true

7. I don't often get invited to do things with others.

1. definitely false 2. probably false 3. probably true 4. definitely true

8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).

1. definitely false 2. probably false 3. probably true 4. definitely true

9. If I wanted to have lunch with someone, I could easily find someone to join me.

1. definitely false 2. probably false 3. probably true 4. definitely true

10. If I was stranded 10 miles from home, there is someone I could call who could come and get me.

1. definitely false 2. probably false 3. probably true 4. definitely true

11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.

1. definitely false 2. probably false 3. probably true 4. definitely true

12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.

1. definitely false 2. probably false 3. probably true 4. definitely true

Physical Activity Questionnaire

The questions are about the time you spent being physically active in the last 7 days. They include questions about activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

1a. During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling,?

Think about only those physical activities that you did for at least 10 minutes at a time.
_____ days per week

or none _____

1b. How much time in total did you usually spend on one of those days doing vigorous physical activities? _____ hours _____ minutes

2a. Again, think only about those physical activities that you did for at least 10 minutes at a time. During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis?

Do not include walking. _____ days per week

or none _____

2b. How much time in total did you usually spend on one of those days doing moderate physical activities? _____ hours _____ minutes

3a. During the last 7 days, on how many days did you walk for at least 10 minutes at a time?

This includes walking at work and at home, walking to travel from place to place, and any other walking that you did solely for recreation, sport, exercise or leisure. _____ days per week

or none _____

3b. How much time in total did you usually spend walking on one of those days?

_____ hours _____ minutes

The last question is about the time you spent sitting on weekdays while at work, at home, while doing course work and during leisure time. This includes time spent sitting at a desk, visiting friends, reading traveling on a bus or sitting or lying down to watch television.

4. During the last 7 days, how much time in total did you usually spend sitting on a week day?
_____ hours _____ minutes

Physical Activity Enjoyment Questionnaire

1 = Strongly Disagree; 2 = Disagree; 3 = Slightly Disagree; 4 = Neither Agree or Disagree; 5 = Slightly Agree; 6 = Agree; 7 = Strongly Agree.

Items:

I find it pleasurable _____

It's a lot of fun _____

It's very invigorating _____

It's very gratifying _____

It's very exhilarating _____

It's very stimulating _____

It's very refreshing _____