Final Evaluation Report

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Abbreviations used in this report

GStG – Get Set to Go

Get Set to Go is a national peer-led physical activity programme aimed at improving mental health recovery.

PR – Peer Researchers

Peer Researchers are individuals with lived experience who were employed through the evaluation team and contributed to data collection, data inputting and reviewing of this report.

PN – Peer Navigators

Peer Navigators are the volunteers who have been supporting and sometimes leading the group sport and physical activity sessions in each of the local Minds.

SC – Sports Coordinator

The Sports Coordinators led the Get Set to Go programme locally, and were the main point of contact in each of the local Minds.

1.0 Get Set to Go Evaluation: Executive summary

Introduction

In November 2014, Mind implemented a three-year initiative (Get Set to Go: GStG) to encourage individuals with mental health problems to become more involved in mainstream sport. The programme was delivered via three strands, as follows:

Local Delivery: Eight local Minds, across four priority regions (the North West, North East, London and West Midlands) provided tailored support using peer support and one-to-one advice. The aim was to increase interest and participation, and decrease barriers to sport via physical activity and sports groups. Mind worked with mainstream facilities to improve awareness around mental health by providing training to sport staff.

Digital Delivery: Mind developed complimentary online 'sport peer support' to their existing online peer support community, Elefriends.

National Delivery: Three nationwide communications campaigns that focused on three separate population groups (1st: general population, 2nd: women, 3rd: South Asian women) were launched throughout the duration of the GStG programme via films, advertising, information resources, and social media. Motivational messages aimed to increase the value of sport for wellbeing and mental health recovery.

Mind commissioned Loughborough University and University of Northampton to evaluate the effectiveness of all three delivery strands of the programme. The two year evaluation captures data from a range of participant samples associated with the GStG programme (service users, Peer Researchers (PR), Peer Navigators (PN), and Sports Coordinators (SC)) using a number of qualitative and quantitative data collection methods.

Evaluation Aim: To understand the effectiveness of the Get Set to Go programme, the evaluation aimed to address the following objectives:

- *Objective 1:* To understand the relationship between sport and mental health recovery
- *Objective 2:* To understand the effectiveness of the Peer Navigator model for encouraging sustained sports participation
- *Objective 3:* To understand the impact of online peer support on mental health
- *Objective 4:* To understand the impact of online peer support on sport participation

Evaluation Approach: We adopted the 'Realist Evaluation Approach' (Pawson & Tilley, 1997) alongside elements of an experimental evaluation process, with guidance from the Standard Evaluation Framework for Physical Activity Interventions (Cavill et al., 2012). Core questions were asked to address each objective. They were; 1) what is the association between physical activity and mental wellbeing; 2) what are the reasons for this association; and 3) how can a peer-led intervention for mental health service users optimise the potential mechanisms occurring within the programme that produce positive change.

Methods: We used a combination of quantitative and qualitative approaches to obtain different but complementary data to best address our objectives. Over 1000 participants who were either registered on Get Set to Go (n=725), Elefriend users (n=207), or part of the control sample (n=77) were invited to complete a survey at 4 time points (at registration, and at a 3, 6 and 12 month follow up). The survey assessed changes to variables associated with mental health, perceived social provision, self-reported physical activity behaviour, and barriers and motivations to exercise. Forty-two participants of the GStG programme completed a mood and exercise diary for 7 days to assess the acute influence that exercise has on mood. Sport staff who attended training for Mental Health Awareness in Sport and Physical Activity (MHASPA: n=218) completed a survey pre and post training and at a 6 month follow up. Quantitative data was analysed using descriptive and inferential statistics via SPSS (v20). We conducted interviews and focus groups with GStG participants (n=35), Peer Navigators (n=28), Peer Researchers (n=9), Elefriends users (n=21), Sports Coordinators (n=12), and participants who belonged to the target population for each national campaign (n=24). Qualitative methods explored experiences of the programme, and *how, why* and *if* the programme was effective and was analysed thematically. Anonymised findings were discussed with the wider evaluation team who assisted in the development of recommendations.

Key Findings:

Detailed qualitative data supported by quantitative findings revealed that Get Set to Go was effective in improving levels of physical activity, and variables associated with improved mental health (perceived social provision) for those who participated in the local delivery. Key findings for each objective are detailed below:

***Objective 1:* To understand the relationship between sport and mental health recovery**

Relationship between sport and perceived social support

Perceived social support increased from baseline to 3 months ($p<.01$) for those who engaged in the evaluation. Qualitative information indicated that social provision was improved through increased social interaction and specifically, building connections via group activities with similar others. Those who reported higher levels of social provision also reported increased perceptions of mental wellbeing, and an ability to cope and be resilient across all time points ($p<.01$). This highlights the importance of programmes, like GStG, for addressing loneliness and isolation.

Relationship between sport and mental wellbeing

Quantitative analysis indicated that mental wellbeing was maintained, for participants of GStG and the control group, over the 12 month measuring period. Associations provided information to suggest that the mechanisms of change targeted by the GStG programme (e.g., providing social support, increasing motivation to be active, and reducing barriers to exercise) are associated with positive mental health outcomes. Qualitative data revealed that participants saw GStG as an important first step towards their recovery process. They attributed accessing further support, and engaging in more opportunities, to improvements in confidence and self-esteem. Participants within the evaluation felt able to cope better and be more resilient in their day to day lives. This was attributed to improvements to:

- General and acute mood: Exercise was associated with positive feelings on the same day that they were active supported through mood diaries (positive feelings $p<0.5$)
- Self-esteem via perceptions of mastery, improvements to physical self, comfort in the knowledge that they were a valued part of a community
- Structure to the week creating perceptions of stability

However, participants disclosed that they continued to experience episodes of poor mental and physical health which negatively impacted on their physical activity behaviour.

Relationship between motivation to exercise and mental wellbeing

Autonomous motivation to exercise was associated with mental wellbeing, social support, coping and resilience across all time points ($p<.05$). Intrinsic motivation was positively associated with overall health and negatively associated with barriers to exercise ($p<.05$). Conversely, controlled forms of motivation were associated with increased barriers to exercise and negatively associated

with mental wellbeing, social support and coping and resilience ($p<.05$). Increases in mental wellbeing were associated with higher levels of overall health.

***Objective 2:* To understand the effectiveness of the Peer Navigator model for encouraging sustained sports participation**

Overall, participants who engaged in the evaluation were, on the whole, 'very satisfied' or 'satisfied' with the programme (70%), and 75% of responses rated the programme as excellent or very good.

Effectiveness of the Peer Navigator model on levels of sport and physical activity

GStG participants engaged in 30 minutes of exercise on more days at 3 months (3.63 days), 6 months (3.76 days) and 12 months (3.02 days) compared to baseline (2.15 days). Where the control group maintained their level of activity, evaluation participants increased their number of days of activity by, on average, 1.3 days. Participants engaged in at least one more day of vigorous activity per week after 6 months. Participants increased days on which they were moderately active by almost 2 days per week after 6 months. Qualitative findings showed that during periods of low mood and low motivation, participants were generally able to maintain some walking behaviour.

Effectiveness of the Peer Navigator model on barriers to exercise

Although there is not a significant change in barriers to exercise, it is worth noting that there is a trend for change in the intervention participants (but not in the control group) that perceived barriers to exercise had reduced ($p=.07$). Further, those who perceived lower barriers to exercise were more active, reported better mental wellbeing, physical health, and spent less time sitting ($p<.05$) at 3 and 6 months.

Lived experience of mental health problems and the Peer Navigator model

The peer model, with lived experience of mental health problems at the heart, was critical to facilitating a positive exercise experience for participants. Importantly, it was the supportive social environment that enabled participants to feel comfortable enough to return to sessions following a period of ill health (physical or mental). Peers on the programme, Peer Navigators, Sports Coordinators and friends/family outside of the programme were all key sources of support for participants. Findings indicated that increased and sustained participation was linked to; the peer led nature of the programme, the positive supportive social environment (including personalised texts as prompts), and group sessions where participants were able to connect with similar others.

Effective delivery of the Peer Navigator model

A clear line of communication, structure to the sessions and to the wider programme, and accessibility of sessions contributed to the adherence to the programme. Peer Navigators and Peer Researchers were able to carry out their roles effectively with support from the Sports Coordinators and evaluation team respectively. Strong relationships between SC, PN and the mainstream facilities enabled a smooth running of the programme. The MHASPA training developed, and led by Mind, was successful in creating a positive change to mainstream sport staff's perceptions of understanding, awareness, confidence of addressing stigma, and adapting sessions for service users. This change was maintained 6 months following the training ($p<.01$). However, further engagement from sports staff in such training is required to help reduce the stigma of mental health problems in mainstream sport facilities.

Objective 3: **To understand the impact of online peer support on mental health**

Impact of online peer support on mental wellbeing

Analysis revealed an increase in perceived wellbeing from baseline to 3 months ($p<.05$) in Elefriend users. Participants provided information about how positive interactions with others, who were also experiencing similar difficulties, helped to improve their mental wellbeing. Up to 86% of participants reported that the Elefriends community was 'somewhat' or 'very' useful for managing their mental health.

Impact of online peer support and perceived social provision

Quantitative data supported a positive change to perceived social provision with significant improving from baseline to 6 months ($p<.01$). Associations provided evidence that supportive, peer-to-peer interactions are an effective mechanism to provide social support in order to improve mental wellbeing. It was the lived experience of mental health problems that resonated with the participants. Participants explained that Elefriends was a safe, non-judgemental space to interact with like-minded individuals and helped to reduce isolation. Connections often provided reassurance, and achievements were acknowledged and praised with immediate feedback.

Objective 4: **To understand the impact of online peer support on sport participation**

Impact of online peer support on levels of physical activity

The online shared experience of mental health problems contributed to maintained physical activity behaviour, although only for those who were already active. Quantitative findings showed no increases to levels of physical activity (p=.48). Those who reported autonomous reasons to exercise reported more time spent being active (p<.05). Those who reported more time spent sitting also reported lower levels of mental wellbeing highlighting the importance of reducing sitting time.

Online peer support for motivation and positive attitudes to exercise

Online interactions with others helped to improve quality of motivation and attitudes towards exercise. Quantitative findings showed positive changes to motivation (intrinsic motivation increased up to 12 month follow up: p>.01; identified regulation increased up to the 3 month follow up: <p.01; barriers to exercise reduced up to the 3 month follow up: p<.05). Information available on the Elefriends website helped to positively change attitudes towards exercise and reaffirm existing knowledge. Specifically, testimonials and detailing benefits of exercise reinforced the message that physical activity was good for mental health. This information was most helpful when brief and concise.

Conclusions

We conclude that participants from the local delivery, and involved in the evaluation, have increased their levels of physical activity, are displaying important improvements to psychological processes (mechanisms) associated with improved mental health, and are satisfied with the GStG programme. The peer-led group sessions appear to be the key active ingredient for the effectiveness of the programme when delivered in a motivationally supportive manner, and with the support of mainstream facilities. Online information alone is not sufficient to support individuals with mental health problems to become more physically active but is beneficial to support those who already are.

Recommendations

For the local delivery, we recommend:

- Sources of support from outside of the programme are included in the wider programme.
- Concentrating efforts on providing a regular timetable of sessions and minimise schedule changes and cancellations.

- The GStG project focuses efforts on increasing the quality of motivation of their participants by facilitating feelings of autonomy, competence and connectedness. For example, focusing on fun and enjoyment, increasing the value of exercise for the participant, facilitate learning of new skills within the capabilities of the individual, non-controlling reinforcement, acknowledging negative feelings.
- A continued focus on reducing the barriers to exercise. Specifically, focusing information on *how* to overcome barriers and in particular the very initial barriers (e.g., providing information about how someone might expect feel when attending something or somewhere new).
- Encouraging participants to reduce their time sitting as well as increasing the amount of exercise they do.
- Promoting walking as an achievable and sustainable method of being active, as well as promoting the numerous benefits of walking.
- Group sessions continue to be used to promote quality connections with others, and foster empathetic and welcoming environments.
- The peer model embedded throughout GStG continues to be a key part of the programme design.
- Putting a structure in place where Peer Navigators and Peer Researchers can meet (either face to face or via online communication) regularly to discuss ideas, to raise concerns and share best practice.
- Concerted efforts are made with new participants to support them in the first session where participants expressed being at their most anxious. For example, it is useful to provide them with practical information about the session prior to the session so they know exactly what to expect, thus reducing anxiety of the unknown.
- Using personalised supportive text messages as prompts for participants including those participants who have lapsed in their physical activity behaviour.
- When groups are organised, logistical considerations are made and information is provided to prospective participants on how they can get to the session.
- GStG continues to engage mainstream facilities in a positive manner. We also recommend that staff from mainstream facilities attend the mental health awareness training to reduce

stigma, and to gain information on how best to interact with individuals who have mental health problems to help prevent participants dropping out or lapsing from the programme.

For the digital delivery, we recommend:

- Any information provided by the Ele is brief and concise so that participants are not overwhelmed by the amount of content and are able take away the key messages.
- The Ele continues to host specific chat room conversations around physical activity, but focus on the very initial barriers, and what individuals have done to overcome those barriers. Positive peer to peer interaction should be encouraged.
- The online Elefriends team consider ways that participants can access local information via the Elefriends platform to attend group sessions/arrange meet ups off line.

For future evaluation, we recommend:

- Using measures specifically developed for this population group, and mental wellbeing measures that assess changes in negative symptoms as well as positive symptoms. We also recommend using situational and contextual measures to assess mental health as well as global measures to understand if individuals are experiencing positive mental wellbeing in certain contexts (e.g., in groups) or situations (e.g., when they are exercising).
- The evaluation is embedded further into the programme to reduce drop out from the evaluation. For example, include the survey follow ups as touch points with local Minds and the participants.
- Clarity and consistency is provided for the length of time that participants can engage in the programme. For example, whether the programme is for 12 weeks as a one off, a 12 week programme which participants can re-enrol or a continuous programme where participants can attend every week for the entire duration of the programme. Alternatively, the evaluation should assess frequency of attendance instead of duration.
- Future evaluation should make a concerted effort to work with the local Minds to engage individuals in the evaluation who are no longer attending sessions. For example, staying in touch or offering small incentives as a thank you for providing the evaluation with important information.

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4.0 Physical activity for better mental health: A literature review

Mental health continues to be a public health concern (Wittchen et al., 2011) costing the UK an estimated £22.5 billion per year (McCrone, Dhanasiri, Patel, Knapp, & Lawton-Smith, 2008). One in four of us will experience one or more of the broad range of mental illnesses (e.g., anxiety, bipolar disorder, schizophrenia, depression) throughout our lifetime, and one in six of us in the UK will experience mental health problems in any one week (DoH, 2017). Individuals with mental health problems and mental illness have up to 20 years shorter life expectancy compared to the general population (De Hert et al., 2011; Kazdin & Rabbitt, 2013; Walker, McGee, & Druss, 2015). This gap is largely due to physical inequalities and associated non-communicable diseases. For example, individuals with mental health problems have increased rates of comorbid physical illness (i.e., higher risk of obesity and diabetes; Ribe et al., 2014). Many of these associated risk factors could be ameliorated through lifestyle changes (e.g., exercise and diet). A complicating factor is that people with mental health problems have increased incidences of adverse health behaviours, including tobacco smoking, substance use, physical inactivity, and poor diet. These behaviours, alongside medication for mental illness, further contribute to the high rates of chronic medical conditions (Walker et al., 2015). Public efforts should therefore be directed towards both physical and mental health improvement.

In 2014, The Lancet Psychiatry called for a combined physical and mental health approach to health-care systems stressing that individuals should not be asked to choose between good physical or good mental health, but be given every opportunity and encouragement to achieve both. Chronic physical health problems might also exacerbate or be accompanied by mental illness, which can result in patients entering a cycle of mental and physical decline (The Lancet Psychiatry, 2014).

Benefits of physical activity for those with mental health problems

Individuals with mental health problems have much to gain from a regularly active lifestyle. Rosenbaum, Tiedemann, Sherrington, Curtis, & Ward, (2014)'s highly cited meta-analysis identified 39 randomised controlled trials investigating the impact of physical activity on mental illness. The meta-analysis revealed a large effect size (0.80) for the outcome of depressive symptoms (e.g., low mood and energy). Secondary analyses also revealed a large effect on symptoms of schizophrenia, a small effect on body composition and a moderate effect on quality of life and functional exercise capacity. These results provide compelling evidence of the impact of physical activity on *both* physical and mental health outcomes. As such, The National Institute of Clinical Excellence has now included physical activity as a recommended treatment for mild to moderate depression. A recent meta-analysis suggests that various modes of exercise can be effective for improving outcomes of mental illness (Firth et al., 2016), including aerobic, anaerobic, resistance exercises, individually based and group exercise activities. The benefits of exercise are, however, not maintained if the individual is not *regularly* physically active. This emphasises the importance of maximising adherence to exercise within and beyond exercise interventions. Researchers (e.g., Whitelaw et al., 2010) suggest a range of possible explanatory mechanisms for the benefits to exercise, all of which can be experienced concurrently (depending on the activity context, type of exercise and preference of the individual). In physiological terms, improved mental wellbeing is perceived to be associated with various changes such as; increases in endorphins increased, core body temperature, changes in the serotonergic systems, and effects on neurotransmitters (Bouchard, Blair, & Haskell, 2006). Improved mental wellbeing is also associated with improvements to perception of the physical self (predictive of self-esteem) via weight loss, physical fitness and with the feeling that the body has increased muscle tone (Biddle & Mutrie, 2007). Psychological constructs have also been identified as playing a part. For example,

experiencing a sense of mastery is associated with an increase in self-worth that accompanies the accomplishment of succeeding in a sporting skill or physical activity task. Engaging in physical activity is thought to create a distraction that can take us away from stressful thoughts or areas of our lives (Penedo & Dan, 2005). Gains from wider sociological factors also play a part in mental health improvement as sport and physical activity often engenders social interaction and a sense of belonging in shared experiences which lead to increases in self-esteem (Bailey, 2006).

Barriers to Exercise

Despite the growing evidence of the benefits of physical activity for improved mental health, those with poor mental health face additional barriers to adopting and maintaining an active lifestyle. Individuals experiencing mental health problems engage in significantly less physical activity and significantly more sedentary behaviour than healthy controls (Vancampfort et al., 2016, Stubbs et al., 2016), and experience certain highly cited barriers (Soundy, Stubbs, Probst, Hemmings, & Vancampfort, 2014). For example, qualitative studies on barriers to exercise for individuals based in the community and living with mental illness include; a limited experience of physical activity engagement, the impact of the illness (negative symptoms) and effects of medication, effects of anxiety, lack of finances and the influences of support networks (Johnstone, Nicol, Donaghy, & Lawrie, 2009). The desirable outcomes of exercise such as stress reduction, mood improvement, and increased energy are inversely related to the barriers of depression, anxiety, stress and fatigue which are associated with low levels of participation in exercise. Firth et al., (2016) and colleagues reported that low mood and stress were identified as the most prevalent barriers to engaging in exercise (61% of 6431) and 50% of respondents reported lack of social support. Because physical activity provides important health benefits and many individuals with poor mental health are not meeting established recommendations, improving the physical activity levels of these individuals can be a challenge. Therefore, research has focused on improving the efficacy and effectiveness of

physical activity interventions to adequately address the barriers to sport and physical activity and how to promote the factors that enable participation.

Physical activity interventions for those with mental health problems

Physical activity interventions are increasingly being recognised as an effective component of treatment for poor mental health and mental illness (Rosenbaum et al., 2016). The somatic benefits of physical activity have been established. However, the impact on mental health outcomes is less clear, with often small sample sizes, short in duration with limited or short follow ups, and unclear approaches to intervention design and delivery impacting robust evaluation. A Cochrane review (Cooney et al., 2013) of physical activity interventions for depression suggested a pooled standardised mean difference of 0.82 (95% confidence interval) based on 23 trials and 907 participants. However, this evidence is argued to be a reduced value than the reality due to several methodological and analytical issues and should be considered with caution (Ekkekakis, 2015). Ekkekakis argues the method of synthesising the results through analysis resulted in a 'shrunk' pooled standardised mean difference. Longer interventions with longitudinal assessment including both quantitative and qualitative measures are important to understand the often complex physical activity and mental health relationship where many interlinked determinants are present. Examples of successful interventions have primarily come from clinical services where health professionals/clinicians with expertise in exercise prescription (i.e., physiotherapists, exercise physiologists) deliver the programmes. Other settings with a growing interest in the role of clinical exercise programmes (e.g., Headspace in Australia, Rosenbaum et al., 2016) has led to health professionals and clinicians embedding physical activity into standard psychological treatment (Rickwood, Telford, Parker, Tanti, & McGorry, 2014). One of the largest published randomised controlled trials for depression in primary care (TREAD: TREAtment of Depression with physical activity) in the UK (participants= 361 participants) reported that those who received the

intervention increased physical activity compared with those receiving usual care alone, although there was no evidence to suggest that the intervention brought about any improvement in symptoms of depression or reduction in antidepressant use at the four month follow-up point (Chalder et al., 2012). Academic critique has pointed towards methodological limitations to explain the results. The main implication of the results was that advice and encouragement to increase physical activity may not be an effective strategy for reducing symptoms of depression as a standalone approach. Although the intervention increased physical activity, the increase may not have been sufficiently large enough to influence depression outcomes.

The effectiveness of internet-delivered interventions for individuals with mental health problems and mental illness has demonstrated varying degrees of success for different diagnosis (e.g., Andrews et al., 2010, Perini et al., 2009, Newby et al., 3013). A systematic review investigating online interventions for mental illness, specifically targeting physical activity behaviour, concluded that online physical activity interventions may have positive effects on depression symptoms (but effect size and mechanisms of change remain unclear). There were, however, no differences in physical activity participation (Rosenbaum, Newby, Steel, Andrews, & Ward, 2015). The authors urged future research to explore the efficacy and acceptability of online physical activity interventions for those with poor mental health/mental illness.

Literature on the delivery of interventions (Whitelaw, Teuton, Swift, & Scobie, 2010) mention various effective intervention delivery principles. Whitelaw and colleagues argue there is a need for opportunities to be based on a whole system or multi-sector approach, including schools, leisure facilities, health services and community based delivery rather than relying solely on clinical care. Ease of access to high quality and safe activity opportunities and facilities are particularly important (Lotan et al., 2005). Physical activity provision has shown to be more acceptable to participants when the sessions are associated with positive and enjoyable

experiences, decreased pressure, and with success based on an immediate personal sense of accomplishment, rather than winning within a competitive environment (Biddle et al., 2005). With regards to the type of activity itself, literature suggests that participants should be able to experience a range of activities (e.g., strength training, individual or group activities; Fox, 1999). Preferably, this should be based on individual's choice and personally determined goals (Biddle et al., 2005). Group based physical activity interventions have also shown success. Harden et al. (2015) explain that group-based physical activity interventions have worked for a variety of populations, including groups who are hard to reach. However, the cost and sustainability of such programmes is less understood. There is also a perception that activity, within a group or alone, should attempt to foster psychological competencies (feelings of control, autonomy and self-efficacy: Biddle et al., 2005). Finally, literature suggests that the socio-cultural context is also influential within physical activity programmes (Faulkner & Taylor, 2009). A 'peer model' fostering participation in activities, and social support from family members, friends and peers has been shown to be preferable (Lotan et al., 2005).

Social Support: Using a peer model in physical activity interventions

Social support is defined as the "availability of people on whom we can rely: people who let us know that they care about, value, and love us, and are willing to assist us to meet our resource and psychosocial needs" (Sarason, Levine, Basham & Sarason, 1983; pg. 127). Social relationships are important for emotional health and wellbeing (Cacioppo & Hawkley, 2003) and can act as a buffer towards the negative impact of stress (Chronister et al., 2013). A perceived lack of social support is one of the most influential and highly cited barriers to exercise participation for individuals with mental health problems (Chronister et al., 2013; Firth et al., 2016; Soundy et al., 2015). This absence of social support can lead to increased internalised stigma and labelling, and societal stigma (Chronister et al., 2013). Therefore, establishing social relationships is an essential

part of fostering self-care strategies (e.g., increased physical activity engagement, Staal & Jespersen, 2015). Researchers have investigated the socio-contextual environment to explain; how quality interactions are established within physical activity settings, how relationships are formed, and how relationships can facilitate maintained participation (Brymer & Davids, 2016). A positive socio-contextual environment should generate a sense of ease and comfort for an individual, with enjoyment as a central focus to the sessions that take place in a friendly and welcoming atmosphere (Brymer & Davids, 2016).

Engaging in physical activities with others can provide the opportunity to socialise and develop a sense of connection through group identification, approval and purpose (Bailey & McLaren, 2005). Sources of support for physical activity participation have included the support of peers (Shepard et al., 2008; Holley, Gillard & Gibson, 2015). Peer support among persons with mental health problems is largely considered a recent phenomenon, with the first published account dating 1991, and is attributed to the mental health service user movement that began in the 1970s (Davidson, Bellamy, Guy, & Miller, 2012). Numerous studies have since stressed the importance of using peer support within the recovery plan for mental illness (Davidson et al., 2012; Drake & Whitley, 2014). Peer support within the context of physical activity interventions can provide an individual with the opportunity to interact within a community of similar others, which should enhance feelings of connectedness. It is proposed that experiences associated with mental health problems are then normalised (Kidd et al., 2015). The nature of the relationship between peer provider and recipient is important to consider for effective peer support. This relationship is characterised by trust, acceptance, understanding, and the use of empathy. One study quoted a participant stating, in relation to peers, “we understand one another, we accept one another” p 178 while another said “it brings companionship and a feeling of equality and respect” (Davidson et al., 2012, p138). However, highly valued peer support remains uncommon

within the design of physical activity interventions. A pilot peer-led intervention to improve medical self-management for 80 persons with mental illness (Druss et al., 2010) resulted in greater improvement in patient activation, quality of life, physical activity, and medication adherence showing promise for this approach to intervention design. The evidence for online peer-to-peer support (for a range of health related issues) is less conclusive with little robust evidence available for these communities (Eysenbach, Powell, Englesakis, Rizo, & Stern, 2004). Given the abundance of peer-to-peer groups online, research is required to evaluate under which conditions, and for who, electronic support groups are effective in delivering peer support.

Following a body of work, Davidson et al., (2012) proposed a list of strategies of how peer support can be introduced within programmes aimed at improving mental health recovery. Examples include a clear job description and role clarification; identifying and valuing unique contributions that peers can make within a programme; providing training for peers; and providing supervision for peer staff/volunteers. The authors acknowledge that embedding peers within a programme can be complex, however they also stress that it is necessary to improve outcomes, and perhaps equally important, can bring about significant culture change, and work to reduce stigma in organisations/communities (Davidson et al., 2012).

5.0 Get Set to Go

5.1 Background

In November 2014, with the support of Sport England and the National Lottery, Mind implemented a three-year initiative (Get Set to Go: GStG) to encourage individuals with mental health problems to become more involved in mainstream sport. The programme has been delivered via three strands, as follows:

Local Delivery: Eight local Minds, across four priority regions of the UK (Rochdale and Lancashire in the North West, Tyneside and Middlesbrough and Stockton in the North East, Brent and Croydon in London, and Dudley and Herefordshire in the West Midlands) have provided tailored support to participants using peer support and one-to-one advice. The aim was to increase interest and participation, and decrease barriers to sport and physical activity via sport groups designed to encompass a safe, non-judgemental and supportive environment for individuals with mental health problems. Sport groups took place at local sports facilities and suitable local outdoor areas. SCs and PNs provided support to individuals around and during physical activity sessions within each local Mind. The mode of physical activity and type of sport varied across the local Minds. Mind worked with mainstream sports providers, engaging them with the programme and supported them through Mental Health Awareness in Sport and Physical Activity training to better understand the needs of people with mental health problems.

Digital Delivery: Mind has an existing supportive online peer support community, Elefriends. Elefriends is a community for people with mental health problems where members can be themselves, chat to their peers and gain access to information aimed at improving mental health. Using this existing online peer support community as a platform, GStG provided complimentary online 'sport peer support' to the members. Information was provided by the Ele, and Elefriends were given the opportunity to engage in discussions around sport and physical activity with their peers. The aim was to increase awareness of the benefits of physical activity, and reduce the perceived barriers to engage in physical activity.

National Delivery: Three separate nationwide communications campaigns were launched throughout the duration of the GStG programme (July 2015, April 2016, March 2017). Each campaign lasted two weeks and used films, advertising, information resources, and social media. Motivational messages aimed to increase the value of sport for wellbeing and mental health

recovery. Each campaign focused on a specific target population; 1) general public, 2) women only, and 3) South Asian women.

Mind commissioned Loughborough University and the University of Northampton to evaluate the effectiveness and impact of all three delivery strands of the programme. The two year evaluation captures data from a range of participant samples associated with the GStG programme (service users, peer researchers (PR), peer navigators (PN), and Sports Coordinators (SC)) using a number of qualitative and quantitative data collection methods.

This report aims to address 4 objectives in the evaluation of GStG:

- *Objective 1:* To understand the relationship between sport and mental health recovery
- *Objective 2:* To understand the effectiveness of the Peer Navigator model for encouraging sustained sports participation
- *Objective 3:* To understand the impact of online peer support on mental health
- *Objective 4:* To understand the impact of online peer support on sport participation

5.2 The evaluation approach

Extensive literature exists to support the link between physical activity and mental health (Cooney et al., 2013; Ekkekakis, 2015; Whitelaw et al., 2010). However, as discussed in Whitelaw et al., (2010)'s review, and reiterated in our literature review, this relationship is complex and the strength of the link has not always been supported in the data sourced from randomised controlled trials (e.g., Chalder et al., 2012; Pentecost et al., 2015). Independent evaluation of physical activity interventions which look to understand the complexity in the relationship should therefore be encouraged.

Previous authors have highlighted the limitations of evaluating community health promotion programmes (Pommier, Guével, & Jourdan, 2010). These limitations focus on the difficulty, and therefore suitability, of assessing the causality between a health promotion programme and its effects. The experimental evaluation process (i.e., randomized controlled experiments) has dominated the impact assessment of health programmes in recent decades; however there are many arguments that question the ecological validity of these approaches as well as the lack of useful information produced. These approaches cannot always provide clear information on whether a programme failed because it was designed using poor (or no) conceptual foundations, or lacked a theoretical framework to identify causal mechanisms, or because it was not appropriately implemented (Pommier et al., 2010). The WHO (1998) concluded that "the use of randomised controlled trials to evaluate health promotion initiatives is, in most cases, inappropriate, misleading and unnecessarily expensive" (p.5). Rather than working with the restriction that complex variables are viewed as confounders and dismissed, there is a movement, which we have adopted in the current evaluation, to accommodate these complex determinants (i.e., psychological processes of physical activity and wellbeing; Kaplan, 2004).

Methodological researchers stress the significance of more insightful, and realistic 'how' and 'why' questions that seek to ascertain both determinants of change and explain the mechanisms of those associations (Whitelaw et al., 2010). As such, alternative approaches have been developed. A 'Realistic Evaluation Approach' such as that developed by Pawson and Tilley (1997) proposes studying the mechanisms that are triggered during the implementation of a health programme and establishing a relationship between the outcomes observed. Therefore, a realistic evaluation can consider the complexity of health programmes in an aim to meet the challenges of evaluating community based programmes. In a realist evaluation approach, the outcomes of a programme are explained by specific mechanisms in specific contexts (active ingredients). It is therefore necessary to identify the mechanisms that are involved, i.e., what, within the programme, produces change. The aim is to determine "which individuals and subgroups might benefit most from the program, and which social and cultural resources are necessary to sustain the changes" (Pawson & Tilley, 1997, p.85).

Within this evaluation approach, a mechanism is not a variable per se, but an account and explanation of the behaviour and interrelationships of the processes which are responsible for the change. It has the potential to provide information to answer how, where, and why an intervention may work (or may not). The realist view allows the evaluators to deal with intervention heterogeneity (e.g., study design, implementation, fidelity, and outcome measures) and provide recommendations about context and effectiveness. As there is little information on the underlying mechanisms of behaviour change (i.e., mediation/moderation) within group-based, peer led physical activity programmes for mental health service users, a realist view has the potential to inform the development of a conceptual framework that describes the context (both populations and settings) as well as the approach which group-based peer-led physical activity programs for mental health service users can be effective.

We adopted the 'Realist Evaluation Approach' (Pawson & Tilley, 1997) alongside an element of an experimental evaluation process, with guidance from Cavill et al. (2012)'s Standard Evaluation Framework for Physical Activity Interventions, by including a control sample who were not part of the Get Set to Go programme. These individuals were recruited through local Minds who were not part of the GStG programme, local mental health services and via Mind's members newsletters.

Core questions for each objective within this approach will address: 1) the association (and strength of association) between physical activity and mental wellbeing; 2) the reasons why there might be an association; and 3) how best to deliver appropriate peer led interventions for mental health service users that might optimise the potential mechanisms occurring within the programme. Due to the complexity of health promotion programmes, evaluations often use mixed methods. Creswell and Plano Clark (2007) defined mixed methods research as the combination of quantitative and qualitative approaches that provide a better understanding of the phenomena being studied than either approach alone. We have implemented a mixed methods design in the present the realist evaluation to obtain different but complementary data to best address our objectives.

To compliment the peer model within GStG, we employed 9 Peer Researchers to join the evaluation team. Each Peer Researcher was aligned to one of the local Minds to facilitate data collection in that geographical region and one to the control sample. We also consulted with an advisory group, with lived experience of mental health, who worked with us in the early stages to develop and pilot the evaluation measures and materials. With their guidance we were able to adapt existing measures and consider their suitability. The data collection methods are outlined in the following section.

5.3 Evaluation data collection methods

Below is an outline of the data collection methods used within the evaluation along with the objectives they were used to address.

Table 1: Methods of data collection according to the specified objectives

Methods	Objectives				Timescales
	1	2	3	4	
Literature Review	X				
Local Delivery:					
Survey: GStG participants + control sample	X				Baseline, 3, 6, & 12 month (April 2015-June 2017)
Participant Focus Groups	X	X			18 months (October 2016 – January 2017)
Mood diaries: GStG participants	X				18 months (October 2016 – January 2017)
Peer Navigator Focus Groups		X			18 months (October 2016 – January 2017)
Peer Researchers Interviews	X				Telephone interviews: At induction and at 24 months (May 2017).
Mental Health Awareness in Sport and Physical Activity Training	-	-	-	-	Pre and post training, 6 month follow up (2016-2017)
Digital Delivery:					
Survey: Elefriend users	X		X	X	Baseline, 3, 6, & 12 month (April 2015-June 2017)
Telephone interviews: Elefriend users	X		X	X	18 months (October 2016 – January 2-17)
Content exploration				X	15-18 months
National Delivery:					
Interactive Workshops: Target population for campaign			X	X	1. Target = General Public: (12th August 2015) 2. Target = Women: (13th May 2016) 3. Target = South Asian Women: (6th April 2017)

Survey Measures

The following measures were implemented at baseline, and at a 3, 6 and 12 month follow up to assess physical activity behaviour, psychological processes, and mental wellbeing in participants on the GStG programme (local delivery), Elefriends users (digital delivery), and with a control sample not registered on GStG or an Elefriend user.

Physical activity behaviour

International Physical Activity Questionnaire (IPAQ-2): Physical activity was assessed using the IPAQ-short version (Craig et al., 2003). Participants were asked to report the number of days in the past week and the total time per day of walking, moderate-intensity and vigorous-intensity physical activity in bouts of 10 minutes or more. A sport question was added to assess how many days (and minutes per day) participants had engaged in sport.

1 x 30 minutes per week (Sport England): A single item asked participants on how many days they had engaged in a total of 30 minutes, or more, of physical activity which was enough to raise breathing rates. Participants responded by providing an amount of days.

Mental health

Warwick and Edinburgh Mental Wellbeing Scale (WEMWBS): Mental wellbeing was assessed using the Warwick Edinburgh Wellbeing Scale (Tennant et al., 2007), a 14 item self-report measure. Participants rated their experience for each statement over the last 2 weeks. Each item is scored using a 5-point Likert scale ranging from 1 (none of the time) to 5 (all of the time).

General Self-Efficacy Scale (GSE): This scale assessed a general sense of perceived self-efficacy to predict coping with daily hassles as well as adaptation after experiencing all kinds of stressful life events (coping and resilience). Participants rated their perceptions of coping and resilience on a 4-point Likert scale from 1 (not at all true) to 4 (exactly true).

Motivation to exercise

Behavioural Regulations in Exercise Questionnaire (BREQ-2 short version): A short version (9 item) of the Behavioural Regulation in Exercise Questionnaire-3 (Markland & Tobin, 2004; Wilson, 2006) was developed to assess an individual's motivation to exercise. The BREQ-2 has previously been validated with a mental health population (Vancampfort, De Hert, et al., 2013). Participants rated their motivation to exercise on a 5-point Likert scale, from 0 (not true for me) to 4 (very true for me).

When discussing motivation, we refer to the different reasons a person can have for engaging in an activity. The reasons vary on a continuum with the highest quality (i.e., most adaptive) being intrinsic motivation, to the lowest quality extrinsic motivation and finally a complete lack of motivation; amotivation. The motivation regulations along the continuum are defined as:

- Intrinsic: engaging in an activity because you truly enjoy it
- Identified: you personally value the benefits of engaging in the activity (e.g. feeling more confident, improved health, meeting new people)
- Introjected: engaging in an activity to avoid guilt and negative feelings (e.g. feeling like you should or pressure to do something rather than wanting to)
- Extrinsic: engaging in an activity in return for a tangible reward (e.g. financial incentive)
- Amotivation: a complete lack of motivation

In summary, regulation clusters form autonomous (intrinsic and identified) versus controlled (introjected and extrinsic) types of motivation. Intrinsic motivation represents the highest quality of motivation through an inherent interest, enjoyment and satisfaction towards the given activity.

Conversely, controlled forms of motivation are associated with maladaptive outcomes, and poorer wellbeing (i.e., lapses to physical activity behaviour; Deci & Ryan, 2008).

Barriers to exercise

*Exercise Benefits and Barriers Scale (EBBS adapted for barriers)***:** Fourteen items relating to barriers to exercise were included from the EBBS (Sechrist, Walker, & Pender, 1987). Participants responded to the given barriers on a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree).

Social Support

*Social Provisions Scale (SPS-10)***:** The Social Provisions Scale (Caron, 2013) assessed perceptions of social support. Participants responded to 10 items indicating the extent to which they felt supported. Responses were given on a 4-point Likert scale from 1 (not at all true) to 4 (completely true) to descriptions of both the presence or absence of a specific provision of support.

Participant Mood Diaries

Forty two participants completed a mood diary once a day for seven days. Positive and negative affect (positive/negative mood) was assessed using the *Positive and Negative Affect Scale* (Likert scale 0-5; Watson, Clark, & Tellegen, 1988) and the *Feeling Scale* (Hardy & Rejeski, 1989), a one item scale to measure how an individual feels in that moment. Responses were rated on a Likert scale ranging from -5 (very bad) to 5 (very good). Participants also recorded their physical activity levels (minutes and intensity) each day.

Focus Groups (GStG local delivery participants, Peer Navigators)

Eight separate focus groups were conducted across the four priority regions. Four included participants of GStG and four included Peer Navigators who volunteered to help run the sessions. Each focus group lasted approximately 1 hour. Participants were asked about their experiences of the programme (or their role within the programme) and any barriers and facilitators they had experienced to engage in exercise within or outside of the sessions. PN were asked to discuss any barriers and facilitators they had experienced within their roles.

One-to-one Interviews (Peer Researchers and Elefriends)

All 9 peer researchers were interviewed in person before they began their roles and via telephone interview 2 years later. Peer researchers were interviewed by an independent researcher to the evaluation team in order to minimise bias responses. PRs were asked questions about their

experiences of being a PR, their own personal development during the role and challenges that arose during their time working with the evaluation team.

Twenty one Elefriends were interviewed by one of the evaluation team over the telephone or via an online messenger service depending on their preference. Interviews lasted between 20-40 minutes. Elefriends were asked questions relating to their physical activity behaviour including barriers and facilitators. They were also asked about their experiences of peer support for exercise via the Elefriends online platform and their perceptions of the information provided.

Mental Health Awareness for Sport and Physical Activity (MHASPA):

Staff (n= 218) from local sports facilities attended the Mental Health Awareness for Sport and Physical Activity (MHASPA) training sessions run by National Mind. Attendees were asked to complete a short survey before, after the training and at a 6 month following up. Questions assessed their understanding and awareness of mental health, and whether the individuals had taken any action as a consequence of the training.

National delivery interactive workshops

During the course of the evaluation, the evaluation team carried out 3 interactive workshops and focus groups with individuals who had lived experience of mental health problems. The purpose of the focus groups was to explore first impressions, attitudes and perceptions of the materials used in each of the national campaigns. Each campaign was aimed at a specific target population (see Table 1). Individuals from each specific population group were invited to attend the workshops. Each workshop lasted approximately 2-2.5 hours and each focus group approximately 1.5 hours.

5.3.1 Data Analysis

Data analysis for Objective 1:

To understand the relationship between sport, exercise and mental health, we first analysed the survey data via separate Analysis of Variance (ANOVAs) to explore whether participating in GStG improved perceptions of overall mental health. Specifically, we assessed changes to mental wellbeing and known predictors of mental health (coping and resilience, perceived social support, perceived pain and overall health) in those who were registered onto the GStG programme and

who's baseline data matched to either the 3, 6 month and/or 12 month follow-ups. This data was compared to the survey data provided by the control sample.

We then analysed the relationship between sport, physical activity, and variables associated with improved mental health (i.e., perceived social support, coping and resilience) as well as primary outcomes of mental health (i.e., mental wellbeing). This correlation analysis provided information about the mechanisms by which individuals may experience improvements to mental health or increases to physical activity. This information is particularly useful to understand elements within GStG that should be targeted, via active ingredients, as intervention components. Momentary data, also analysed using ANOVA's and correlations analysis, collected via mood diaries was included to understand the acute relationship between physical activity and mood.

To provide contextual information to the quantitative findings from the survey, we analysed qualitative data from participants on the GStG programme, Elefriend users and peer researchers using an inductive thematic analysis consistent with guidance from Braun and Clarke (2006). We ensured rigour using guidance from Smith and McGannon (2017). These findings provided nuanced understanding of how participants experienced the relationship between physical activity and mental health.

Data analysis for Objective 2:

A similar method of analysis conducted for objective 1 was used to understand the effectiveness of the peer navigator model on sustained sports participation. We explored whether self-reported sport and exercise participation had changed from baseline to a 3, 6 and 12 month follow up. Due to low levels of responses at the follow up time points compared to baseline (approximately 20-25% response rate) there may, at times, be limitations associated with power. Where this is the case, notable differences in magnitude have been highlighted and trends in the data pinpointed. All effect sizes are reported. Participant responses have been compared to a control sample. Descriptive data was provided for participant satisfaction of the programme. Qualitative data provided important insight into the socio-contextual factors within the GStG programme. The qualitative data incorporates information from GStG participants, Peer Navigator focus groups, and interviews with Peer Researchers.

Data analysis for Objective 3:

To understand the impact of online peer support on mental health we conducted our analysis using the data collected via surveys completed by the Elefriend users. We analysed variables

associated with mental health (mental wellbeing, social support, coping and resilience, pain, overall health, motivation to exercise, and barriers to exercise) to investigate changes over time (ANOVA's) and correlation analysis to explore the relationship between these variables. There were significant changes in the fully matched data, however this was based on limited cases from all four periods. Descriptive data was provided for participant appraisal of the Elefriends platform. As per objective 1 and 2, qualitative data from interviews carried out with Elefriend users, along with anonymous comments left in response to questions on the Elefriends website were analysed thematically to provide contextual information.

Data analysis for Objective 4:

To assess the impact of online peer support on sport participation, ANOVA's were conducted between physical activity baseline variables and the same variables at the 3, 6 and 12 month time period. To understand *why, how* and *if* there is an impact, we supplemented the quantitative data with qualitative data collected via interviews with Elefriend users, qualitative commentary collected through the Elefriends website, and qualitative responses to survey questions.

Sampling and power calculations

A priori power calculations were conducted to determine appropriate sample sizes for data interpretation. Standard metrics (80% power, 95% confidence) were used to establish how many participants would ideally be recruited to the evaluation. Although exact figures regarding the total population being sampled were unknown, our analysis suggested that 200 individuals per local Mind would enable a rigorous assessment of the Get Set to Go programme. Targeted numbers for Control and Digital delivery populations mirrored each of the Local Minds. Whilst a priori power calculations provide a guide to inform recruitment, pragmatism was needed, especially given the uncertainty regarding the total population engaging in GStG and the difficulties associated with dropout from programme/evaluation activities over time. Table 2 illustrates that baseline data collection fell short of the target sample. We therefore decided to combine participants from each local Mind and analyse the group together for a rigorous assessment of the programme that reaches sufficient power. Effect sizes (partial eta square: η^2) were classified based on Cohen's d cut points (small =.01, medium = .06, large = .14, Cohen, 1988).

5.3.2 Participant Information: Participant demographics by data collection method

Table 2: Demographic information on local, control group participants for each data collection by age, gender and ethnicity

	Total Sample (n)	Gender		Age (years)						Ethnicity							
		Male	Female	18 - 20	21 - 30	31- 40	41 - 50	51 - 60	61+	White British	White other	Mixed	Asian/ Asian British	African	Caribbean	Black other	Other
Local Delivery Demographics by data collection method																	
Baseline Survey	725	365	349	48	152	142	199	123	37	554	18	25	51	24	27	2	11
3 month follow up	114	33	37	1	7	14	24	15	6	64	2	1	4	0	1	0	0
6 month follow up	136	32	45	1	10	10	21	17	7	69	2	1	2	0	1	0	0
12 month follow up	147	38	49		13	10	23	15	8	74	3	1	5	0	2	0	0
Participant focus groups	35	15	15	1	1	6	12	5	5	27	0	1	1	0	1	0	0
PN pre interviews	9	4	8	1	2	2	1	2	1	6	2	0	1		0	0	0
PN focus groups	19	10	9	0	2	1	3	6	1	11	2	0	1	0	0	0	0
PR interviews	9	3	6	0	2	1	3	1	1	6	1	0	0	1	1	0	0
PR post interviews	5	2	3	0	1	1	2	0	1	4	0	0	0	1	0	0	0
Participant diaries	42	20	22	0	1	10	13	10	64	35	0	1	3	0	0	0	0
Sport Co-ordinator focus group	12	Focus group included Sports Coordinators and individuals who were employed for administration support on the programme															
Digital Delivery Survey Demographics by data collection method																	
Baseline	207	32	166	19	71	50	42	16	3	176	11	6	1	0	1	1	3
3 month follow up	66	6	46	4	12	13	17	5	1	46	1	1	1	0	0	0	0
6 month follow up	50	6	31	1	12	8	14	3	0	33	2	1	1	0	0	0	0
12 month follow up	50	7	33	3	12	9	15	3	0	31	2	1	1	0	0	0	1
Interviews	21	3	15	0	3	6	8	2	0	16	0	0	2	0	0	0	0
Qualitative comments	Q1=158 Q2=152 Q3=91	Comments were collected anonymously															
Control Group Survey																	
Baseline	77	18	59	5	20	16	17	14	5	70	4	1	0	1	0	1	0
3 month follow up	26	6	16	0	7	7	4	4	0	22	0	0	0	0	0	0	0
6 month follow up	29	4	20	1	3	3	6	8	2	22	0	0	0	1	0	1	0
12 month follow up	36	7	25	1	7	6	6	8	3	26	1	0	0	2	0	1	0

Note: Some participants chose to provide demographic data. Eighty-six participants did not provide demographic data for the local delivery survey and as such are not included in the table above. Twenty did not provide information on gender, 33 for age, and 22 for ethnicity

Table 3: Demographic information on local, digital and control group participants by mental health diagnosis

	Mental health problem			Type of mental health problem								
	Yes	No	Prefer not to say	Depression	Anxiety	Stress	Bipolar	Personality Disorder	PTSD	OCD	Schizophrenia	Other*
Local Delivery Demographics by data collection method												
Baseline Survey	551	110	64	382	394	245	114	67	63	52	63	100
3 month follow up	58	9	1	52	46	28	8	7	3	8	3	1
6 month follow up	65	9	1	49	40	28	9	9	5	3	7	2
12 month follow up	68	10	3	55	42	29	7	7	6	4	7	3
Participant focus groups	23	0	1	18	14	6	5	5	2	1	5	1
Peer navigator interviews	7	4	2	4	4	3	1	1	0	1	0	0
Participant diaries	42			27	25	17	5	4	7	3	4	2
Digital Delivery demographics by data collection method												
Baseline	192	4	10	171	165	81	15	42	46	25	3	34
3 month follow up	51	1	0	45	41	22	6	13	15	4	0	7
6 month follow up	36	2	0	32	27	12	3	14	11	5	0	6
12 month follow up	38	1	0	33	32	12	4	11	10	5	0	5
Telephone Interviews	17	1		11	11	5	2	7	6	1	0	3
Control Group Survey												
Baseline	63	12	2	46	47	26	5	14	12	8	1	15
3 month follow up	15	6	1	11	14	5	0	3	4	2	0	3
6 month follow up	18	6	0	14	13	6	3	5	4	2	0	2
12 month follow up	19	6	1	15	13	7	2	4	3	2	0	2

* ADHD(15), Addictive personality(2), Agoraphobia(4), Alcohol dependency(1), Antisocial disorder(1), Anger issues(1), Ataxia(1),Anxiety other (4 - Emetophobia, health anxiety, social anxiety, general anxiety disorder), Asbergers(11), Attachment disorder(3), Autism(9), Body dysmorphic disorder(1), Borderline personality disorder(2), Breakdown(1), Cannabalistic impulse(2), Catablaxy(2), Chronic fatigue(2), Cyclothymia(1), COPD (3), Dissociative identity disorder(7 e.g. depersonalisation and derealisation, dissociative identity), Depression other (4; antenatal depression, psychotic depression), Dementia(1), Disinhibition(1), Dyspraxia(3), Dyslexia (2), Eating disorder(29; e.g. bulimia, anorexia), Elderly mental health(1), Epilepsy(1), Extremely negative views, Grief(2), Hallucinations(4), Insomnia(2), Learning difficulties(7), Low moods(1), Non epileptic seizures(1), Memory loss(1), Mood swings/disorder(3), Post ABI (Acute Brain Injury)(1), Panic attacks (4), Panic disorder(6), Paranoid personality(5), Post-concussion syndrome(1), Pre-Post Menstrual Dysphoric Disorder(2), Psychosis(22), Psychological affective disorder, Schizoaffective Disorder(x6), Schizoid symptoms, Self-harm(1), Suicidal(2), Severe concentration problem(1), sleep problems(1), Trauma(3), Unpredictable fatigue(2)

Note: Some participants did not provide demographic data and as such are not included in the table above. Nine participants did not answer whether they had a mental health diagnosis, 25 participants did not provide information of their mental health diagnosis. Participants also reported more than one diagnosis. Multiple diagnoses have been included in the table above.

Table 4 provides a comparison of the demographic and baseline information for the GStG participants and the control sample. The proportion of participants were similar in age, and baseline measures of mental wellbeing, social support, coping and resilience, barriers to exercise, perceived pain, minutes of moderate exercise, days and minutes of walking did not differ between the two groups. There were a considerably larger proportion of females than males in the control group. The control group also engaged in more days (and minutes) of vigorous exercise, days of moderate exercise and sat for longer periods compared to the GStG group.

Table 4: Comparison of demographics and baseline information for GStG and control group

Measure	Intervention (n=725)	Control (n= 77)	*p*	Explanation
	%	%		
Age (years)				Age groups are approximately equal
18-20	6.8	5.2	-	
21-30	21.6	26		
31-40	20.2	20.8		
41-50	28.2	22.1		
51-60	17.4	18.2		
61+	5.3	6.5		
Gender				
Male	50.8%	23.4%	-	The control had a larger proportion of females
Female	48.6%	76.6%		
	M (SD)	M (SD)		
Overall health	2.53 (.97)	2.4 (1.08)	0.43	Groups are equal at baseline
Mental wellbeing	2.95(0.89)	2.8(0.88)	0.16	Groups are equal at baseline
Social support	2.93(0.65)	3.06(0.60)	0.09	Groups are equal at baseline
Coping & resilience	2.62(0.66)	2.59(0.68)	0.72	Groups are equal at baseline
Barriers to exercise	2.11(0.49)	2.28(0.48)	0.7	Groups are equal at baseline
Perceived pain	2.404(1.34)	1.34(1.24)	0.6	Groups are equal at baseline
Days of 1 x 30 mins exercise	2.15(2.15)	3.31(1.84)	<0.01	Control group engaged in more days of exercise at baseline
Days of vigorous exercise	0.76(1.46)	1.46(1.52)	<0.01	Control group engaged in more days of vigorous exercise at baseline
Mins of vigorous	48.22(64.79)	64.79(55.44)	0.02	Control group engaged in more minutes of vigorous at baseline
Days of moderate exercise	1.45(2.06)	2.61(1.82)	<0.01	Control group engaged in more days of moderate exercise at baseline
Mins of moderate exercise	56.59(95.30)	85.47(74.90)	0.09	Groups are equal at baseline
Days walking	4.32(2.45)	3.08(1.94)	0.13	Groups are equal at baseline
Minutes walking	60.73(83.47)	54.76(39.99)	0.64	Groups are equal at baseline
Minutes sitting	246.81(308.21)	308.21(266.67)	<0.01	Control group sat more

6.0 Findings

6.1 The relationship between sport, exercise and mental health recovery

What is the relationship and why might there be one?

Table 5 overleaf summarises our findings on the relationship between physical activity and mental health. An asterisk has been added to the outcomes where qualitative data is supported by quantitative analysis. The key mechanisms will be discussed throughout this chapter using data to support each point. Given the complexity of the sample, at times there may be limitations associated with power. Where this is the case, notable differences in magnitude are also highlighted and trends in the data pinpointed. We recommend that further evaluation is fully embedded into the programme to help increase adherence to the evaluation **[see recommendation 1].**

Table 5: Summary of findings for objective 1: To understand the relationship between sport and mental health recovery

Outcome of PA on mental health recovery	Mechanism (Why does it *work)*?	When does it *not work*?
***Improvement to perceptions of social provision**	Lived experience of mental health Increased social interaction Connections through group activities Sources of social support: • Peers on the programme • Peers Navigators • Sport Coordinators • Family/friends not on the programme	When sources of support (i.e., family) facilitate feelings of guilt and create barriers through pressure not to participate
Improvement to mental wellbeing	Increased coping and resilience Improvement to mood Reduces rumination Creates stability	Barriers of the negative symptoms often inversely related to positive outcomes in mood Break down in structure to the week negatively impacts mood
***Psychological processes of physical activity and wellbeing**	Associations of physical activity and wellbeing outcomes • Barriers to exercise • Autonomous motivation Influences of demographic variables (age, gender, mental health diagnosis)	When negative symptoms were severe (For some) Exercising at high intensity: • exacerbated manic episodes • negative symptoms including pain • Prolonged exhaustion post exercise • Used as self-harm • When physical health prohibits walking
Improvements to sense of self	Improvement to self-esteem Positive changes to physical self (link between mental health and physical health) Participants experience mastery Overcoming self-imposed limits Empowerment	Heightened anxiety relating to body image and exercising with others Fear of the unknown

*Note: *Findings are supported through both quantitative and qualitative data*

Tables 6 and 7 present descriptive information for all variables at each data collection time point for the survey. Descriptive information of variables for the local Minds separated by region is detailed in appendices 1 and 2.

Table 6: Sample size, mean (M) and standard deviation (SD) of physical activity variables for local Minds combined, and the control sample

	Local Minds combined				Control Group			
	M (SD)							
Time point (month)	**0**	**3**	**6**	**12**	**0**	**3**	**6**	**12**
Physical Activity Outcomes								
Sample size (n)	731	86	142	103	77	25	27	32
1 x 30 mins (days)	2.15 (2.16)	3.81 (2.31)	3.87 (2.29)	3.15 (1.71)	3.74 (2.23)	4.04 (2.32)	3.41 (1.82)	3.25 (1.72)
Sample size (n)	701	49	66	35	76	24	27	33
Days of Vigorous	0.76 (1.46)	2.37 (1.83)	2.67 (1.77)	2.43 (1.26)	2.18 (1.52)	2.29 (1.46)	2.22 (1.16)	2.06 (1.17)
Sample size (n)	352	44	61	34	30	13	13	17
Vigorous (mins)	48.22 (64.8)	84.70 (59.8)	85.00 (65.3)	94.85 (78.0)	76.33 (55.4)	65.77 (35.4)	54.62 (26.1)	68.24 (53.55)
Sample size (n)	690	68	87	58	70	25	25	31
Days of Moderate	1.46 (2.06)	2.69 (1.97)	3.31 (2.05)	2.82 (2.0)	2.61 (1.82)	2.60 (1.61)	2.32 (1.70)	3.16 (1.75)
Sample size (n)	426	57	76	51	32	14	11	20
Moderate (mins)	56.59 (95.3)	82.37 (71.8)	85.70 (65.1)	75.58 (68.92)	85.47 (74.9)	59.64 (44.4)	93.64 (91.7)	99.25 (71.38)
Sample size (n)	670	104	128	102	52	16	16	21
Days of walking	4.33 (2.46)	4.85 (1.94)	5.29 (2.00)	4.42 (2.21)	3.81 (1.94)	3.69 (1.99)	3.75 (2.05)	3.85 (1.55)
Sample size (n)	611	84	115	95	42	16	16	25
Walking (mins)	60.73 (83.4)	59.76 (55.2)	70.61 (67.3)	57.52 (47.99)	54.76 (40.0)	42.19 (18.7)	71.88 (60.5)	49.8 (39.41)
Sample size (n)	670	79	99	86	77	15	13	21
Sitting (mins)	246.8 (308.)	461.0 (510.)	407.2 (234.)	408.8 (242.2)	440.4 (266.6)	384.0 (244.0)	369.2 (252.0)	422.85 (194.16)
Sample size (n)	377	41	54	32	31	15	13	9
Days of Sport	0.69 (1.33)	2.20 (1.71)	2.28 (1.50)	1.91 (0.99)	2.52 (1.55)	2.33 (1.99)	2.00 (1.08)	2.22 (0.97)
Sample size (n)	143	36	51	32	76	11	10	10
Sport (mins)	59.64 (69.3	75.63 (42.4)	76.27 (37.6)	82.96 (35.25)	21.58 (40.06)	45.91 (19.60)	77.50 (58.56)	76.5 (43.84)

Table 7: Sample size, mean (M) and standard deviation (SD) of variables associated with mental health for local Minds combined, and the control sample

	Local Minds combined				Control Group			
	M (SD)							
Time point (month)	**0**	**3**	**6**	**12**	**0**	**3**	**6**	**12**
Sample size (n)	728	84	141	-	76	25	26	-
Social Support	2.93 (0.65)	3.07 (0.59)	3.01 (0.67)	-	3.07 (0.61)	3.01 (0.66)	3.12 (0.76)	-
Sample size (n)	727	84	142	-	77	24	26	-
Coping/Resilience	2.62 (0.66)	2.37 (0.75)	2.52 (0.69)	-	2.60 (0.68)	2.71 (0.68)	2.71 (0.82)	-
Sample size (n)	724	83	137	111	74	25	23	33
Mental Wellbeing	2.95 (0.89)	2.91 (0.73)	2.98 (0.84)	2.91 (1.31)	2.80 (0.88)	3.13 (0.92)	2.94 (1.06)	3.00 (0.83)
Sample size (n)	712	86	141	114	77	25	25	33
Pain	2.40 (1.34)	2.90 (1.43)	2.78 (1.32)	2.82 (1.31)	2.99 (1.24)	2.96 (1.40)	3.00 (1.35)	2.87 (1.38)
Sample size (n)	715	86	141	114	77	25	25	33
Overall health	2.53 (0.98)	2.50 (1.03)	2.63 (1.05)	2.42 (0.92)	2.44 (1.08)	2.56 (1.16)	2.60 (1.00)	2.30 (1.21)
Sample size (n)	728	84	136	111	75	25	24	32
Motivation: Intrinsic	3.67 (1.03)	3.57 (1.25)	3.68 (1.23)	3.24 (1.35)	3.07 (1.21)	3.10 (1.26)	3.31 (1.34)	2.96 (1.19)
Sample size (n)	730	84	136	111	75	25	24	32
Motivation: Identified	3.94 (0.99)	3.64 (1.22)	3.93 (1.06)	3.76 (1.24)	3.47 (1.20)	3.64 (0.92)	3.73 (1.04)	3.68 (1.02)
Sample size (n)	730	84	136	111	75	25	24	32
Motivation: Introjected	2.71 (1.19)	2.40 (1.21)	2.46 (1.17)	2.21 (1.08)	2.60 (1.24)	2.40 (1.07)	2.44 (1.02)	2.39 (1.09)
Sample size (n)	725	84	136	111	75	25	24	32
Motivation: Extrinsic	1.85 (1.08)	1.82 (1.11)	1.71 (1.03)	1.67 (1.09)	1.79 (1.00)	1.60 (0.91)	1.50 (0.61)	1.76 (1.12)
Sample size (n)	725	84	136	111	75	25	24	32
Motivation: Amotivation	1.79 (1.00)	1.86 (1.18)	1.81 (1.19)	1.71 (1.12)	1.52 (0.81)	1.46 (0.87)	1.21 (0.64)	1.37 (0.75)
Sample size (n)	726	85	139	-	74	25	24	-
Barriers to exercise	2.12 (0.49)	2.07 (0.52)	2.01 (0.53)	-	2.29 (0.49)	2.29 (0.51)	2.15 (0.35)	-

Improvements to perceptions of social support

Findings indicate that GStG was effective in increasing perceptions of social support for those who engaged in the evaluation. Specifically, analysis of changes to perceptions of social provision showed that participants perceived a greater sense of social support at the 3 month follow up (*p<.01,* η^2 *=.10)* compared to the control group who reported a small decrease (significant interaction effect *p=.05,* η^2*=.04)*.

Table 8: Descriptive information of perceived social provision from baseline to 3 months

	Arm	Mean	SD	N
Baseline	Intervention	2.86	0.67	71
	Control	3.14	0.53	22
3 month follow up	Intervention	3.05	0.60	71
	Control	3.07	0.66	22

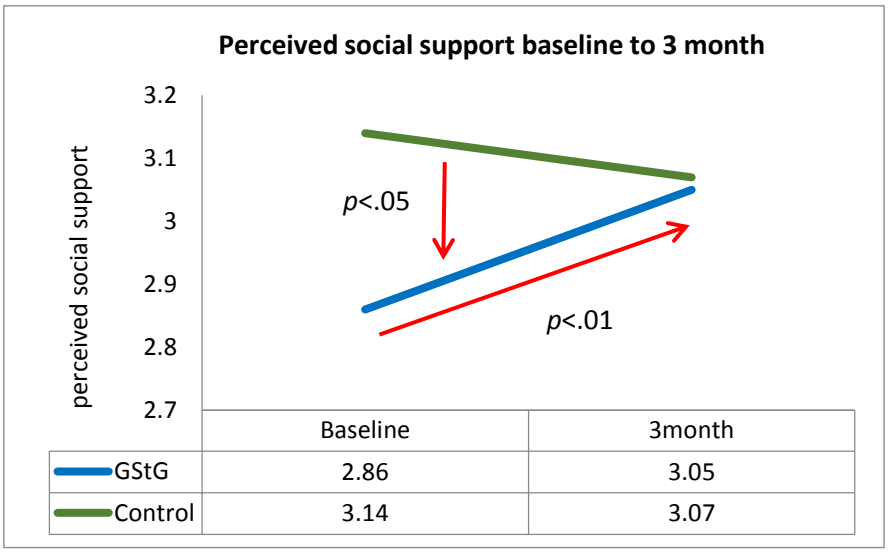


Figure 1: Change in perceived social support from baseline to the 3 month follow up

Qualitative data provided information to explain that social provision was improved via the Peer Navigators lived experience of mental health, increased social interaction and specifically, building connections through group activities. Sources of support included peers on the programme, peers navigators in the programme, the Sports Coordinators and family members or friends outside of the programme.

The PN's lived experience of mental health meant that participants felt understood by those who were supporting them in their efforts to be active,

> *I think working with somebody who understands it helps more because I don't believe people that talk about these situations that haven't been there, they can't, they can't relate to it. If you talk to somebody who's been in the same position, you know they understand how you've been feeling or how you are feeling at that moment of time* (participant focus group)

The Peer Navigators agreed that because they had experienced similar barriers and circumstances they were able to provide support that was relevant,

> *I think it helps us really having had a mental health problem because you can say, you can understand and empathise, so you're not like, a big challenger that wants to push everybody to the limits you know* (Peer Navigator phone interview)

Participants were able to increase their levels of social interaction by meeting and engaging with new people. This interaction encouraged participants to leave their homes,

> *It's getting me out of the house to do things as well and really I've made some good friends, connected with people, they've had similar experiences* (participant focus group)

The group activities provided the opportunities to connect with others. Through these connections, participants were able to build genuine friendship with their peers on the programme,

> *A new friendship group, that's a big thing for us isn't it, the social side of it. I mean we meet up, we run and then we pop in the café, we have a cuppa, we catch up with what everybody's been doing* (participant focus group)

Genuine supportive friendships often developed beyond the group sessions suggesting lasting social provision,

> *The groups are just great, I go to one and I've got like a few best mates there now, we go out for meals, we do stuff, we all talk, when one of us are down, the rest of us help to get that person up* (participant focus groups)

A variety of sources of support each played a key role in facilitating improved mental health via social provision. Peers who were also registered on the programme facilitated feelings of connectedness,

> *Having someone that, you know understands, they understand the, the issues with the mental health system up here. And just having a sound off I suppose but also it's just comforting when you're there that if you're anxious you think, you sort of stick together* (participant focus group)

Peer Navigators encouraged feelings of competence,

> *They give you that confidence, knowing they're there to talk to and they say, you can do it, you know what I mean, and then you find yourself, you can do it, it's just that confidence isn't it, yeah* (participant focus group)

Sports Coordinators facilitated feelings of care and encouragement,

> *The staff have been brilliant, [SC] is excellent, really encourages you and like you know, makes sure you're, what's the next step for you sort of thing, you know, so you keep track of what's available to you, you know* (participant focus group)

Friends and family outside of the programme also provided support to continue activity,

> *My husband and family are encouraging me too, and they're quite supportive, they always sort of take an interest and encourage and you know, so I guess that everyone knows that it has a positive impact for me* (participant focus group).

However, pressures from family members could, at times, create further barriers if they perceived that exercise was a priority over spending time with family. We therefore, recommend that family members and/or important others are somehow involved in the programme **[See recommendation 2]**. The following example was from an individual who did not take part in the programme but engaged in conversations around physical activity on Elefriends

> *At first my wife really wasn't into me, it was kind of a very, 'oh you're going off to do your thing again are you', and all this, and she would always try and find reasons for me not to go. I just managed to work it so that I could spend time with the kids, but then still find that time for myself as well. She would accuse me of being quite selfish for wanting to go, but I'd try and explain, look I feel a lot better if I do go, and then I'm happier at home* (Elefriend user, phone interview)

Improvements to general mental wellbeing

Quantitative analysis did not show a change to mental wellbeing across the 4 data collection points (baseline to 3 months: p=.25, baseline to 6 months: p=.44, baseline to 12 month: p=.18). Levels of perceived mental wellbeing were maintained over the 12 months for both GStG evaluation participants and the control sample. It is important to be mindful that mental wellbeing can fluctuate day to day for this population group and their negative symptoms often result in reduced motivation which is more profound than the general population (Firth et al., 2016). The WEMWBS measure of mental wellbeing was used to assess the global positive attributes to mental wellbeing (Stewart-Brown et al., 2011). Therefore, changes to negative symptoms will not have been detected. Given that a large proportion of the population had a diagnosable mental illness, this is an important consideration. We recommend that future evaluation should use measures that also assess changes in negative symptoms. **[see recommendation 8]**. Further, assessing global mental wellbeing (that requests the participant to respond relating to the previous 2 weeks, rather than contextually or situationally) at 4 time points over one year may not provide a complete picture of mental wellbeing. Further, participants with long term mental illness may take time (and longer than 3, 6 or 12 months if ever), to perceive a true recovery to their mental health and then report a change to their wellbeing. Lastly, due to the large drop in response rate

at 3, 6 and 12 months compared to baseline, it is also possible that changes were not detected than if more participants had provided their responses at follow up**.**

Qualitative analysis offered some insight into these findings. Participants disclosed that they continued to experience episodes of poor mental health with negative symptoms that caused them to lapse in their sport and exercise behaviour,

> *I had a period where, since I was ill recently, about a year ago, and I had a breakdown and I was diagnosed with borderline personality, I stopped going because I was so ill and sometimes unable to get up and get out the house* (participant focus group)

However, participants who lapsed also felt able to re-adopt their sport sessions when they felt better due to the positive social environment created in the GStG sessions.

> *It's not somewhere that I'm worried about going back to because it's going back to that non-judgemental approach and people say all the time to you, well you've had that going on, this going on, and when you hear that message so many times it makes it safe for you* (participant focus group)

The qualitative data collected throughout the programme supported that various modes of exercise were beneficial for improving perceived mental wellbeing,

> *I've always found that exercise is the one thing that gets me well again, with the depression, so yeah, and it's invaluable, it's excellent. It makes me feel great, just healthy and active. I don't feel as tired or lethargic when I exercise and it makes me happy and content in myself (*participant focus group)

In several cases the improvements to perceived wellbeing was significant and life changing,

> *The difference is it's given me life, I've got a life that I never thought I would ever get back to and it's better than what my life was prior. I'm in a place where I thought I would never ever get back to, and that's my story. I've done things that I would never, ever have of dreamt of* (participant focus group)

Improvements to coping and resilience

Analysis of the survey data indicated that participants from the control group perceived that they were able to better cope and experience resilience during every day occurrences compared to the intervention arm at the 6 month follow up (Table 9: significant interaction effect $p=.04$, $\eta^2 = .04$).

Table 9: Perceived coping and resilience from baseline to 6 months

	Arm	Mean	SD	N
Baseline	Intervention	2.64	0.55	90
	Control	2.56	0.81	24
6 month Follow up	Intervention	2.47	0.68	90
	Control	2.68	0.84	24

This finding is contrary to what we might expect in terms of building increased efficacy. However, it is important to acknowledge that fostering efficacy (coping and resilience) may take some time, especially if individuals are taking part in new activities. Further, given that the control group were mental health service users, it is likely that they were accessing other support services that could positively affect their perceptions of coping and resilience. In this case, it was not ethical practice to ask control participants not to access support to improve their mental health. Further, the control group were more active than the participants which may have influenced the results. Qualitative data was contradictory of these results, and instead indicated that those who did take part in sport sessions also reported an increase in their ability to cope,

> *I find myself being able to cope a lot better with problems now. Once I'd have got in bed and pulled a blanket over my head not got dressed and stayed there. But I think to myself, no you deal with it, mind over matter, that's what I say to myself. I deal with problems a lot better than what I used to. I definitely got stronger, there's no doubt about it, I couldn't have coped a year or two ago and now, I surprise myself, I'm doing brilliant, I'm doing really, really well, I can cope with a lot more things than I've ever done in my life really recently* (participant focus group)

The qualitative data provided an explanation to support why individuals may take time to build resilience. Participants indicated that they eventually gained confidence by stepping outside of their comfort zone when they were supported to try new experiences. One participant attributed their increased resilience and perceived ability to cope directly to the GStG programme. They felt safe enough to push the boundaries of what they were comfortable with doing, even if at first the prospect of learning a new skill was daunting and could increase anxiety,

> *Sometimes you're a bit frightened, thinking 'oh, I can't do it', you know what I mean, 'I'm slow' or whatever, and they give you that confidence, knowing they're there to talk to and they say, 'you can do it', then you find yourself, it's just that confidence isn't it* (participant focus group)

This information supports existing literature on 'personal growth' which proposes an individual can experience personal growth only when pushing their coping limits and stepping outside of their comfort zone (Caddick & Smith, 2014).

Improvement to General and Acute Mood

Participants discussed experiencing improvements to their general mood, and particularly during the days on which they exercised. This feel good factor was attributed to increased energy, and confidence to take on new challenges,

> *And after you've done the exercise, I feel like, oh I'm on top of the world, I could take anything on…* (participant focus group)

Participants felt calmer and more positive about life,

> *It calms my mind, it stops me ruminating, it actively lifts my mood and it makes me feel a lot more positive about life* (Elefriends digital interview)

Exercise also helped to clear their minds,

> *Helps me to feel more strong and gives you a clearer mind. Takes away the problems* (qualitative survey comment)

Participants felt happier because they enjoyed the sessions. Sessions were a place where they could laugh. The focus was no longer on their mental health problem but on enjoying the exercise experience,

> *I'm getting fit and meeting new friends and we're just having such a laugh. I mean laughter is so good, I mean even the instructor's shouting at me, get your legs up higher and we're going, we're in water, laughing and we're trying and she's shouting at us, and we're laughing and she's laughing. But it's like, it's just so good (participant focus group)*

Positive associations to mood were supported by findings from the mood diaries where participants felt better on the days (specifically weekend days) they engaged in physical activity. Table 10 provides demographic information of those who completed mood diaries and Table 11 provides descriptive information of the variables included in the diaries.

Table 10: Demographic information for those participating in the mood diary

Total sample	**Age (years)**	**Gender**	
n	**Mean (SD)**	**female**	**male**
42	48.02 (11.64)	22	20

Table 11: Descriptive information for daily mins of exercise and affect (how participants felt that day)

	Physical Activity (mins)	Physical Activity	Positive Affect	Negative Affect	Feeling Scale
	Mean (SD)	**Range in mins**	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**
Monday	57.50 (76.38)	0 - 320	2.2 (.90)	1.81 (.89)	1.06 (2.6)
Tuesday	71.39 (108.36)	0 - 570	2.29 (.95)	1.58 (.72)	.73 (2.95)
Wednesday	92.83 (112.31)	0 - 540	2.41 (.99)	1.59 (.80)	1.13 (2.61)
Thursday	78.40 (106.99)	0 - 480	2.41 (.98)	1.54 (.68)	1.08 (2.64)
Friday	66.42 (75.58)	0 - 330	2.57 (1.04)	1.57 (.70)	1.16 (2.69)
Saturday	72.64 (96.63)	0 - 340	2.36 (1.07)	1.48 (.64)	.82 (3.15)
Sunday	45.11 (66.40)	0 - 300	2.5 (1.19)	1.5 (.59)	.79 (2.69)

Findings highlighted that the participants who engaged in more minutes of physical activity on both Saturday and Sunday experienced better mood on those days. Doing more exercise on Saturday was also associated with feeling better on Sundays and feeling better on Saturday was associated with more minutes of exercise on Sunday.

Table 12: Correlations to show significant relationships between minutes of exercise and acute mood

	Physical activity minutes: Saturday	Physical activity minutes: Sunday
Feeling Scale: Saturday	.346*	.321*
Feeling Scale: Sunday	.407*	.413
Positive Affect: Saturday	.521**	.252
Positive Affect: Sunday	.353*	.295

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

Further, a greater amount of exercise on Saturdays was associated with more minutes of exercise on Sunday (r=.341, *p*<.05) suggesting that participants may have carried out more exercise on the weekend. This interesting finding should be explored further in relation to mental health as recent research shows that so called 'weekend warriors' who carry out a weeks' worth of exercise all on the weekend still achieve significant health benefits (O'Donovan, Lee & Hamer, 2017).

Qualitative data highlighted the importance of physical activity for reducing rumination and creating a sense of stability.

Reducing rumination: Engaging in physical activity, particularly during the group sessions for the local delivery, provided a distraction from ruminating thoughts. Concentrating on what they were doing rather than ruminating over negative thoughts was perceived to contribute to the improved mood for Elefriends as well,

> *And I tend to try and, you know, focus on the routine that I'm doing, it helps because I'm concentrating on that rather than worrying about a hundred things that I should be doing or that I'm not good enough at* (Elefriends telephone interview)

Creating stability: Participants discussed that GStG had given them a reason to get up in the morning. They enjoyed being part of a group and looked forward to the meetings,

> *Gives you something to get up for in the morning, I hadn't had that since I was 18 and I'm actually looking forward to, on the days I'm doing something to get up and get out, just to be a part of it all. We wouldn't want to get out of bed to go to work but we're champing at the bit to get out and join the Mind group [laughs]* (participant focus group)

Knowing that the sessions were running provided a constant to the participants lives, particularly when other parts of their lives felt turbulent. This element of the structured programme was a comfort to the participants and brought them a sense of stability,

> *It's having things in place all the time and they're always there and you know, and knowing it's going to be there. I'm not lonely any more. It's having that structure that's always there, things to do each week* (participant focus group)

One individual mentioned that if it wasn't for the regular contact at GStG sessions, they might not leave the house or speak to another person,

> *But yeah, I live at, well I don't live alone, I live with my dog and she's basically, other than Wednesdays, the only person I see from one weekend to the next. Getting out, this, Mind and things like that are, you know, really good* (participant focus group)

This further highlights the importance of programmes, like GStG, for addressing the negative psychological effects of loneliness and isolation. The emphasis placed on the structure was evident when the participants discussed the negative impact on their wellbeing when session times changed. Where possible we recommend concentrating efforts on providing a regular timetable of sessions and minimise time changes and cancellations. **[See recommendation 3],**

> *What winds me up is I'm doing badminton and all that, they keep changing the times and it's cocking up my clocks, it knocks you out, you need to stick to one time and then I can know that's in my day.*

That can mean everything to somebody in, you know, someone with our conditions, it can do a lot, can just knock you for six (participant focus group)

The psychological processes (mechanisms) of physical activity and wellbeing

To investigate the psychological processes we looked to see if variables associated with the psychological processes of exercise (barriers to exercise and motivation regulations) changed throughout the course of GStG.

Barriers to exercise: Although there is not a significant change in barriers to exercise, it is worth noting that there is a trend for change in the intervention participants (but not in the control group) that perceived barriers to exercise had reduced (p=.07, η^2= *.03*)

Table 13: Descriptive information for barriers to exercise (baseline to 3 months)

	Arm	Mean	SD	N
Baseline	Intervention	2.14	0.49	88
	Control	2.28	0.40	20
6 Months	Intervention	1.99	0.50	88
	Control	2.22	0.32	20

Qualitative data supported this finding. Participants continued to experience barriers associated with their mental and physical health. However, they were able to work towards overcoming them,

> *I got into swimming and that's what I did in the group and I found that I sort of, if I can get out of the house, when I wake up, if I can get up and get out of the house and I've got something like I can go swimming, I won't have to think, I don't need to use my brain, I can get into some sort of habit but, I seem to work better with a framework, so and when I get out, I feel great. I noticed, when I started going regularly, might have been a bit of an effort to make myself go, but afterwards I felt good* (participant focus group)

Motivation to exercise: Introjected regulation to exercise significantly decreased, with a medium effect size (p=.02, η^2= *.06*), from baseline to 3 months. This means that their quality of motivation to exercise improved from a more controlling type (to avoid feelings of guilt, or because they were told they should exercise) to a more autonomous type (out of enjoyment, or because they valued the benefits of exercise). The correlations outlined in the Table 14 below indicate that more autonomous reasons to exercise are associated with increased perceptions of wellbeing across all time points.

Table 14: Descriptive information for introjected regulation (motivation to exercise)

	Arm	Mean	SD	N
Baseline	Intervention	2.96	1.12	70
	Control	2.43	0.97	22
3 Months	Intervention	2.32	1.21	70
	Control	2.34	1.06	22

Correlation analysis which explored the relationship between psychological processes of mental health and physical activity is outlined in Tables 15-20. Table 15 includes details of the relationship between mental wellbeing and variables associated with psychological processes of exercise health across all 4 time points (baseline, 3 months, 6 months, and 12 months). Positive values indicate that as one variable increases, the other variable increases relative to the size of the correlation value. For instance, there is a positive relationship between mental wellbeing and perceived social support at baseline, 3 months and 6 months. This means that those who perceived a greater sense of wellbeing also reported receiving a greater provision of support. Tables 16-20 present details of the relationship between variables of mental health and wellbeing and physical activity behaviour.

The following points can be taken from Table 15:

- Blue boxes: A better perceived mental wellbeing, social support, and ability to cope and be resilient are positively associated with each other across all time points. This indicates that those who reported high levels of social support and ability to cope/be resilience also reported high levels of mental wellbeing.
- Red boxes: Autonomous motivation is associated with better mental wellbeing, more perceived social support, better coping and resilience and better overall health at each time point. This indicates that those who were enjoying the sport/physical activity and valued the benefits that it also reported better mental health and associated variables**.** We therefore recommend that the GStG project focuses efforts on increasing the quality of motivation of their participants **[see recommendation 4].**
- Brown box: A complete lack of motivation (amotivation) is negatively associated with perceptions of wellbeing and positively associated with barriers to exercise **[see recommendation 4].** Therefore, those who did not want to engage in any physical activity also reported lower levels of mental wellbeing and perceived greater barriers to exercise

- Green box: Barriers to exercise are negatively associated with predictors of mental health (wellbeing, coping and resilience, social support and overall health) at each time point indicating that those who perceived more barriers to exercise also perceived lower levels of psychological wellbeing. We therefore recommend a continued focus on reducing barriers to exercise **[see recommendation 5].**

These associations support that autonomous motivation to be physically active and believing that barriers can be overcome are linked to better mental wellbeing, perceived social support and ability to cope and be resilient. We can therefore suggest that the mechanisms of change targeted by the GStG programme (e.g., providing social support, increasing motivation to be active, and reducing barriers to exercise) are associated with positive mental health outcomes.

Table 15: Associations between predictors of wellbeing, and motivation and barriers to exercise

	Mental Wellbeing	Social Support	Coping & Resilience	Barriers to exercise	Intrinsic Motivation	Identified Motivation	Introjected Motivation	External Motivation	Amotivation
Baseline									
Mental Wellbeing	1	.538**	.628**	-.271**	.252**	.141**	0.022	0.042	-.123**
Social Support		1	.454**	-1.80**	.246**	.175**	.111**	0.07	-.116**
Coping & Resilience			1	-.242**	.215**	.124**	0.009	0.012	-.128**
Overall health	-.025	-.027	-.036	.057	.310**	.416**	-.022	.045	-.002
Barriers to exercise				1	-.381**	-.284**	0.058	.226**	.356**
3 month									
Mental Wellbeing	1	.632**	.531**	-.499**	.378**	.352**	0.161	-0.128	-.272*
Social Support		1	.518**	-.491**	.365**	.319**	-0.016	-.259*	-.304**
Coping & Resilience			1	-.246*	0.182	.272*	0.63	-0.144	-.272*
Overall health	.371**	.202	.146	-.200	.300**	.139	.120	.106	-.097
Barriers to exercise				1	-.380**	-.273*	0.101	.393**	.435**
6 month									
Mental Wellbeing	1	.530**	.566**	-.429**	.302**	.269**	-0.121	-.235**	-.204*
Social Support		1	.374**	-.349**	.238**	0.134	-0.16	-0.084	-.226**
Coping & Resilience			1	-.205*	.201*	0.155	0.032	-0.129	-0.167
Overall health	.603**	.443**	.399**	-.413**	.319**	.215*	-.166	-.160	-.220*
Barriers to exercise				1	-.416**	-.244**	.182*	.405**	.334**
12 month									
Mental Wellbeing	1				.329**	.290**	0.044	-0.038	-.193*
Overall health	.361**				.388*	.403**	.168	.067	-.061

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

Table 16: Associations between predictors of wellbeing and physical activity at baseline

Baseline	Vigorous PA (days)	Vigorous PA (mins)	Moderate PA (days)	Moderate PA (mins)	Days Walking	Walking (mins)	Sitting time (mins)	Days playing sport	Playing sport (mins)
Overall Health	.281**	.213**	.156**	0.071	.205**	.158**	-.084*	.240**	.189**
Mental Wellbeing	.168**	.105*	.129**	0.029	.153**	.101*	-.112**	.249**	.281**
Social Support	.171**	0.004	.143**	-0.024	.118**	0.064	-.075*	.263**	.199**
Coping & Resilience	.216**	.113*	.173**	0.069	.115**	.099*	-.109**	.152**	.159*
Intrinsic Motivation	.180**	.122*	.212**	0.077	.263**	.123**	-0.04	.288**	.274**
Identified Motivation	.191**	.123*	.222**	0.036	.179**	.093*	-0.036	.297**	.222**
Introjected Motivation	.168**	.108*	0.062	0.048	0.073	.085*	0.008	.284**	.266**
External Motivation	-0.064	0.072	-.133**	0.046	-0.063	0.005	-0.011	-0.01	0.062
Amotivation	-.143**	-0.022	-.217**	-0.006	-.158**	0.009	-0.041	-.195**	0.065
Barriers to exercise	-.140**	-.133*	-.154**	-0.081	-.197**	-.125**	.133**	-.150**	-0.036
Pain	-0.06	-0.055	0.046	-0.033	-.126**	-.098*	0.05	-0.021	-.170*

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

The following points can be taken from table 18 above:

- Red box: Predictors of wellbeing (wellbeing, coping and resilience, social support) are positively correlated with vigorous exercise, days of moderate exercise; time spent walking and playing sport. Predictors of wellbeing are negatively correlated with more time spent sitting. This indicates that those who perceived lower levels of psychological wellbeing also spent more time sitting. We therefore recommend encouraging participants to reduce sitting time as well as increasing their amount of exercise **[see recommendation 6].**
- Blue box: Autonomous motivation to exercise is positively associated with increased levels of physical activity and sport. Therefore, those who exercise because they enjoy it or value the benefits also exercise more. Introjected regulation is also associated with increased physical activity. This supports qualitative data which explains that participants participate sometimes due to feelings of guilt or because they do not want to let someone (a friend down). This was seen as a positive motivator rather than a negative. It is possible to experience introjected regulation alongside autonomous motivation (Ntoumani & Thogersen-Ntoumani, 2006).
- Brown box: Barriers to exercise and perceived pain are negatively associated with most levels of exercise. Barriers are positively associated with sitting for longer periods of time.

Participants discussed pain in the focus groups for two different reasons. Some participants experienced poor physical health as well as mental health and often experienced episodes when they were in constant pain which impacted their mental health further,

> *I've got, yeah, just bending over, just I'm not, I mean I'm on Tramadol all the time. And I don't do, I mean you shouldn't have to take stuff like that, all that does is mask the pain. The pain's there all the time* (participant focus group)

This could partly explain why levels of pain had increased from baseline to 3 months. Both the GStG and control groups significantly increased their perception of pain from when they completed the survey at baseline to 3 months later (p=0.012, η^2=*.07*).

Table 17: Descriptive information of perceived pain from baseline to 3 months

	Arm	Mean	SD	N
Baseline	Intervention	2.61	1.37	68
	Control	2.81	1.33	22
3 month follow up	Intervention	3.04	1.42	68
	Control	3.13	1.35	22

Participants also discussed how increasing their levels exercise (intensity and duration) could result in pain or prolonged exhaustion. Participants articulated the dangers of physically pushing themselves beyond what they could cope with during their exercise sessions and the implications this could have on their psychological wellbeing,

> *I get mentally tired as well, that affects me more really. The first time it happened I didn't know what I did and for a couple of days, can't do anything except watch the telly.* (participant focus group)

In this specific case, the volunteers and staff had explained the concept of burn out to the participants which allowed them to self-reflect and understand what was happening. This example highlights that volunteers (i.e., PN) who understand the needs of the participants is important. We recommend that all Peer Navigators are provided with information on the signs of over training in order to provide effective guidance in these cases **[see recommendation 9].**

> *Sometimes with me it's just that, I know I'm probably at this certain speed but I want to go a bit faster and then I realised quite quickly that I can't go this speed, I'm doing too much, so it's somebody else looking from the outside and they can see the difference, they said, slow down. Cut some stuff out. She actually sat me back and said, 'you're going to blow yourself out', she's been right* (participant focus group)

Because they were experiencing the benefits gained from exercise, participants wanted to continuously increase their levels of exercise which could then lead to increases in worry and anxiety,

> *If you do too much you get anxious about that. That can escalate, you know, inside. You just come to a full stop then, it burns you out really I think if you do too much. If you're not doing what you want*

> *to, it becomes a worry, worry becomes a worry… You create a syndrome. Yeah, has a knock-on effect* (Elefriend telephone interview)

Participants agreed that it was important for them to be self-aware about this process, and that GStG had, in part, enabled them to reflect and take positive action. Instead of withdrawing altogether, the following example shows how a participant, with guidance, was able to continue with their routine but at a lower level.

> *It's a bit trial and error, that, I hate that phrase but it's true. For me, just feel overwhelmed and everything, just feel like dropping everything and it's about getting to know yourself. In some ways I needed to drop one or two things, not drop everything. It's about knowing yourself and it's a fine line, it's knowing, when to pull yourself in a bit or push yourself, it works both ways but it's getting to know what your limitations are I think. It's about not dropping everything, like I said just keeping enough going but sometimes you might need to drop a few things. You need to push yourself as well, on some occasions but it's knowing when to pull yourself in or when to push yourself.* (participant focus group)

As well as wanting to increase levels and intensity of exercise to help their recovery, participants also spoke about using high intensity exercise as a form of self-harm. They mentioned that they would exercise at an intensity that hurt on purpose,

> *I didn't feel anything apart from, you know, that sort of really intense feeling and to be honest with you, at the start I used it as a bit of self-harm alternative, I pushed myself hard at the gym and I pulled a muscle because that was better than making a scar* (Elefriend phone interview)

This further supports our recommendation that Peer Navigators should be supported to increase their awareness of the dangers of over-exercising and understand how to support individuals if this occurs (e.g., signpost to support group) **[see recommendation 9].**

The following table displays the relationship for the same variables at 3 months,

Table 18: Associations between predictors of wellbeing and physical activity at 3 months

3 months	Days 1 x 30 mins	Vigorous PA (days)	Vigorous PA (mins)	Moderate PA (days)	Moderate PA (mins)	Days Walking	Walking (mins)	Sitting time (mins)	Sport (days)
Overall Health	.227*	.418*	.030	.052	.266	.010	.191	-.250	.426*
Mental Wellbeing	.100	.296	.118	-.107	-.117	.049	.065	-.348*	.214
Social Support	.098	.173	-.250	.074	-.024	.038	.039	-.129	.171
Coping & Resilience	-.083	.247	-.059	-.133	-.197	-.064	.102	-.083	.236
Intrinsic Motivation	.198	-.009	-.031	.156	-.007	-.012	.140	-.159	-.228
Identified Motivation	.218	.225	-.168	.009	-.081	-.098	.215	-.125	.258
Introjected Motivation	.003	.114	.165	.002	-.015	-.184	.259	.027	.468*
External Motivation	-.203	-.021	.304	.073	-.043	.001	.174	.187	.046
Amotivation	-.241*	.040	.394	.213	-.124	-.049	-.163	.446**	-.294
Barriers to exercise	-.162	-.152	-.035	-.027	-.261	-.064	-.169	.213	-.140

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

The following points can be taken from Table 20:

- Red box: Overall health is associated with days spent playing sport, exercising for 30 minutes or more and days engaging in vigorous physical activity. Therefore, those who are more regularly active also reported higher levels of overall health.
- Brown box: More time spent sitting is positively associated with a lack of motivation to exercise and negatively associated with wellbeing**.** This suggests that those who engaged in more time spent sitting also generally felt worse. These individuals also demonstrated a lack of motivation to exercise.
- Blue box: A lack of motivation is negatively associated with days spent engaging in 30 minutes or more of exercise.

Table 19: Associations between predictors of wellbeing and physical activity at 6 months

6 months	Days 1 x 30 mins	Vigorous PA (days)	Vigorous PA (mins)	Moderate PA (days)	Moderate PA (mins)	Days Walking	Walking (mins)	Sitting time (mins)	Sport (days)
Overall Health	.391**	.295*	.090	.177	.200	.096	.195*	-.248*	.249
Mental Wellbeing	.329**	.311*	.117	.167	.124	.279**	.217*	-.359**	.158
Social Support	.333**	.196	.131	.113	.089	.102	.180	-.230*	.257
Coping & Resilience	.317**	.117	.162	.322**	.221	.216*	.158	-.129	.032
Intrinsic Motivation	.172	.163	-.051	.093	-.04	.253**	.012	-.031	.174
Identified Motivation	.145	.223	.053	.172	.026	.280**	-.022	-.059	.242
Introjected Motivation	-.146	.150	-.020	-.010	-.162	.093	-.012	.104	-.100
External Motivation	-.147	-.245	0.12	-.203	-.077	-.055	.004	.223*	-.213
Amotivation	-.198*	-.049	-.105	-.031	-.159	.044	-.053	.165	-.223
Barriers to exercise	-.300**	-.132	-.094	-.181	-.152	-.205*	-.088	.160	-.231

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

The following points can be taken from Table 21:

- Red box: Similar to previous time points, predictors of wellbeing (overall health, wellbeing, coping and resilience, social support) are all positively associated with the amount of days active for more than 30 minutes and various other levels of physical activity. This supports that the GStG programme should continue to promote physical activity for mental health. The evidence shows that those individuals who were more active also experienced better mental health.
- Blue box: Autonomous motivation is positively correlated with days spent walking. This supports qualitative findings that even when participants are not motivated to go to the gym, they can still push themselves to go for a walk. We therefore recommend promoting walking as an achievable and sustainable method of being active as well as promoting the numerous benefits of walking **[see recommendation 7],**

> *It's taught me that even going for a walk is a good form of exercise and one that I have found does help my mood rather than sitting at home. So even if I don't have the motivation to do some vigorous exercise, a walk is good for me* (Elefriends messenger interview)

- Brown box: As we might expect, a lack of motivation and barriers to exercise are negatively correlated with days spent exercising for 30 minutes or more. Therefore, the GStG programme should continue the aim of reducing barriers to exercise as a mechanism of change.

Table 20: Associations between predictors of wellbeing and physical activity at 12 months

12 months	Days 1 x 30 mins	Vigorous PA (days)	Vigorous PA (mins)	Moderate PA (days)	Moderate PA (mins)	Days Walking	Walking (mins)	Sitting time (mins)	Sport (days)
Overall Health	.263**	.087	.078	.207	.184	.303**	.252*	-.180	.343
Mental Wellbeing	.296**	.254	.115	.046	.126	.329**	.135	.108	.032
Intrinsic Motivation	.319	-.100	.050	-.152	-.018	.078	.035	.177	.210
Identified Motivation	.298**	.133	.104	-.064	.082	.142	.037	.018	.244
Introjected Motivation	.180	.103	-.235	-.174	-.173	-.023	-.037	-.114	.034
External Motivation	-.158	0.45	-.099	-.038	-.025	.236*	-.017	-.124	-.466**
Amotivation	-.150	-.101	-.063	.033	000	-.047	.011	-.135	-.105

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

The following point can be taken from Table 22:

- Red box: Overall health and mental wellbeing are positively correlated with days spent exercising for 30 minutes or more, and time spent walking. This is consistent across all time points indicating that those who were exercising more also reported higher levels of mental wellbeing and overall health.

The associations in the 4 tables above show that experiencing a higher quality of motivation (autonomous) to exercise is associated with more physical activity and better mental health, and more physical activity is associated with better mental health. We can conclude that these patterns of correlations point towards the positive implications of physical activity engagement and possible mechanisms for promoting increased activity. This was apparent at each time point.

Understanding psychological processes of physical activity and mental wellbeing by gender, age and mental health diagnosis:

We aimed to assess whether outcomes might be influenced by age, gender or mental health diagnosis. It was not possible to carry out meaningful analysis due to small sample sizes when data was split by sub group. However, we have included 3 tables (Appendix C-E) in the appendices to show descriptive information of outcome variables at baseline, 3 and 6 months split by age, gender and mental health diagnosis. Mental health diagnosis was grouped into four categories of disorders (mood disorders, psychotic disorders, personality disorders and learning difficulties). Many participants had multiple diagnoses and therefore, it is likely that they have been included multiple times across the four categories.

Although we were not able to assess statistical differences in mean scores, there were some notable changes in the magnitude of certain values. For example males engaged in more minutes of vigorous exercise at 3 months (112 mins) and 6 months (98 mins) than females at the same time points (3 months: 70.5, 6 months: 68 mins). Means scores for time spent siting were higher in males (3 months: 466 mins, 6 months 496 mins) than female (3 months: 422.5, 6 months: 360 mins; Appendix C). Females had higher mean scores in perceived social support (3 months: 3.14, 6 months 3.07) to males (3 months: 2.96, 6 months 2.89).

The most frequently reported mental health diagnosis (Appendix D) was within the category of mood disorders. Those with a personality disorder (m=3.27) or psychotic disorder (m=3.27) had higher means of mental wellbeing than those with a mood disorder (m=2.8).

Mean scores split by age are presented in Appendix E. There are no meaningful comparisons to be made as some of the sub-groups are so small.

Improvements to the sense of self

Qualitative data indicated links between physical activity and an improvement in how the participants perceived themselves. They attributed experiences within the GStG programme to increases in self-esteem via improved perceptions of the physical-self, and experiencing mastery. Overcoming self-imposed limits led to feelings of empowerment.

Various mechanisms within the programme led to increases in self-esteem and pride in what the participants had achieved throughout the programme,

> *I'd never do that and I'm doing it. It isn't other people, it's me that's doing it. Looking back and then you can see, well I've done that all this time and that's a big help, that, being able to look back and look at what you've done, what you've achieved* (participant focus group)

Participants were able to improve their skills, experience mastery and thus improve perceptions of competence in the various sports they played,

> *I thought I'm not going on a bicycle in case I fall off it, I said I'll go and support it. I turned up, nobody was there that I knew. The guy said, put your helmet on, so he talked me into it, so I did. I so enjoyed that as well. It's the first time I've been on a bike for 26 years and I've actually just bought a bike* (participant focus group).

The physical self (sports competence, physical conditioning, body attractiveness and physical strength) is thought to be the highest predictor of self-esteem (Fox, 1999). Participants experienced positive changes to their perceptions of their physical self. These included physiological benefits such as improved fitness, improved mobility and weight loss,

> *I think my fitness has improved as well because I was very unfit, I don't do a lot of exercise. When I first did badminton, after ten minutes I was sweating so much, I was so hot and out of breath but then kind of after a few weeks my standards increased a bit, I can feel that I'm a little bit fitter. And ever since I've done the gym and the badminton I've been losing weight. People have noticed that I've lost weight* (participant focus group)

The Peer Navigators also appreciated the physiological benefits of playing sport and engaging in physical activity which they could do as part of their role,

> *The obvious one for me has been fitness, it's quite nice actually just to feel, my own fitness, my own mental health is good at the end of the day* (Peer Navigator interview)

Participants often spoke about the importance of the small steps they took initially in their mental health recovery. It was these small steps (small achievable goals) that gave them the confidence to feel able to overcome their own self-imposed limits. We therefore recommend focusing information on *how* to overcome barriers, particularly the very initial barriers **[see recommendation 5],**

> *I think that we actually put limits on our own selves. That's the problem. When you join groups like this and these opportunities are there, the small steps are there provided for you to move into things that you wouldn't never otherwise do…* (participant focus group)

GStG was viewed as the first important step to the participant's mental health recovery,

> *I've just been given therapy on the NHS for like a year, there's no way that I would have been in a position to do, to be ready for that if I had not done the things with Mind so I think Mind's brought me to a place where I'm ready to take advantage of that and hopefully just move on with my life, I'm grateful to Mind, yeah* (participant focus group)

The small positive steps achieved through GStG appeared to empower the participants to access other opportunities to further their mental health recovery,

> *So many years I've kept running away from all the opportunities and now I'm running towards them* (participant focus group).

Summary of Objective 1

Supported by both quantitative and qualitative findings, we can conclude that GStG was successful in increasing perceptions of social provision. Qualitative data provided information to explain that increased social provision was due to increased quality social interaction with similar others via group activities. SCs, PNs and peers on the programme were all key sources of support.

Mental wellbeing was maintained over the course of the programme for participants in both the local delivery and control group. Participants explained how they continued to experience episodes of poor mental health. However, the supportive social environment created in the GStG sessions enabled them to return when they felt sufficiently recovered. For some participants improvements to wellbeing were life-changing. Participants gained confidence by stepping outside of their comfort zone when they were supported to try new experiences, and thus improved their perceptions of self. This improved sense of self facilitated participants to seek other positive experiences and support. GStG was deemed an important first step in their recovery. An improvement to both general and acute mood was attributed to physical activity. Improved mood was articulated in terms of clearer mind, reduced rumination and laughter during the sessions. Quantitative information suggested that participants felt better on days they were active (on weekends only).

Barriers to exercise were reduced for those who were on the GStG programme and introjected regulation (a controlled form of motivation) decreased. Further correlational analysis showed that autonomous motivation to be physically active and believing that barriers can be overcome are linked to better mental wellbeing, perceived social support and ability to cope and be resilient. We can therefore suggest that the mechanisms of change targeted by the GStG programme (e.g., providing social support, increasing motivation to be active, and reducing barriers to exercise) are associated with positive mental health outcomes. These patterns of correlations point towards the positive implications of physical activity engagement and possible mechanisms for promoting increased activity. Both qualitative and quantitative findings provide evidence on the important mechanisms by which social support may reduce barriers, increase motivation to participate, and thus increase physical activity behaviour and wellbeing. Particular successful areas of focus for GStG are facilitating quality social support, minimizing perceived barriers and enhancing identified motivation regulations (i.e., highlighting why PA engagement is important and the benefits that can be gained through participation).

6.2 The effectiveness of the Peer Navigator model for sport participation

How might an effective GStG programme be delivered?

This chapter will discuss the effectiveness of the Peer Navigator model, the active ingredients present that encourage sustained physical activity behaviour, and the context in which these key active ingredients can trigger change.

When considering the effectiveness of the peer navigator model, it is important to note that, as we might be expected in a multi-site community led programme, the GStG programme was not delivered in exactly the same way across all local Minds and therefore fidelity across all sites was not achieved. For example, it was only clear in two local Minds that there was a specific 12 week programme. Other local Minds continued weekly sessions for the whole duration of the programme. To aid a more effective evaluation, we therefore recommend that the local Minds are consistent with the length of time that participants can engage in the programme. For example, it should be clear (and consistent) whether the programme is for 12 weeks as a one off, a 12 week programme which participants can re-enrol or a continuous programme where participants can attend every week for the entire duration of the programme **[see recommendation 11].** Each local Mind is governed separately and will naturally have varying procedures relating to the programme. Each local Mind also offered a variety of different sessions depending on what was available in the area and their relationships with sports providers. The mechanisms highlighted below are those that were common across all local Minds but adapted to suit the needs of each of the local Minds.

First, we will provide descriptive and qualitative information relating to the participant satisfaction and acceptability of the programme.

Participant Satisfaction of GStG

Participants were asked to provide an overall rating, and satisfaction of GStG at the 3 and 6 month follow up. Figure 2 shows that 76% and 78% percent of participants rated the programme as very good or excellent at the 3 and 6 month follow up respectively. Only a small percentage (3%) rated the programme as poor at both follow ups.

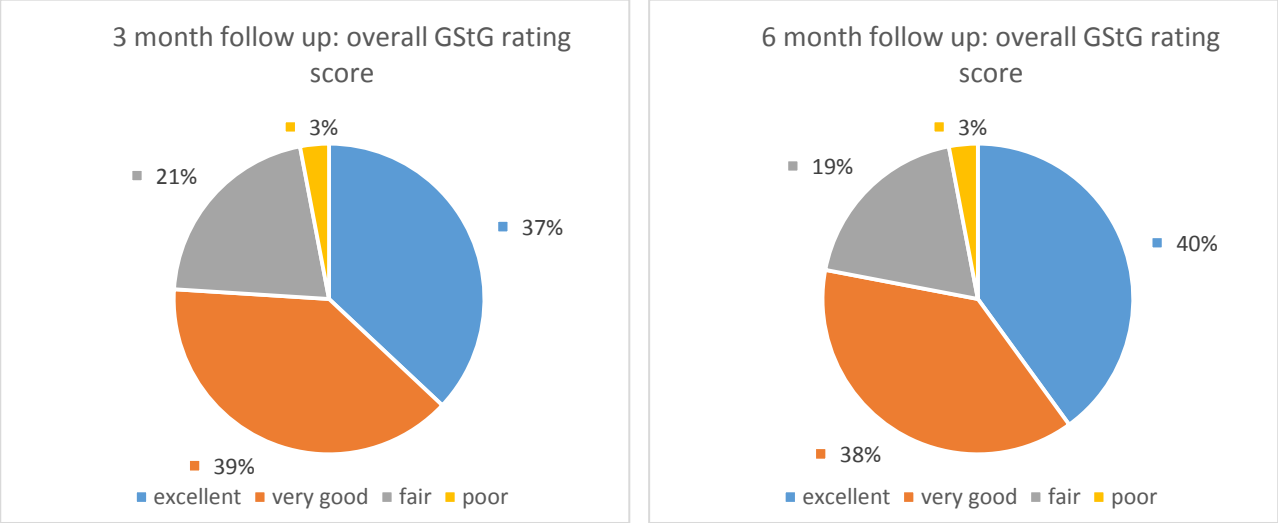


Figure 2: Participant overall rating of GStG at the 3 and 6 month follow up

Eighty percent of participants were very or fairly satisfied with GStG at the 3 month follow up and 85% were very or fairly satisfied with GStG at the 6 month follow up.

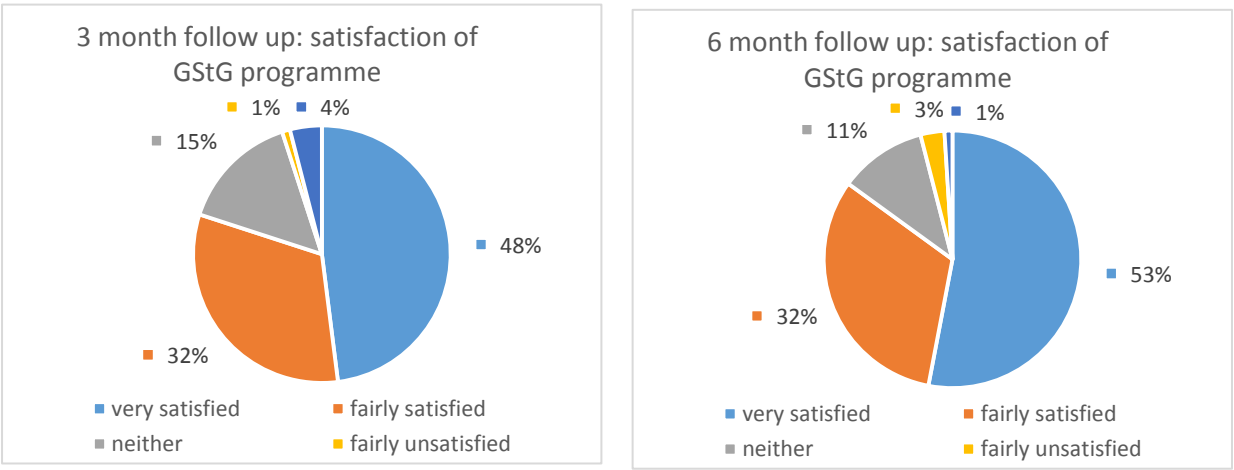


Figure 3: Participant satisfaction of the GStG programme at the 3 and 6 month follow up

These figures indicate that the programme was acceptable to the participants who engaged in the evaluation.

Participants were also asked to rate the usefulness of the different components of the programme. Figure 4 and 5 provide details of their responses at the 3 month (Figure 4) and 6 month (Figure 5) follow up. At 3 months participants reported that the Peer Navigators and the group sport taster sessions were more useful than the one to one sessions. This finding was similar at 6 months. Participants also found the Peer Researchers useful for the implementation of the evaluation. We recommend that group sessions continue to be used to promote quality connection with others within an empathetic and welcoming environment **[see recommendation 10].**

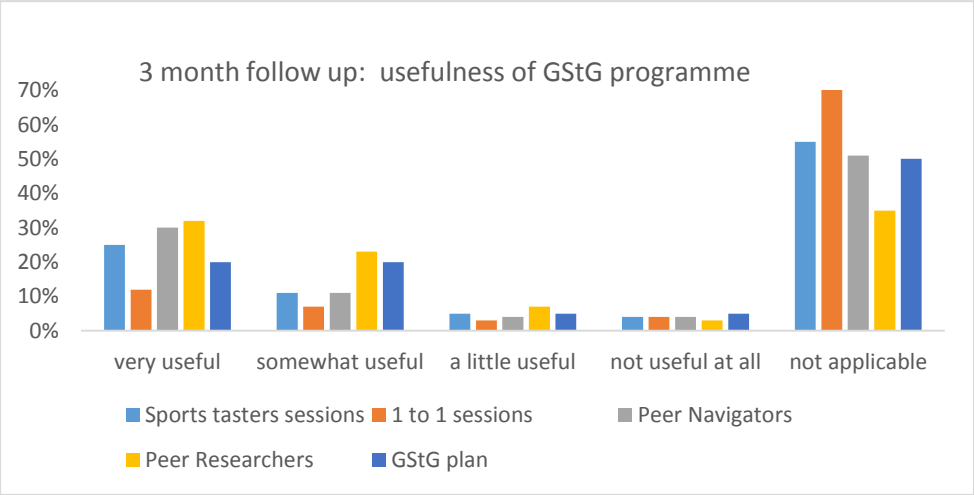


Figure 4: Usefulness of programme components at the 3 month follow up

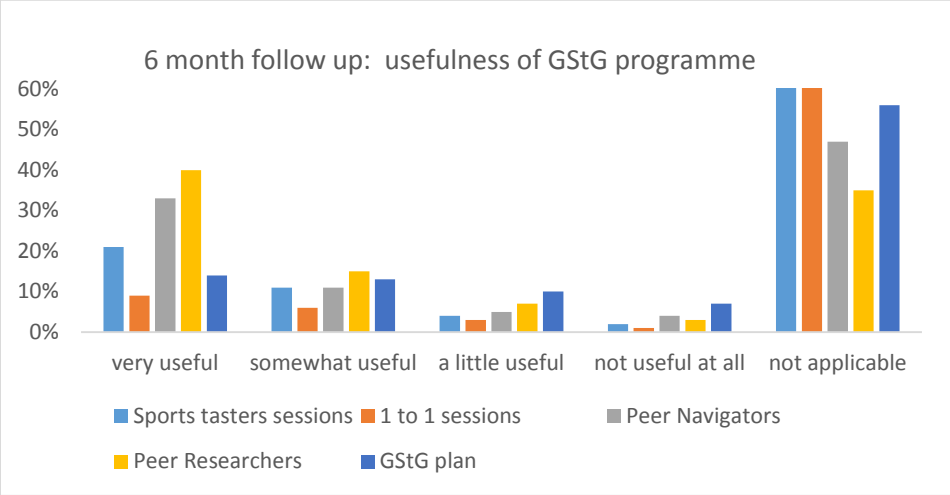


Figure 5: Usefulness of programme components at the 6 month follow up

Participants who engaged in the qualitative data collection supported the assumption that the programme was acceptable,

> *It has encouraged me to try new things, revisit activities. Spend time with others especially in similar situations and make new friendships. I want to do more things generally"* (qualitative comment from survey)

Effectiveness of the GStG programme: Levels of physical activity

Physical activity participation at baseline: At baseline in total, 731 participants from the local delivery arm provided a response to the number of days that they were physically active for 30 minutes or more in the previous week. Of those who responded, 5% reported themselves as engaging in moderate physical activity (PA) for 30 minutes on all 7 days of the week. 217 (22%) of the participants reported not engaging in 30 minutes of moderate PA on any day in the previous week.

Our inferential analysis indicated that GStG was effective in increasing self-reported levels of physical activity up to the 6 month follow up assessed via responses to the IPAQ-2, and at the 12 month follow up assessed via the single question, '*on how many days did you engage in 1 x 30 minutes of exercise*'. This change was significantly different to the control sample, and analysis generally showed a medium or large effect size for these differences. Specifically (see Table 21), participants engaged in 30 minutes of exercise on significantly more days at the 3 month follow up (p=.004, mean= 3.63 days, η^2=.09) compared to baseline (mean=2.21 days).

Table 21: Descriptive information for days active for 30mins or more (baseline to 3 month)

	Arm	Mean	SD	N
Baseline	Intervention	2.21	2.25	68
	Control	3.32	1.81	22
3 Months	Intervention	3.63	2.29	68
	Control	3.82	2.30	22

Participants also engaged in 30 mins of exercise on significantly more days of the week at the 6 month follow up (mean = 3.76) compared to those same participants at baseline (mean = 2.38, p=.04, η^2=.04: table 22). This was significantly more than the control group (p<.05, η^2=.07).

Table 22: Descriptive information for days active for 30mins or more (baseline to 6 month)

	Arm	Mean	SD	N
Baseline	Intervention	2.38	2.15	91
	Control	3.5	2.18	24
6 Months	Intervention	3.76	2.38	91
	Control	3.29	1.89	24

This significant change (p<0.01, η^2= .10) was also apparent when we compared baseline measures to those who also completed the 12 month follow up survey (Table 23). The interaction effect from the analysis showed that where the control group maintained their activity level, the GStG participants increased their number of days of activity by, on average, 1.3 days.

Table 23: Descriptive information for days active for 30mins or more (baseline to 12 month)

	Arm	Mean	SD	N
Baseline	Intervention	1.78	1.68	60
	Control	3.3	2.18	23
12 Months	Intervention	3.02	1.65	60
	Control	3.39	1.80	23

When assessing physical activity levels via the IPAQ-2, results indicated that participants increased the amount of days where they engaged in vigorous (Table 24, p=0.03, η^2=.11), and moderate activity from baseline to the 3 month follow up (Table 25, p=0.04, η^2=.07). The control group maintained the amount of days they were active during this period.

Table 24: Descriptive information for days of vigorous activity (baseline to 3 month)

	Arm	Mean	SD	N
Baseline	Intervention	1.15	1.66	26
	Control	1.95	1.07	21
3 Months	Intervention	2.23	1.84	26
	Control	2.19	1.28	21

Table 25: Descriptive information for days of moderate activity (baseline to 3 month)

	Arm	Mean	SD	N
Baseline	Intervention	1.54	1.82	35
	Control	2.23	1.48	21
3 Months	Intervention	2.74	2.06	35
	Control	2.48	1.66	21

At the 6 month follow up (Table 26), participants were also engaging in more days of vigorous activity compared to the same participants who completed the baseline survey (p=0.04, η^2= .07), and the control group (p=0.02, η^2= .10). Participants engaged in, on average, at least one more day of vigorous activity per week after 6 months.

Table 26: Descriptive information for days of vigorous activity (baseline to 6 month)

	Arm	Mean	SD	N
Baseline	Intervention	1.15	1.77	34
	Control	2.29	1.42	24
6 Months	Intervention	2.38	1.75	34
	Control	2.21	1.14	24

At the 6 month follow up (Table 27), participants were engaging in significantly more days of moderate activity compared to baseline (p=0.001, η^2=.18) and the control group (p=0.02, η^2=. 15). Both calculations produced a large effect size. At 6 months participants had increased the days where they were moderately active by almost 2 per week.

Table 27: Mean and standard deviation for days of moderate activity (baseline to 6 month)

	Arm	Mean	SD	N
Baseline	Intervention	1.523	1.67	44
	Control	2.905	1.97	21
6 Months	Intervention	3.3	2.11	44
	Control	2.33	1.77	21

Mechanisms for change

In the following section, we present our learning of *how, why* and *if* the intervention was successful. Table 28 summarises the active ingredients that encouraged sustained physical activity behaviour and sports participation, and the context in which these active ingredients can trigger change. The table also summarises contextual information to understand when and why this change is not successful. Each active ingredient will be discussed in turn and supported by evidence.

Table 28: Summary of findings for objective 2: To understand the effectiveness of the Peer Navigator model for sport participation

Outcome of GStG	Successful active ingredient	Who is involved?	Why does it *work*?	When does it *not work*?
***Adherence to GStG and return from a lapse**	A supportive social/motivational environment	SC / PN Participants	1st session crucial for continued engagement A place to laugh / no pressure Encouraged to learn new skills Participants feel valued and cared for	When PN display controlling behaviour When there is an absence of support When physical or mental health posed real/perceived barriers
***Increased perceived social provision**	Group sessions with PN facilitating session	PN Participants	Facilitate social interaction Facilitate friendships Enhance structure for participants Mutual understanding between PN and participants	Retention of PN to facilitate sessions
Improved wellbeing and increased participation	Lived experience at the centre of GStG	PN Participants / PR	Shared understanding No judgement Removes fear of stigma PN / PR belief in benefits of PA	PN feel the pressure of the role when on their own recovery journey Participant dependence on GStG groups
Retention & improved mental health of PN/ PR	Support process for PN and PR	SC / PN /PR	Removes perceived pressure for PN Opportunities to develop skills, opportunities, and aids recovery	When PN do not access or are not offered support When PR are working in isolation
Reciprocity	Peer Navigator role	PN	Peer navigators benefiting from helping others	When PN are not accessing support within their role
***Adherence to GStG**	Text messages as prompts	SC Participants	Participants feel valued and cared for Prompts to attend Creates a personalised touch	Blanket text messages Participants without access to a phone
***Adherence to GStG Retention of volunteers**	Clear line of communication	SC / PN Participants MF	Reduces confusion for participants Reduces anxiety for participants Guidance for PN Questions answered for PN/participants	No communication of cancelled session No clear point of contact No follow up when participants did not attend
***Adherence to GStG**	Accessible sessions	MF/PN/SC Participants	Subsidised or free Convenient	Sessions are/will become too expensive Sessions are far: ease & cost of public transport
***Adherence to GStG**	Clear structure to GStG	SC / PN MF / PR	Reduces confusion for participants/PN/PR Reduces anxiety Facilitates continuity	When session times change frequently When PN are unable to attend (regularly)
***Adherence to GStG**	Strong relationship with mainstream facilities	SC / PN MF	Reduces confusion for PN & participants Make the most of entire session Reduce fear of stigma	When there is a breakdown in communication

Note: SC=Sports Coordinator, PN= Peer Navigators, MF= Mainstream facilities, PR= Peer Researchers
**Findings are supported through both quantitative and qualitative data*

A supportive social environment

The PN, SC and other participants were all sources of support for the participants and took on certain effective behaviours which we recommend should be encouraged during group and one-to-one sessions **[see recommendation 14].** These behaviours included:

- Encouraging participation and facilitating the learning of new skills
- Focusing on fun and enjoyment
- Providing a rationale for exercising (information on exercise and wellbeing)
- Accepting of all behaviour and beliefs (whilst establishing boundaries)
- Acknowledging negative feelings
- Demonstrating trust, understanding and care
- Non-controlling reinforcement
- Help setting realistic goals (perceived as small steps)
- Advice on resisting and overcoming barriers

The following quotes provide examples of how these behaviours were perceived by the participants,

> *You can be an individual. I know it's been good to be part of a team but you can be the individual you need to be to flourish really. Yeah and there's no pressure to be good or things like that, it's just as and when. You don't need to explain yourself if you're not in the mood or whatever. Learning through that environment where it's actually alright for you to say, oh that's enough, you know, and you've not got someone saying, oh come on, you can do two minutes faster or whatever it may be, it's going to make you thrive as a person, as an individual* (participant focus groups)

> *Good to go somewhere where you feel you fit in and feel at peace. Exercise is the key thing for people with mental health issues - it gets me back on track when I do exercise* (3 month follow up survey data)

Attending the first session appeared to be most challenging for the participants. This was when they were at their most anxious as they did not know what to expect. The Peer Navigators played a particularly important role in providing social support during these times and so we recommend that concerted efforts are made with new participants to support them in the first session **[see recommendation 14]**,

> *The first time I came to badminton I was really dreading it and I'm not good with groups. This was like my worst nightmare kind of thing, but the more you come and you start talking to other people, you feel more at ease and stuff and they're all friendly. So you are made to feel comfortable, it's really good* (participant focus group)

> *I think even, coming out your house and then going to the actual venue and whatever, the project, just that beginning, just that getting there, if you can get past that. Took me three months to go. And then they talked me into coming, not talked me in, they drew me in because of all what was going on and the next thing you know, life opens up, opportunities start coming in.* (participant focus group)

Generally, the local Minds created a supportive social environment that facilitated enjoyment, and encouraged feelings of competence that allowed participants to flourish. Sessions were not focused on mental health problems but instead focused on enjoying the participation in the activity,

> *Joining a group like this has been the key to actually learning to work on that [relaxing] for myself. Thinking actually I enjoyed that activity, and say 'I liked that for what it was' without trying to push myself to make sure I'm excelling in everything. It's about being in with people, there's sort of an unspoken understanding, people are all there for their own reasons, but at the end of the day I think this environment is perfect for making us take the edge off that and it is working, it is working* (participant focus groups)

The PN perceived that it was part of their responsibility to create a supportive environment for the participants. Making participants feel comfortable was important to them,

> *What I like about the project, it's not going into people's past, it's focused on getting, it's here and now and it's doing positive stuff like activities, so it's all positive. There's nothing about it that's going to be upsetting for anyone because, how could it be? It's fun activity groups. What it's felt like for me is you don't need to be a specialist in anything other than just enjoying activities with people. By doing that you're not putting yourself under pressure, you're not putting the other participants under pressure because you're not delving into anything…* (Peer Navigator focus groups)

Participants understood how important the supportive social environment was for a positive experience,

> *People can have a massive influence on you, you know. Anybody who's maybe sensitive or whatever, it can have such a massive impact. If you're with people who aren't going to have that edge in their voice you're going to make progress. I would personally focus massively if someone was negative about something, so being in a group with somebody who's leading it for instance who isn't going to put that pressure on you, makes you take those big steps, big steps are big steps you know* (participant focus groups)

One scenario described by a participant highlighted how influential a PN can be and the impact this can have if their behaviour is not perceived as supportive,

> *He came in ordering it, like this must be done this way, you know, and I said well you know we don't do it this way, and he said to me 'well, if you don't like it don't come'. It took me weeks to get over that. He just came across too strong. They were really upset in the Monday group in the café. That's the last thing you want to hear* (participant focus groups)

As discussed in the previous chapter, participants continued to face negative symptoms of their mental health or physical health and occasionally lapsed in their physical activity behaviour. Importantly, it was the supportive social environment that enabled them to feel comfortable enough to return when they felt ready. This is important as without the perceived supportive environment some participants may have dropped out altogether,

> *So yeah, yeah, it's that positivity and even like now, if I have a little bit of a little bit of a wobble, bit of a down time, I find myself, OK, I might not go to the gym for a couple of weeks, once I'm over that wobble, I'm back to it* (participant focus group)

However, this positive and safe environment also meant that many participants demonstrated a reliance on the GStG groups and a reluctance to join sport and exercise sessions outside of the Mind umbrella. Participants felt most comfortable amongst their peers. They were not ready to make what they perceived to be a big step. This supports that progression takes time,

> *Frightening. Not now, no, no, no. No, maybe like in about a few years when we're used to doing it, actually doing it but I couldn't go straight in… Takes time doesn't it? If I went mainstream, I'd probably end up going back indoors again. It's too big a step* (participant focus group)

This reliance on GStG was not the case for all participants in each local Mind. The following example shows how an increase in confidence from the GStG sessions enabled some individuals to join mainstream sessions. This appeared to be when there was a clear progression once the 12 weeks within GStG has ended **[see recommendation 11]**

> *Through Get Set to Go and I really enjoyed that and so I carried on doing it myself once the Mind stopped funding it after six weeks or 12 weeks I think it was, so I've carried on. But I just needed that initial support to start it again and I found my depression's a lot, lot better* (participant focus group)

Group Sessions

Participants were an important source of support for each other. This was optimised through group sessions. Participants encouraged each other during these sessions and developed genuine friendships. This supports our recommendation that groups sessions continue to be used to promote quality connection with others **[see recommendation 10]**,

> *It was for my benefit and we've, there's a little group of us and we've become quite good friends, so it's just nice catching up with them, whenever we catch up, and I've found that I missed about three or four weeks last month and I really missed it* (participant focus group)

There appeared to be some issues with PN retention across the majority, if not all, of the local Minds. Group sessions optimised the capacity for each PN and the support that they could give each other,

> *Because quite a lot of our volunteers aren't confident to do it, because they've got their own lived experience to do one-on-one, they want to do something in a group where there's another volunteer so they've got somebody that's their peer, and they feel much more comfortable doing that* (Sports Coordinator focus group)

The efficacy of GStG was at times compromised when PN's were not available. However, it is also important to acknowledge that there were times that the PN would attend but participants did not. There

were also times when individuals who felt low had a negative impact on fellow participants. This was amplified when group sessions were small,

> *Often very few other people doing the sports sessions. Sometimes lowered my mood when others were also depressed/anxious* (3 month follow up survey data)

Participants agreed that because the group sessions were not focused on being skilled at a particular sport, and there was no pressure to win, they were likely to continue attending. The focus was on having fun and the atmosphere was jovial. There were several accounts of when participants were able to laugh amongst themselves during the sessions,

> *It gives me motivation but without too much pressure. I lost my home, my job and everything. I came to Mind because it got to crisis point. I've had nothing but positive since I joined Mind because I went cycling with them and it must be the first time I've laughed in quite a few years* (participant focus group)

Our findings show that the peer-led structure to GStG with lived experience of mental health problems at the heart of the programme was key to facilitating an effective programme. Sharing their experiences with similar others, whilst being guided by the Peer Navigators allowed participants to feel comfortable in a safe, non-judgemental environment that reduces the fear of stigma from those around them and allows the individual to feel like they could be themselves. This supports our recommendation that the peer model embedded throughout GStG continues to be a key part of the design **[recommendation 12]**,

> *You've got people who are in the same boat as you because when I used to go gym, no one knew I had a mental health problem so I just feel more confident with people like myself because if I am feeling a bit bad, I can say I'm feeling bad instead of hiding it all in, so it's just totally different. You do, you feel like lost don't you, you feel like it must be only me that feels like this, nobody else can feel like, so when you get to know other people have got the same feelings, you know, it really helps. It's a community down there* (participant focus group)

> *You know, it's great to be a part of something and actually be me and not putting on a disguise. It's a lifeline for me because with people in our circumstances, you know, you don't feel like you're being judged, you know, you can just be yourself, and everybody that I've dealt with through Mind is just, well fantastic (*participant focus group)

A great emphasis was placed on the importance of the shared experience of mental health problems to successfully create a sense of belonging where participants could feel like valued members of a community,

> *You don't know about mental health unless you've experienced it, you have more empathy with somebody else if you've suffered it yourself. Just chatting to people whilst you're doing canoeing or whilst you're doing the boxing or whatever it is, badminton, while you're off the court, that peer support is really good. I think we're all in the same boat really. If you talk to somebody who's been in the same position, you know they understand how you've been feeling or how you are feeling at that moment but to talk to somebody who hasn't had mental illness, who hasn't had depression, who*

hasn't suffered from anxiety, they just haven't got a clue and they don't understand it. They've only read about it in books or heard about it (participant focus group)

You're just you for a change instead of…You don't have to be on your best behaviour or… You're not an oddity any more (participant focus group)

Peer Navigators and Peer Researchers agreed that their personal lived experience of mental health enabled them to carry out their role and empathise with participants during sports sessions (PNs),

I think it definitely helps if you've had experience of it, if you've been in that dark place to listen to other people, it definitely helps. If you've never suffered it, it's lovely for people to be understanding but if you've never experienced it, you don't really know how that person's feeling (Peer Navigator focus group)

Or, when there were difficulties in collecting evaluation data during follow up phone calls (PRs),

I think that's one strength that I really did have kind of going into it 'cause as I say, even though there is a sort of professional cut off, I've always had that emotional empathy. I completely understand why some people might have sounded the way they did over the phone, I completely understand that. And I feel like if you do have an emotional connection to something, it really helps you at work, like you know, the, it makes it easier to kind of motivate yourself to do the work really because you have a sort of an affinity with it. I think I can imagine it's probably quite hard to work in any sort of mental health area where you haven't kind of experienced it yourself, like I think it's helped me a lot, definitely (Peer Researchers interview)

Peer Navigators described their role as a '*double edged sword*' in part due to their lived experience of mental health problems. There were obvious benefits; however, some of these benefits also caused them concern. For example, the PNs felt that they were able to bridge the gap between the paid workers and the participants. The PNs were considered as 'one of them' and could therefore be trusted which helped the PNs to create a supportive social environment during the session.

It's nice to see people enjoying things, you just know that they get a lot out of it because like with some people, they won't tell the workers things. But because you're in the social atmosphere I think, they talk more, they tell you things, they're a lot more open than what they'd be with a worker or some, a professional or something (Peer Navigators focus group)

However, this trust and rapport meant that, at times, participants would disclose sensitive and sometimes concerning information which needed to be reported to the SC,

Sometimes, it's a double edged sword though with that because they tell you things and it's too much. Dealing with clients here, what I tend to do is, if someone tells me, I always come back and speak to someone in the office about it, rather than going away (Peer Navigators focus groups)

Peer Navigators reported ruminating over discussions with participants where sensitive information had been disclosed which impacted their own mental health.

It's been a stress, because the things they've just told me have been really, been too much. I mean one of them was telling me a lot of things one day and the office had closed because the walk I do, we start at half past two and sometimes I don't finish the walk till like half past five and everyone's gone home. I went home and I just could not deal with it, I had to tell somebody, so I ended up emailing someone I know here and saying, look, this has happened, they've told me. The email was massive because they told me so many things but I just needed someone else to know, to deal with it. (Peer Navigators focus group)

A clear support process for PN and PR

Although the volunteers felt a responsibility to support the participants, they themselves were on their own personal recovery journeys,

But I still do it now, I had a friend invite me out to a, he text me like do you want to come and have a pint? And I really wanted to say yeah but I made up a lie and said I was busy and I wasn't, right, I just made something up so I got out of it, but afterwards I felt like, why did I do that? I could have gone out and enjoyed a session and like with my friends and that, I don't know why I did it. I just lack confidence sometimes, even now, still lack a bit of confidence (Peer Navigator focus group)

It is therefore important to consider their mental health and recovery. The volunteers acknowledged that they also needed support at stressful times, or when they doubted their abilities. Other volunteers and the Sports Coordinators were an important source of support during stressful times. Knowing that there was someone they could approach provided the volunteers with confidence to cope with some of the pressures. This supports our recommendation to formally implement regular supervision sessions between the SC and PN **[see recommendation 13],**

Supervision yeah, which should be monthly, keeping track of volunteers and making sure they're getting something out of it and it's good for them. Because you need that care and attention and you need to get good volunteers, you need volunteers to feel like they're you know, valued (Sports Coordinator focus group)

A clear support process for the PN and PR was essential to the successful delivery of GStG and retention of the volunteers,

I often approach [Peer Navigator], because I've only been a volunteer for about a year, and it's new to me. I used to do it all before but I forgot how to do it, I actually forgot how to be me because that's what the illness did to me. It took all that away, so I often approach [Peer Navigator] and ask his advice because he's been volunteering longer than what I have. I still do because if I doubt myself, I don't want to make mistakes, and I don't want to do something wrong and upset somebody. The worst thing I'd want to do is make a participant not want to come back because that would proper affect me. I'd have failed them and then I've failed myself ain't I? (Peer Navigators focus group)

The volunteers valued this supervision from their Sports Coordinator and felt more competent in their roles with this support,

It's [Sports Coordinator] I would probably go to for that type of support for anything. And he came to the first few sessions and made sure that everything was going (Peer Navigator focus group)

Several PNs gained employment, or important employment experience, through their role which they also attributed to this support and the experiences they had gained,

I have now got a second, I do, I have two jobs and volunteering definitely changed my CV and I do a lot of work with [charity], that came about because I was volunteering and with [sports coordinator] (Peer Navigator focus group)

The Peer Researchers also emphasised that the guidance within their role allowed them to progress in their personal and professional development.

I think I felt really supported because as I say I felt like the research team, that I could, I don't think I phoned very often, but I knew that, you know, if I sent an email, I'd get responses, and helpful ones, you know, like if things were a bit confusing or, you know, I had a question, I found it really easy (Peer Researchers focus group)

Regular contact between PNs was a successful form of support. However, this interaction between PNs did not happen in each of the local Minds,

The thing is maybe because also there are not many types of get togethers, I don't know meetings or something but you know, I don't really know how many navigators exist. I think it would be better if, every now and then we did have some sort of meeting, just to find out what's going on, and to meet new volunteers and stuff because sometimes people just leave and you don't know what's going on and then someone new will start and you don't know who they are or what sessions they're doing. And also to give you ideas. Say like, you're struggling on a certain part, they might have an idea (Peer Navigator telephone interview)

We therefore recommend putting a structure in place where Peer Navigators, and Peer Researchers can meet (either face to face or via online communication) regularly to discuss ideas, to raise concerns and share best practice **[see recommendation 13].**

Reciprocity of Volunteering in GStG

The Peer Navigators perceived several personal benefits (improved confidence, self-worth) of being a volunteer. Engaging in a role that could help others contributed to the PN's sense of worth,

It's given me confidence and it's also given me a sense of being as well, that what I am doing is worthwhile. Knowing that it's benefitting other people. When you get little comments, you know, "I wouldn't have come to the gym if it wasn't for you, thanks for helping me lose weight". It makes you think wow, it really is worth it, you're doing something worthwhile. Alright, you're not getting paid for it but money's not everything in the world (Peer Navigator focus group)

The positive changes that PNs witnessed further encouraged them to continue with their roles,

At the end of the day it's rewarding because if you see someone pulling someone out of it, then you're pushing them forward, they were standing for a long time and suffering with it and no one there for them, you just push them forward and you can see that they are moving forward on their own so it's really rewarding, it's good (Peer Navigator focus group)

Text messages as prompts to attend sessions

Several Sports Coordinators sent text messages to participants with reminders of session details. Participants suggested that they often forgot the session details so the reminders were useful. We therefore recommend that personalised supportive text messages are used as prompts for participants including participants who have lapsed **[see recommendation 15]**. Participants felt cared for when they received a message and appreciated that the SC had taken the time to contact them,

Just to get that text off her today, you know what I mean, it's just like, oh somebody remembers, you know, somebody cares about me, somebody's, you know, reminded to text me or what, small things like that, feel that mean a lot really (participant focus group)

The participants did not mind that they rarely saw the Sports Coordinator face to face. The important factor was the supportive language used in the communication,

My number one [SC], I never even see her hardly, I've only met her twice, but she's got a right friendly voice, really nice and calm, I feel really warm. You know, even though I'm talking to her on the phone, seems a very caring and very warm person (participant focus group)

The text messages only appeared to be effective when they were individualised. Blanket messages did not have the same impact,

I get texts and I look at them but it's not personal to me, it was sent out to everyone. And to me, people that are isolated for whatever reason or finding it difficult to engage in anything, they need contact (participant focus group)

A clear line of communication

A clear line of communication helped with the smooth delivery of the sessions. Examples included:

- SC and National Mind communication for details of GStG
- PNs understanding their roles from the outset
- PNs knowing who they could contact for questions/support (SC)
- Participants knowing who to contact if they could not make a session or wanted to find out more details about the sessions
- Communication between SC/PN and mainstream facilities to avoid confusion and logistical changes about sessions

A clear line of (and regular) communication reduced anxiety for PN and participants, provided guidance for PN and enabled a process for questions to be answered for PN and participants. A specific point of contact was important for the participants to perceive a sense of community with a clear leader,

> *But [SC], she's dead open and easy to talk to and dead nice. Anything whatsoever, they're straight on it. If you ring up and say, look I won't be doing the session tomorrow they'll ring everybody, they'll send a full text out and let everybody know straight away and if, they're just really approachable and any problem you've got* (Peer Navigator focus group)

Participants that did not know who the SC was at their local Mind, and received no contact when they did not attend, did not feel valued as individuals. In the following case, this resulted in a complete drop out**.**

> *One of the things I thought was a little bit negative, because I would have really loved, even the odd [contact], suppose it'd be maybe a bit difficult for them to want to call people, but maybe just something, or even a feedback form, just to ask me, especially if someone's dropped off because I was going quite long, so you know, you think someone would just give you something to say, well why is Sarah* not coming back? You know, like little feedback or an opportunity for me, then I could at least just send something in and then picked up, flagged. Because the saddest thing about it, that had a knock, because I didn't go back to the cycling it actually had a knock-on effect to the other class I was joining, you know what it's like, once you kind of get that bitter taste, because it's all connected, it was very hard to, because I thought OK, well I don't feel comfortable the way they dealt with that side so I'm not going to go back* (participant focus group) *Name has been changed

To improve understanding of why and when individuals may drop out from a programme like GStG, we recommend that future evaluation should make a concerted effort to work with the local Minds to engage individuals who are no longer attending sessions **[see recommendation 16].**

Problems also occurred when changes to personnel were not communicated to the participants,

> *Changes in personnel means support and contact has not been maintained. E.g., after time off with illness, I would have liked support to get me started at the gym again, but don't even know who the coordinator is now* (6 month follow up survey data)

Accessible Sessions

The most popular sessions for the participants were subsidised or free, and easy to access. Participants appreciated sessions that were accessible via public transport and in different locations within the region. A variety of locations meant that there was something which could be accessed by the majority of participants. Sessions held in one place caused issues for participants who lived further away**.**

> *Because it was only at one place, there wasn't many, you know what I was thinking would be, I wondered if they could do something like this, like you know like you've got different places that do things* (participant focus group)

We therefore recommend that, when groups are organised, logistical considerations are made and information is provided to participants on how they can get to the session. **[see recommendation 17].**

The majority of barriers were related to personal struggles with motivation and experiences of their own health and mental wellbeing. However, occasionally participants did have logistical problems where they could not attend due to location or transport to and from the sessions.

> *Then I've done the Tai Chi, I had to stop doing that because they moved it to [new location] and I couldn't travel there* (participant focus group)

Clear structure to the programme and sessions

Structure was an important part of the effectiveness of GStG and provided continuity and stability for the participants and Peer Navigators. A clear and consistent structure to the programme (regular slots that did not change) and sessions (familiar faces, same venue) reduced confusion and anxiety for the participants.

> *I need something that says right, on this day at this time, you go out and you go with a group of similar, like-minded people and run* (participant focus group)

The participants emphasised that continuity was important for their recovery and helped them to feel calm, and minimised anxiety levels. All participants agreed that GStG gave them a welcomed structure to part of their day or week,

> *I do actually kind of look forward to coming to badminton, it gives me a structure to my day. Well I just, I like it because it gives me kind of something to look forward to, gives me a focus and I know I'm going to be here at a set time* (participant focus group)

Strong relationship with mainstream facilities

There were teething issues towards the beginning of the programme which disrupted the sessions. Issues centred around logistics of paying and setting up, where participants and PNs should meet, and changing session times**,**

> *At first it was really hard, the communication was really, really hard especially at the gym, [Sports Coordinator] was having a lot of problems, there was a lot of stigma around it, nobody knew what the other one was doing but I think that's like anything really, anything new you've always got teething problems. They kept losing the cards and one was paying so much and somebody else was paying a different amount because they just didn't know what was going on and where to meet. At first we had to stand outside, we was inside and then they said we had to stand outside, which wasn't great…It took a few months to resolve, about six months to resolve* (participant focus group)

With perseverance and support from the Sports Coordinators to communicate with the sports facilities, issues were often resolved,

> *I think it was the persistence really. We kept coming and basically now it's just like, oh it's the Mind group. I have my T-shirt on as well and it's just like anybody turns up that isn't quite sure, if we've*

> *already gone upstairs, because the Monday session starts at half twelve and the Thursday session starts at half one, so I usually wait about 15 minutes past that deadline and if anybody turns up then they'll just bring them up and say, you know, just look for the lady in the blue T-shirt and then they'll just show them through, it's all right now* (participant focus group)

A good relationship with 'buy in' from the mainstream facilities prevented such issues, and enabled the SC/PN to rectify the issues quickly. Examples of good relationships between the local Mind and mainstream facilities helped to reduce the fear of stigma for the participants and encouraged them to feel welcome and relaxed,

> *Doing the session here has been so easy because of the people who help you, who actually work within. It's actually like a community because even after we've done the session, they'll encourage us, come on, set an area up, you can all sit together, have a cuppa, bit of a chat, so things have made it so much easier, They've got everything prepared, they've got all your equipment for you, they ask when you walk in, do you need anything? Where if you're going in somewhere and you hit against battle after battle, then it stops that progress going, definitely so it does help* (Peer Navigator focus group)

We therefore recommend that staff from mainstream facilities continue to attend the Mental Health Awareness for Sport and Physical Activity (MHASPA) training to reduce stigma within the facilities and provide information on how best to interact with individuals who may have mental health problems **[see recommendation 18].**

Volunteers were grateful to have the support of partners in the community and believed this contributed to the success of the sessions. For example, a bowls coach delivered a session for the Peer Navigators to explain the rules and give pointers on how to deliver a bowls activity session.

> *I think another key thing as well is actually having inspiration and partnerships as well. When we first did the bowling here, we were all a bit unsure about even just the process, the rules of bowling, how you, etiquette and how you behave. It was nice to have one of the coaches from here come along, just to show you what you did because what puts most people off doing anything, be it yoga, be it football, be it darts, be it badminton is like, what do I do? You know, how do I start?* (Peer Navigators focus group)

Mental Health Awareness for Sport and Physical Activity (MHASPA)

Staff (n= 218) from local sports facilities attended the Mental Health Awareness for Sport and Physical Activity (MHASPA) training sessions run by National Mind. Attendees were asked to complete a short survey before, immediately after and 6 months following the training to assess their understanding and awareness of mental health, and assess whether had taken any action as a consequence of the training. Changes to understanding of mental health, barriers of mental health, confidence to talk about mental health, confidence in adaption sessions for service users, and confidence in addressing stigma are detailed in Table 29.

There was a positive and significant change, with large effect sizes for all 5 questions. This change was maintained up to the 6 month follow up (sample of 59 respondents).

Table 29: Changes in responses to questions asked following and 6 months after MHASPA training

	Sample (n)	*p*	η^2	Pre training	Post training	6 month follow up
				M (SD)		
Understanding of mental health	59	0.01	0.15	3.15 (.96)	4.11 (.52)	3.94 (.83)
Awareness of barriers of mental health	58	0.01	0.18	3.06 (.79)	4.12 (.46)	3.86 (.84)
Confidence talking about mental health	59	0.01	0.16	3.42 (.95)	4.01 (.73)	4.20 (.68)
Confidence adapting sessions for service users	57	0.01	0.16	3.21 (.939)	4.12 (.599)	3.91 (.76)
Confidence in addressing stigma	58	0.01	0.18	3.15 (.81)	4.03 (.62)	3.96 (.74)

Eighty one percent of respondents agreed (or strongly agreed) that their knowledge of mental health had improved following the training. This percentage was maintained at the 6 month follow up (83.1%). Qualitative responses highlighted that the course had increased awareness of symptoms, effects of medication and the benefits of exercise for mental health.

- *It has made me more aware of some of the even minor things that can create barriers to accessing activities*
- *Understanding of particular mental health conditions and how they manifest has helped shed light on situations previously experienced*
- *Being more aware of the situation, barriers and solutions*

Eighty four percent also agreed that their attitudes to mental health had changed. However, at the 6 month follow up, only 69.5% considered that their attitudes towards mental health had changed.

Eighty one percent responded 'yes' when asked if they had utilised the knowledge from the training course. Twenty individuals from 59 provided qualitative comments to explain how they were using the knowledge. Some had increased one–to-one sessions with service users and some facilities had arranged specific sessions for service users:

- *1 2 1 support, and chats to encourage and boost confidence*
- *Setting up a Dementia Friendly Swimming session*

Participant felt they were more confident and open in their interactions about mental health. Participants were also making a concerted effort to be more understanding and ensure that any individuals with mental health problems were not rushed during any given activity,

- *If they mention it during a screening process - open to discuss it prior to taking part.*

Responses detailing specific action that had been taken in the sports facilities included; no action, considerations of how action could be taken, the implementation of mental health training for coaches, and setting up specific sessions for service users.

- *None as yet*
- *Looking at ways of up skilling coaches and workforce in this and other areas. We are looking to use some of the key messages in an offer*
- *MHFA training for all coaches*
- *CALM yoga sessions for Council Health and wellbeing referrals*

Attendees continued to face barriers when trying to implement positive change for mental health awareness within their facilities. Several individuals stated that stigma towards mental health within their work force made it difficult to progress with training staff. This further supports that GStG encourages staff to attend the MHASPA training **[see recommendation 18],**

- *Difficult to combat the stigma with people who don't feel as comfortable to work with people* with mental health.
- *When training others - their openness to training without creating humour.*
- *Reluctance from other coaches/helpers to acknowledge mental health issues*

Specific sessions for service users were often poorly attended,

- *Despite a large uptake many did not attend*

Lack of time to implement new processes, activities, or spend with service users was a common barrier,

- *Time! Not enough time to talk to each individual, gain feedback. What invisible barrier, if any, has changed for them.*
- *Time/funding and sessional staff turnover rates barriers to get all necessary staff upskilled*

Summary of Objective 2:

To summarise, we found that GStG was successful in increasing participant's self-reported levels of physical activity at 3, 6 and 12 months. Participants also explained that they could generally maintain walking behaviour when they felt low.

Participants were, on the whole, 'satisfied' or 'very satisfied' with the programme and rated the sport group sessions and Peer Navigators as the most useful elements. Key mechanisms within the programme that triggered the increase in physical activity (and adherence to the programme) included a supportive social environment created by the SC, PN and peers within the group sessions. The lived experience of mental health problems was essential to facilitating the supportive environment which appeared to help continued participation. Importantly, the supportive social environment allowed participants to feel able to return to the programme when they recovered following a re-lapse in their mental health problem.

Process evaluation revealed that a clear line of communication between SC, PN, the participants, and mainstream facilities was important to reduce confusion and anxiety for both participants and the Peer Navigators. Text messages sent by SC served as a useful prompt for participants to attend session and facilitated feelings of care and value within the GStG community. A clear structure to GStG provided continuity for participants and served as guidance for PN. A support process for both PNs and PRs was essential for retention and continued improved mental health for the volunteers.

MHASPA training provided useful information for mainstream sport staff to increase their awareness of mental health problems, and provided practical information on how to adapt sessions for people with mental health problems. However, further engagement from mainstream staff in the training is needed to reduce the stigma associated with mental health problems.

6.3 The impact of online peer support on mental health

What is the impact and why might there be an impact?

This chapter will discuss the findings related to the impact of online peer support on mental health. Several notable changes emerged from baseline to 3, 6 and 12 months to help us to understand this relationship. To note, response rate to follow up Elefriends surveys was 37% at 3 month, 28% at 6 month and 26% at the 12 month follow up. Qualitative data from interviews carried out with Elefriend users along with anonymous comments left in response to questions on the Elefriends website allowed us to understand the nuances of the online peer support and its relationship with improvements to mental health.

First, we present data on participants' appraisals of the Elefriends platform. We will then outline our findings relating to the impact of online peer support on mental health.

Appraisal of Elefriends

Participants were asked to appraise their Elefriends experience by providing an overall rating of Elefriends, and rate their satisfaction with the online service. Seventy percent of Elefriend users were very satisfied or fairly satisfied with Elefriends and over 75% of Elefriend users gave the website a rating of excellent or very good at the 3 and 6 month follow ups (Figure 6 and 7 below),

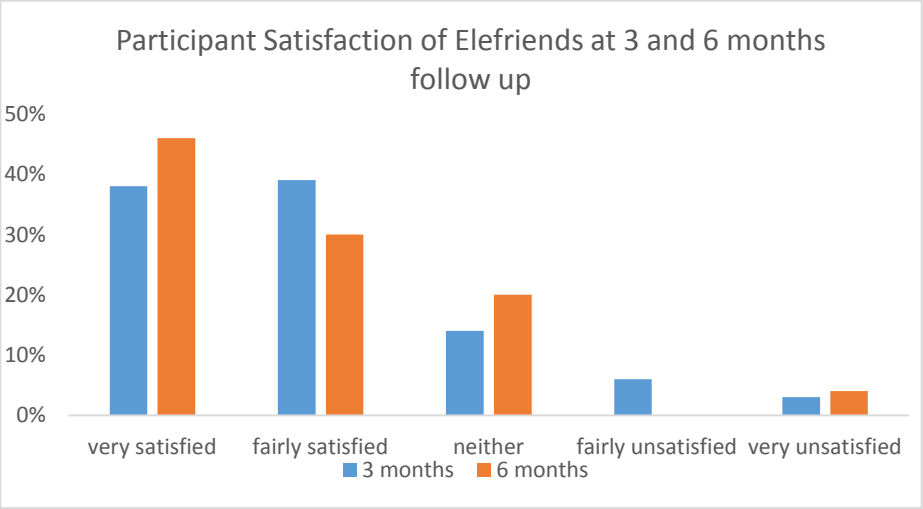


Figure 6: Participant satisfaction of Elefriends at 3 and 6 month follow up

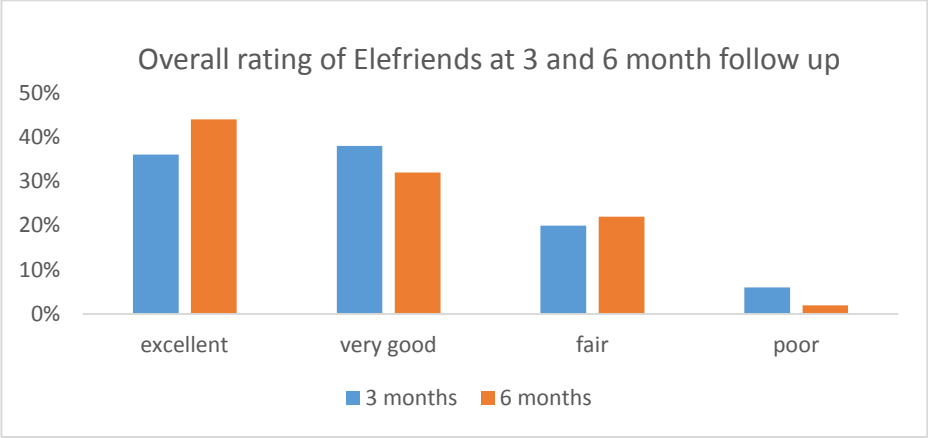


Figure 7: Overall rating of Elefriends at a 3 and 6 month follow up

Table 30 overleaf includes a summary of the findings relating to the impact of online peer support and mental health. Each impact will be discussed along with the facilitators that initiate each impact, and details of why the impact has occurred. Where possible, we will also outline when these facilitators of impact were not successful.

Table 30: A summary of the key findings relating to the impact of online peer support on mental health

Impact	Facilitator	Why does it *work*?	When does it *not work*?
***Improves mental health**	Information provided	Information provided awareness with information that can be trusted. Reinforcement of own prior knowledge	When the information was not read Perception of too much information became overwhelming When information did not address 'first step' which is perceived as the hardest
***Improves mental health**	Interactions with peers online	Peers provide tips, ideas and tools to deal with negative symptoms. This provides: • Increased competence • Coping mechanisms • Reduction in anxiety	When experiencing poor personal mental health: • Information becomes overwhelming • Sensitive to other peer comments
***Increases perceived social provision**	Lived experience of mental health	Safe space with little judgement Can be honest and open Opportunity to build networks outside of Elefriends	When users perceive network to be too big Often connecting with different network users
***Reduces isolation**	Lived experience of mental health Platform to interact (Chatroom)	Reassurance Access to positive feedback immediately Acknowledgement of achievements A place to build social networks Not alone in how they feel	When there are negative comments Majority of individuals engage with Elefriends when they are at their lowest/in crisis Pressure to do more if others have achieved
Reciprocity	Lived experience of mental health Area on Elefriends to leave a comment	Positive sense of helping others Mutual connection with similar others	When support provider is experiencing negative symptoms Guilt and frustration when they perceive they are not helping themselves or others

*Note: *Findings are supported by both quantitative and qualitative data*

Impact of online peer support on the improvement to mental health

Descriptive information for all of the variables linked to psychological processes and mental health are presented in Table 31 below.

Table 31: Descriptive information for the Elefriends survey at baseline, 3 month, 6 month and 12 month

	Digital Delivery			
	M (SD)			
Time point (month)	**0**	**3**	**6**	**12**
Sample size (n)	227	66	50	-
Social Support	2.62 (.67)	2.66 (.70)	2.67 (.73)	-
Sample size (n)	232	66	50	-
Coping/Resilience	2.30 (.60)	2.24 (.60)	2.36 (.51)	-
Sample size (n)	208	66	50	46
Mental Wellbeing	2.28 (.70)	2.41 (.71)	2.33 (.68)	2.47 (.81)
Sample size (n)	232	66	50	46
Pain	2.74 (1.19)	2.79 (1.17)	2.84 (1.24)	2.89 (2.00)
Sample size (n)	232	66	50	45
Overall Health	2.16 (.89)	2.17 (.87)	2.22 (.93)	2.22 (.95)
Sample size (n)	219	66	49	46
Motivation: Intrinsic	2.80 (1.17)	2.67 (1.26)	2.79 (1.29)	2.52 (1.08)
Sample size (n)	219	66	49	46
Motivation: Identified	3.33 (1.06)	3.09 (1.22)	3.34 (1.13)	3.25 (1.27)
Sample size (n)	219	66	49	46
Motivation: Introjected	2.51 (1.15)	2.51 (1.41)	2.38 (1.34)	2.45 (1.33)
Sample size (n)	219	66	49	46
Motivation: Extrinsic	1.75 (1.16)	1.75 (1.08)	1.70 (1.06)	1.86 (1.11)
Sample size (n)	219	66	49	46
Motivation: Amotivation	1.72 (.92)	1.80 (1.12)	1.67 (.94)	1.75 (.96)
Sample size (n)	208	66	50	-
Barriers	2.35 (.47)	2.31 (.38)	2.39 (.47)	-

Inferential analysis revealed there were increases to perceived mental wellbeing from baseline to the 3 month follow up (p=.02, η^2= .06).

Table 32: Changes to variables associated with mental wellbeing

Time Point	Variable	Mean	N
Baseline	Mental wellbeing	2.27	52
3 month	Mental wellbeing	2.47	52

When asked how useful participants found Elefriends for managing their mental health, 82% of participants reported the site was 'very' or 'somewhat useful' at 3 months and 86% said the same at 6 months (Figure 8). This information and the change in mental wellbeing indicate that the Elefriends platform is effective in supporting the mental health needs of its users.

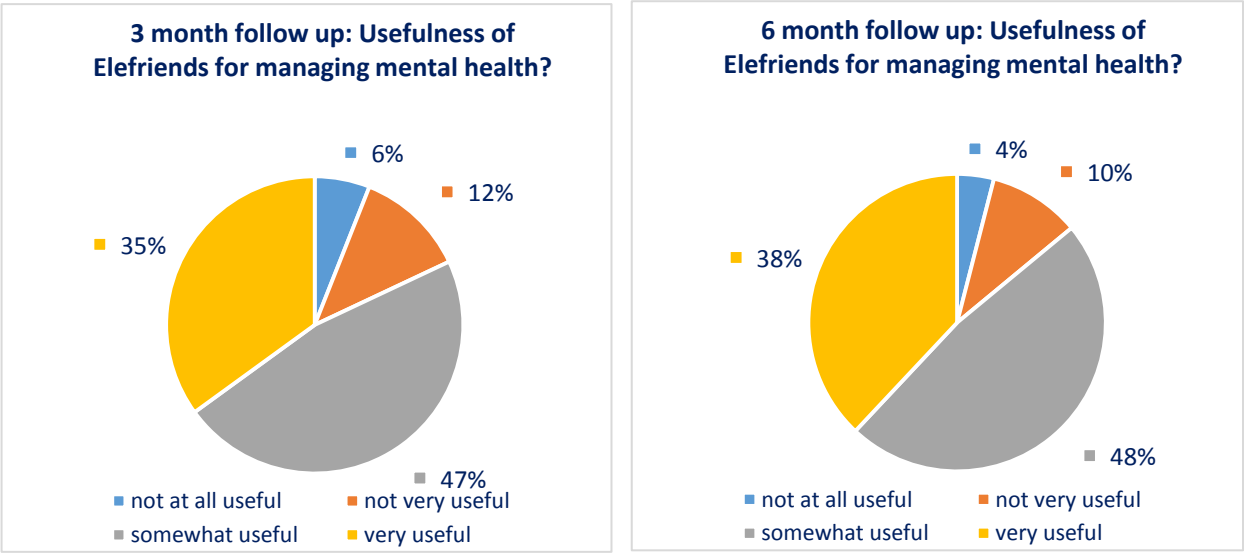


Figure 8: Participant rating of the usefulness of Elefriends for managing mental health

Qualitative information provided context for why mental health may have improved with the support from the Elefriends community. For example, the information provided on the site increased awareness of various topics and reinforced existing knowledge. The Elefriends perceived this information was from a trusted source (Mind), and therefore had more credibility,

> *It is helpful to see other people's stories, as this helps me to have more faith in whether it will help or not. So many health claims out there, sometimes it is hard not to be sceptical about them all* (Elefriend user, blog comment)

However, the information from the Ele was not always read by Elefriends members. Those we interviewed preferred the interactions with other online users rather than reading the information. Occasionally participants felt that too much information could be overwhelming.

> *Sometimes there is too much information to deal with, you get caught up reading everything on the webpage and it's too much to take in. Then I tend to shut down and lose motivation again* (Elefriend user, telephone interview)

We therefore recommend that any information provided by the Ele is brief and concise. If the content needs to be long, consider breaking it up into bite size sections to attract more readers **[See recommendation 19]**. Also, information did not always address what the participants perceived their needs to be (e.g., how to take the first step in a behaviour which they perceived to be the hardest)

> *Sometimes it's just a little bit difficult, you know, it's more, it's not just having the information, it's actually, you know, the willpower and motivation to do it* (Elefriend user, phone interview)

Participants provided information about how positive interactions with others, who were also experiencing similar difficulties, helped to improve their mental wellbeing. This was particularly relevant to their acute mental health. Other users were able to provide useful tips on how to cope with the negative symptoms they were experiencing. These positive interactions facilitated feelings of competence, improved coping mechanisms and also reduced feelings of anxiety, and in some cases, resulted in life altering decisions,

> *I think it's helped me with coping strategies for mental health to sort of try and look at the positives and what I am able to actually achieve because I've come a long way since I started. I've had some really good support on there and it really has made a difference to me not being here and me being here* (Elefriend user, phone interview)

We recommend that the Ele continues to host specific chat room conversations around physical activity. Conversations should focus on the initial barriers to exercise and what individuals have done to overcome those barriers. Positive peer-to-peer interaction should be encouraged **[see recommendation 20]**.

All the Elefriends we interviewed revealed that they logged on most frequently when they were at their lowest and were seeking immediate support. The Elefriends discussed experiencing further problems with their mental health including heightened anxiety when they compared themselves to other users and perceived that they were not helping themselves as much as they should be. It was at

these points that participants were most sensitive to other user's comments. This sensitivity could lead to distress and individuals logging out of their account,

> *I found it very positive to start with, but I think quite often now things are starting to click into my head about different aspects of my life and now I'm getting quite sensitive about some of the posts that are on there, and if it's a negative, I'll tend to log off* (Elefriend user, phone interview)

Impact of online peer support on perceived social provision and isolation

Although participants reported they had experienced some negative interactions with other users, the overriding feeling was that online peer support from other Elefriends had increased their social provision. Participants knew there was always someone available to provide reassurance regardless of the time of day.

> *You're not actually contacting one person in particular so there's quite often somebody that will respond, just say hello or hi, very rarely that you don't get a reply at all. So it's just that instant contact with the outside world, feeling connected I think* (Elefriend user, phone interview)

Quantitative data (Table 33) supports a positive change ($p<0.01$, $\eta^2 = .10$) to perceived social provision with a significant improvement (with a medium effect size) from baseline to 6 months.

Table 33: Changes to perceived social support from baseline to 6 months

Time Point	Variable	Mean	N
Baseline	Social provision	2.46	38
6 month	Social provision	2.66	38

Table 34 contains data from the interrelations between the variables linked to psychological wellbeing at baseline, and at the 3, 6 and 12 month follow up. The following points can be taken from the table:

- Red box: Social provision is positively associated with increased perceptions of mental wellbeing and an ability to cope and be resilient. This suggests that supportive, peer-to-peer interactions should continue to be used as a mechanism to provide social support for improved mental wellbeing.
- Blue box: Autonomous motivation is generally correlated with mental wellbeing, social support, coping and resilience across all time points. Intrinsic motivation is positively associated with overall health and negatively associated with barriers to exercise**.** Therefore, those who are more autonomously motivated to exercise also reported better overall and mental health outcomes.

- Green box: Increases in mental wellbeing are associated with higher levels of overall health. Participants who reported better overall health (including physical health) also reported better mental wellbeing suggesting that physical activity should be used as a mechanism to improve overall health.
- Brown box: Controlled forms of motivation are associated with increased barriers to exercise and negatively associated with mental wellbeing, social support, and coping and resilience. Therefore, we recommend that sessions promote the value of exercise, and are focused on fun and enjoyment **[see recommendation 4]**

Table 34: Correlations to show the relationship between psychological processes, mental health, and overall health for Elefriend users

	Mental Wellbeing	Social Support	Coping & Resilience	Barriers to exercise	Intrinsic Motivation	Identified Motivation	Introjected Motivation	External Motivation	Amotivation
Baseline (n=232)									
Mental Wellbeing	1	.494**	.468**	-.155*	.249**	.192**	.001	-.062	-.157*
Social Support		1	.210**	-.147*	.199**	.188**	.119	.099	-.138*
Coping & Resilience			1	-.126	.152*	.142*	.024	-.193**	-.114
Barriers to exercise				1	-.276**	-.153*	.057	.218**	.287**
Overall health	.295**	.100	.410**	-.135	.166**	.212**	.048	-.177**	-.068
3 month (n=66)									
Mental Wellbeing	1	.711**	.623**	-.254*	.390**	.370**	-.130	-.129	-.369**
Social Support		1	.500**	-.112	.301*	.355**	-.003	.131	-.272*
Coping & Resilience			1	-.184	.394**	.212	-.054	-.070	-.312*
Barriers to exercise				1	-.331**	-.296*	-.108	.349**	.343**
Overall health	.488**	.394**	.381**	-.233	.283*	.224	.004	-.241	-.145
6 month (n=50)									
Mental Wellbeing	1	.622**	.483**	-.184	.534**	.226	.038	-.229	-.431**
Social Support		1	.287*	-.128	.313*	.188	-.018	-.087	-.246
Coping & Resilience			1	-.150	.590**	.402**	.134	-.161	-.210
Barriers to exercise				1	-.264	-.155	.132	.327*	.296*
Overall health	.392**	.275	.260	-.177	.176	.128	.058	-.319*	-.276
12 month (n=46)									
Mental Wellbeing	1				.321*	.464**	.067	-.116	-.439**
Overall health	.597**				.300*	.187	-.014	-.048	-.366*

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

Qualitative data supported the inferential analysis and explained that improved mental wellbeing and perceived ability to cope was through social provision on the online platform. It was the lived experience of mental health at the heart of the peer support that resonated with the participants. Participants explained that Elefriends was a safe, non-judgemental space to interact with like-minded individuals,

> *Supportive and safe environment where you are not judged and can be yourself. It's a lifeline* (Elefriend user, survey comments)

The Elefriend users felt that being open and honest with their peers gave them the opportunity to build genuine friendships and networks beyond the Elefriends community.

> *It's broadened my, I feel like I've got more people to talk to than I did before, I don't feel like I'm the only one. I do have Elefriends on there that I'm now friends with via Facebook or email, and if I'm feeling that I need support, I'll contact them directly rather than use the Ele page* (Elefriend user, phone interview)

Specifically, the spaces where they can safely interact with other Elefriend users (separate chat rooms) helped to reduce their feeling of isolation,

> *Different areas for different topics and the general stream on one page* (Elefriend user, blog comment)

Connections often provided reassurance, and achievements were acknowledged and praised with immediate feedback,

> *It was like, like getting praise from your peers and things like this is what I've done and like saying, oh well done, and looking for that bit extra kind of motivation. Immediate replies I think's the best thing, knowing that you're not alone, knowing that there's somebody* (Elefriend user, phone interview)

The lived experience of their peers was particularly appealing to participants who had been members of Elefriends for a long while. However, they also described how the community had developed into a much larger network which meant they often connected with different users, or could not re-connect with someone they had interacted with previously. This detracted from the quality social interaction they had previously experienced,

> *It used to be the same names popping up, now it seems more varied. If you were in a room with 30 people, you may get to see them all during a 24 hour period. If the room had 3000 people, you may not. It has now become quite busy, posts are buried quite quickly. It's got so big there is not the personal feel as there are too many posts not everyone gets support* (Elefriend user, online messenger interview)

This supports our recommendation that the Ele continues to host specific chat room conversations to facilitate small group conversations **[see recommendation 20].**

Impact of online peer support on reciprocity

Participants thrived on having a mutual connection with similar others. The positive impact of reciprocity was evident amongst many of the Elefriend users we interviewed. The site provided an area where they could comment on what others had posted. This facilitated a sense of helping others whilst being helped themselves,

> *Really good, just to get that motivation and sort of acceptance and enjoyment, being able to sort of get feedback from other people, but also to provide feedback to other people as well. It's just nice being able to speak with people that understand it or support others that are on their journey but a little bit behind you, or talk to others that are a little bit in front of you* (Elefriend user, phone interview)

Reciprocity improved social provision and improvements to wellbeing; however individuals who logged onto Elefriends with the hope of providing support to their peers expressed feelings of guilt or frustration if they were not able to help. This was magnified by their personal negative symptoms. Perceived failed attempts to help others heightened rumination and anxiety,

> *When you are struggling yourself though it's hard to be strong for others. I used to go on sometimes on a good day to support others but then find it affected me, especially if people started accusing you of not understanding* (Elefriend user, survey comments)

> *But sometimes if I'm struggling myself, it can become a bit of a burden and then I kind of have to step back a bit. And I've done it a couple of times where I've actually had to say to the person that, you know, I genuinely want to help but I need to just sort myself out a little bit first* (Elefriend user, telephone interview)

These findings indicate that online peer–to–peer support is effective for improving mental health. However, it is important, and we recommend, platforms such as Elefriends to continue to be effectively monitored to minimise negative comments **[Recommendation 20].**

Summary of Objective 3

In summary, our findings on the impact of online peer support on mental health, show that the peer-to-peer support was important to support individuals who were at their lowest, and at times in crisis. The majority of participants rated the Elefriends platform as 'somewhat' or 'very' useful for managing their mental health.

Quantitative data supported the qualitative explanation that the lived experience of mental health problems within the Elefriend community helped to reduce isolation, increase perceived social provision, and enhance mental wellbeing. This was particularly successful within the separate chatrooms where smaller numbers could interact. The interaction facilitated reciprocity among peers where they gained a sense of wellbeing from helping others. However, when participants were experiencing particularly strong negative symptoms they, at times, felt pressure and guilt if they were not able to help others. Associations highlighted that those who reported autonomous motivation also reported better mental wellbeing and those who had better mental wellbeing also reported better overall health.

Information provided from the Ele was useful to reinforce prior knowledge of how to improve mental health and was deemed to be from a trusted source. Participants appreciated when information was concise and gave practical advice they could use in their day to day lives.

6.4 The impact of online peer support on sports participation

What is the impact, why might there be an impact and how might Elefriends deliver an effective programme for online peer support to encourage sport participation?

This chapter will discuss the findings relating to the impact of online peer support on sports participation. Table 35 below provides a summary of our findings and outlines the active ingredients that contributed to sustained sports participation, along with the mechanisms that can trigger change.

Table 35: A summary of the key findings relating to the impact of online peer support on sports participation

Impact on…	Active Ingredient	Why does it *work*?	When does it *not work*?
Behaviour	Peer support (lived experience)	Shared experience Reduces loneliness A non-judgemental, safe space Increase confidence when successful Previous PA behaviour	Negative discussions among Elefriends can negatively affect mood Increased anxiety in mainstream Participants prefer to have local information to take action
***Quality of motivation**	Peer support Information	Interactions with others changes quality of motivation	Low motivation often difficult to overcome when exercising alone
Participation in mainstream exercise	Information and general encouragement from others	Previous PA behaviour Pride of taking part alone Avoid perceived stigma of MH service groups Support from mainstream staff	Exercising alone often resulted in heightened anxiety Worried about being misunderstood Lack of support from mainstream staff
***Attitudes and perceptions of exercise**	Practical advice that is accessible and easy to navigate	Gentle tone Participants can take action and incorporate into daily life A focus on physically inactive Simple, encouraging language	When information does not detail: • how to overcome barriers • how to take first steps • that the journey is progressive When information is not visible
***Attitudes and perceptions of exercise**	Detail of the benefits of exercise	Reinforcement: A reminder of why exercise is good for mental health	When negative symptoms create barriers Perceived feelings of guilt if Elefriend is not exercising
***Attitudes and perceptions of exercise**	Testimonials	Shared experience Participants can see it is achievable Optimism & motivation	When perceived individual barriers still there
***Attitudes and perceptions of exercise**	Focus on physically inactive	Provides a starting point for participants	Details don't include how to take first step Details don't include local information

**Findings are supported through both quantitative and qualitative data*

Impact of online peer support on sport and physical activity behaviour

Initially, a series of repeated measures ANOVAs were computed to test for differences in self-reported physical activity across all four time points. Descriptive details for these variables are provided in Table 36. There were no significant changes observed for physical activity behaviour in Elefriends. However, physical activity levels were maintained over the 12 month period. To examine temporal differences further, a series of adjusted paired t tests were computed, first comparing baseline and 3 month data, baseline to 6 month data and baseline to 12 month data. Again, no significant differences emerged between baseline and the 3, 6 and 12 month time points (p=.48). There were some notable changes in the magnitude of certain values. For instance, from baseline to 6 months, there was a 1 point increase in days of Sport from 2.07 to 3.00 days per week. There was also a difference in the volume of sitting time from 561.47 minutes at baseline down to 464.44 minutes at 3 months and a continued decreased at 6 (431.41 minutes) and 12 months (434.30 minutes).

When asked anonymously through the content exploration if the information had made Elefriend users more active, responses indicated that the information had made 7.89% of the 152 individuals more active, 37.5% were not sure and 54.61% said they had not changed their behaviour from the information. This supports the survey data that physical activity levels did not increase over time. Of the 152 individuals who responded, 40 left qualitative comments. These comments detailed further barriers that the individual was facing,

> *I'm so tired all the time and down it is very hard to be motivated and able to exercise as I used to be able to. If I have even a reasonable amount of activity I can end up needing to sleep or at least rest for the rest of the day which is no good* (Elefriends content exploration)

Participants discuss how the posts about physical activity, and information from the Ele encouraged them to maintain their physical activity levels. However, this was predominantly from individuals who had positive previous experiences of exercise, were already active or had been active recently,

> *I've always kind of used exercise as a way to keep them under control if you like. I've always kind of walked a lot, climbed, rock climbed and hiking and stuff like that, I try and do that as much as possible. I walk like every day between about three and five miles* (Elefriend telephone interview)

This also supports the quantitative data, in that those who were active at baseline maintained their levels of activity at 3, 6 and 12 months.

Elefriends articulated that they accessed online support when they were at their lowest. Qualitative data collected within the local delivery highlighted that participants lapsed in their exercise

behaviour when they experienced a relapse in their mental health, or were particularly struggling with their mental health problems. Therefore, we can speculate that physical activity levels did not change due to participants experiencing exacerbated barriers relating to their mental health problems. Future research should investigate this relationship further.

Table 36: Descriptive information for physical activity and sport for Elefriend users at baseline, 3, 6 and at 12 months

	M (SD)			
Time point (month)	**0**	**3**	**6**	**12**
Physical Activity Outcomes				
Sample size (n)	217	59	46	50
1 x 30 mins (days)	3.02 (1.65)	3.34 (1.82)	3.15 (1.78)	3.43 (1.48)
Sample size (n)	229	65	50	45
Days of Vigorous	2.03 (1.52)	2.29 (1.62)	2.20 (1.55)	2.40 (1.57)
Sample size (n)	95	32	28	28
Vigorous (mins)	60.68 (68.77)	52.03 (63.27)	53.39 (89.85)	56.61 (66.76)
Sample size (n)	222	62	48	40
Days of Moderate	2.25 (1.60)	2.45 (1.68)	2.19 (1.48)	2.80 (1.64)
Sample size (n)	90	34	23	28
Moderate(mins)	68.89 (67.00)	58.82 (53.00)	59.35 (70.86)	70.71 (88.35)
Sample size (n)	145	38	36	32
Days of walking	4.28 (1.83)	4.47 (1.77)	4.83 (1.70)	4.38 (1.50)
Sample size (n)	167	53	35	35
Walking (mins)	72.75 (78.45)	93.96 (248.45)	57.86 (41.60)	59.00 (50.60)
Sample size (n)	191	63	46	43
Sitting (mins)	561.47 (455.78)	464.44 (276.11)	531.41 (613.42)	434.30 (185.71)
Sample size (n)	14	23	18	14
Days of Sport	2.07 (1.14)	2.74 (1.32)	3.00 (1.85)	2.00 (1.04)
Sample size (n)	15	21	17	14
Sport (mins)	88.00 (48.72)	76.43 (73.74)	82.35 (111.26)	65.36 (48.02)

Impact of online peer support on barriers to exercise and quality of motivation

Descriptive information for variables associated with the psychological processes of exercise including motivation, barriers to exercise and perceived pain are presented in Table 37.

Table 37: Descriptive information for motivation, barriers to exercise, pain and overall health from the Elefriends survey at baseline, 3 month, 6 month and 12 month

	M (SD)			
Time point (month)	**0**	**3**	**6**	**12**
Sample size (n)	232	66	50	46
Pain	2.74 (1.19)	2.79 (1.17)	2.84 (1.24)	2.89 (2.00)
Sample size (n)	232	66	50	45
Overall Health	2.16 (.89)	2.17 (.87)	2.22 (.93)	2.22 (.95)
Sample size (n)	219	66	49	46
Motivation: Intrinsic	2.80 (1.17)	2.67 (1.26)	2.79 (1.29)	2.52 (1.08)
Sample size (n)	219	66	49	46
Motivation: Identified	3.33 (1.06)	3.09 (1.22)	3.34 (1.13)	3.25 (1.27)
Sample size (n)	219	66	49	46
Motivation: Introjected	2.51 (1.15)	2.51 (1.41)	2.38 (1.34)	2.45 (1.33)
Sample size (n)	219	66	49	46
Motivation: Extrinsic	1.75 (1.16)	1.75 (1.08)	1.70 (1.06)	1.86 (1.11)
Sample size (n)	219	66	49	46
Motivation: Amotivation	1.72 (.92)	1.80 (1.12)	1.67 (.94)	1.75(.96)
Sample size (n)	208	66	50	-
Barriers	2.35 (.47)	2.31 (.38)	2.39 (.47)	-

Difference testing evidenced a significant decrease in perceived barriers to exercise with a medium effect size (p=.024, η^2= .09*:* Table 38).

Table 38: Changes to variables associated with mental health and psychological processes to exercise

Time Point	Variable	Mean	N	Sig.	η^2
Baseline	Barriers to exercise	2.4067	52	0.024	.09
3 month	Barriers to exercise	2.3077	52		
Baseline	Intrinsic motivation	2.9559	34	0.01	0.12
12 month	Intrinsic motivation	2.4706	34		
Baseline	Identified regulation	3.5377	53	0.008	0.12
3 month	Identified regulation	3.1604	53		

Participants discussed how interactions with others on Elefriends helped to decrease their perceived barriers by providing helpful tips,

> *Seeing someone post about how great it was to do A or B…then someone else adds something. Then I think oh I'll post about my walk around the park. Then someone else does…It can have a ripple effect* (Elefriends online messenger interview)

Other Elefriend users shared personal experiences and suggested how to overcome feelings of anxiety when trying something new,

> *I see different activities that people are doing, ideas about how, when they're feeling low, say for example someone says, oh when I feel really bad I go out and I do this or I walk or I try this or I've tried this activity and it's really fun* (Elefriend telephone interview)

Contrary to what we might expect, there was also a decline in intrinsic motivation and identified motivation across all time periods. As discussed in objective 1 and 3, sustaining these quality forms of motivation will have adaptive benefits for both physical and psychological health. Qualitative data provided information to support this point. Participants described experiencing feelings of pressure to exercise or guilt if they did not exercise rather than exercising because they wanted to. This supports our recommendation that the GStG programme focuses efforts on increasing the quality of motivation of their participants **[see recommendation 4],**

> *I think a negative may be that actually it makes me feel bad sometimes for not taking part in sport and exercise as much as I should be, so sometimes it puts a little bit of pressure and it makes me feel bad about myself* (Elefriends telephone interview)

However, this more controlled type of motivation was not always perceived in a negative light. Participants were often pleased to be nudged into exercise by their peers and found it to be a positive form of motivation to adopt the behaviour,

> *And now I just actually feel better when I do exercise. It might be an absolute pain when you're trying to like, when, to, when you don't want to do it or like you don't, you're just in absolutely no mind frame of doing it, but I do think it massively helps, like just in terms of like feeling better* (Elefriend phone interview)

Levels of motivation also depended on the negative symptoms that the individual was experiencing at the time,

> *At the moment I'm really struggling, I really like swimming but my anxiety makes it hard because obviously if you get a panic attack, you can't just walk out (*Elefriend telephone interview)

Periods of low motivation resulted in participants finding it difficult to go to the gym or engage in their regular activity. Walking appeared to be the one mode of exercise that could be maintained during these times.

You can walk and you can go slowly if you need to, and you can sit down if you need to, but you're going to go and walk. Yeah, so I have (Elefriend telephone interview)

We therefore recommend that GStG promotes walking as an achievable and sustainable method of being active **[see recommendation 7].**

This association is supported in the following 4 tables (Tables 39-42) where more controlled forms of motivation are associated with increased levels of physical activity. Intrinsic motivation was also linked to higher levels of physical activity. It is, however, important to be mindful that although controlled forms of motivation can be conducive to initial adoption to exercise, it is important to work towards more autonomous and intrinsic motives to exercise for sustained physical activity behaviour and better psychological wellbeing.

The following information can be taking from Table 39:

- Red box: Autonomous motivations to exercise are correlated with increased time and days spent active. Those participants who reported a better quality of motivation exercise also reported engaging in more time being physical activity, and being active more often.
- Blue box: Overall health is also associated with increased levels of physical activity. This suggests that those who perceived better overall health were those who were also most active.
- Green box: Coping and resilience is associated with increased moderate exercise. This association supports that those who were most active also reported better mental and overall health outcomes.
- Brown box: Pain is positively associated with levels of vigorous activity. We recommend that all Peer Navigators are provided with information on the signs of over training (or consequences of training at high intensities) in order to provide effective guidance. **[see recommendation 9].**

Table 39: Correlations to show the relationship between variables at baseline

	Days 1 x 30 mins	Vigorous PA (days)	Vigorous PA (mins)	Moderate PA (days)	Moderate PA (mins)	Walking (days)	Walking (mins)	Sitting time (mins)	Sport (days)	Playing sport (mins)
Physical Health	-.059	-.059	.0122	-.064	-.190	-.018	.153*	.079	.222	-.030
Overall Health	.193**	.143*	-0.103	.148*	0.09	0.077	0.06	-0.031	-0.351	-0.081
Pain	-0.02	0.099	.218*	0.053	-0.012	-0.085	0.126	-0.007	-0.494	0.489
Mental Wellbeing	0	-0.009	-0.108	0.106	-0.212	0.089	-0.077	-0.001	0.117	-0.172
Social Support	-0.01	-0.035	0.011	0.122	-0.153	0.132	-.167*	-0.023	0.077	-0.157
Coping & Resilience	0.034	0.065	0.099	.141*	0.173	-0.007	-0.009	-0.011	-0.21	0.208
Barriers to exercise	-0.128	-.182**	-0.051	0.037	-0.072	-0.117	0.094	0.027	-.570*	0.34
Intrinsic motivation	.165*	.305**	.248*	.231**	0.049	0.125	-0.037	-0.115	0.496	-0.187
Identified motivation	.246**	.243**	0.016	.141*	0.046	0.097	0.001	-.163*	0.492	-.572*
Introjected motivation	.203**	.264**	-0.045	0.128	0.118	0.062	0.049	-0.092	0.434	-0.414
External motivation	-0.043	-0.119	-0.061	-0.016	-0.036	-0.06	0.14	-0.013	0.257	-0.074
Amotivation	0.029	-0.129	-0.175	-0.108	-0.103	0.046	0.126	0.045	-0.468	0.186

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

Table 40: Correlations to show the relationship between variables at the 3 month follow up

3 month	Days 1 x 30 mins	Vigorous PA (days)	Vigorous PA (mins)	Moderate PA (days)	Moderate PA (mins)	Walking (days)	Walking (mins)	Sitting time (mins)	Sport (days)	Playing sport (mins)
Physical Health	-.231	-.327**	.278	-.075	.010	-.238	.096	.232	-.123	.299
Mental Wellbeing	.019	.120	-.016	.119	.076	-.019	.063	-.200	.055	-.198
Social Support	-.135	-.095	-.175	-.050	.007	-.128	-.004	-.145	-.206	-.216
Coping & Resilience	-.055	.080	.198	.134	.191	.040	.153	.077	-.089	.071
Barriers to exercise	-.459**	-.432**	-.487**	-.159	.073	-.410*	.048	.096	-.165	-.342
Intrinsic Motivation	.168	.343**	.442*	.107	.026	-.053	.046	-.192	.060	.138
Identified Motivation	.393**	.334**	-.133	.062	-.125	.118	.085	-.352**	.719**	.589**
Introjected Motivation	.394**	.342**	-.040	-.040	-.011	.020	.108	-.127	.632**	-.305
External Motivation	-.257	-.351**	-.270	-.030	-.154	-.217	.085	.060	.141	-.153
Amotivation	-.162	-.118	-.017	.044	-.016	-.204	.121	.169	.012	.048

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

Information that can be taken from the 3 month follow up correlation analysis includes:

- Red box: Similarly to baseline, autonomous and introjected motivations to exercise are correlated with increased time and days spent engaging in physical activity and mins and days playing sport.
- Green box: Interestingly physical health is negatively associated with more days engaging in vigorous activity. Therefore, we can suggest that vigorous activity may not be suitable for all. However, it is important to note that this association does not provide causal evidence as it could be that those with poor physical health were not able to exercise rather than high intensity exercise causing poor physical health.
- Brown box: Barriers to exercise are negatively associated with increased levels of physical activity**.** This suggests that as barriers are reduced, participants engage in more physical activity.

Table 41: Correlations to show the relationship between variables at the 6 month follow up

6 month	Days 1 x 30 mins	Vigorous PA (days)	Vigorous PA (mins)	Moderate PA (days)	Moderate PA (mins)	Walking (days)	Walking (mins)	Sitting time (mins)	Sport (days)	Playing sport (mins)
Physical Health	-.136	-.205	-.045	-.189	.530**	-.150	.302	.190	-.152	-.037
Mental Wellbeing	.113	.007	-.010	.088	-.291	.146	-.019	-.169	-.197	-.096
Social Support	-.028	-.156	-.255	-.109	-.316	.239	.238	-.190	-.213	-.439
Coping & Resilience	.106	-.034	.062	-.040	-.342	.410*	.113	-.097	-.130	.059
Barriers to exercise	-.113	-.262	-.026	-.078	.012	-.065	.037	.290	.276	021
Intrinsic Motivation	.097	.201	.344	.210	-.021	.287	-.081	-.156	.024	.305
Identified Motivation	.244	.357*	.371	.091	.062	.491**	-.133	-.236	.350	.380
Introjected Motivation	.300*	.397**	.524**	.354*	-.007	.287	-.106	-.168	.445	.364
External Motivation	-.106	-.149	.044	.077	-.037	-.036	.254	.095	-.042	-.016
Amotivation	-.341*	-.091	-.092	-.223	.288	-.234	-.136	.071	.428	-.057

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

Information that can be taken from the 6 month follow up correlation analysis includes:

- Red box: Autonomous and introjected motivations to exercise are associated with increased time and days spent engaging in physical activity and sport. Similarly to the previous time points, those who were motivated to exercise because they enjoyed it or valued the benefits of exercise did engage in more levels of physical activity
- Brown box: A lack of motivation is negatively correlated to days spent engaging in physical activity
- Blue box: Coping and resilience is associated with days spent walking. This suggests that those who walked more also experienced a better sense of coping and ability to be resilient
- Green box: Physical health is positively associated with time spent engaging in moderate exercise. Those who felt physically well also engaged in more moderate exercise.

Table 42: Correlations to show the relationship between variables at the 12 month follow up

12 month	Days 1 x 30 mins	Vigorous PA (days)	Vigorous PA (mins)	Moderate PA (days)	Moderate PA (mins)	Walking (days)	Walking (mins)	Sitting time (mins)	Sport (days)	Playing sport (mins)
Mental Wellbeing	.122	.052	-.186	.072	.037	.216	.138	-.321*	.386	-.355
Intrinsic Motivation	.212	.070	-.019	-.014	.132	.118	-.078	.164	.152	-.139
Identified Motivation	.257	.341*	-.141	.057	.304	.341	-.039	-.044	.412	-.039
Introjected Motivation	.123	.337*	.008	.137	.195	.309	.039	.019	-.168	.385
External Motivation	.111	-.100	.073	-.001	.104	-.018	-.031	.096	-.254	-.060
Amotivation	-.023	-.124	-.232	-.072	-.143	.038	.014	-.050	-.430	-.196

*Note: * = statistically significant (p<.05), ** = statistically significant (p<.01)*

Information that can be taken from the 12 month follow up correlations includes:

- Red box: Autonomous and introjected motivation to exercise are correlated with increased days spent engaging in vigorous exercise.
- Brown box: Mental wellbeing is negatively associated with increased time spent sitting. This further supports our recommendation that GStG encourages participants to sit less as well as exercising more **[see recommendation 6].**

Impact of online peer support on participation in mainstream exercise

Many of the participants we interviewed welcomed the online peer support to encourage healthier lifestyle choices. Those who did engage in sport and exercise generally did so alone and in mainstream facilities outside of mental health support groups,

> *I feel like with exercising alone and running on my own and walking, it's really kind of, it does build my self-confidence and makes me kind of trust in myself more* (Elefriends telephone interview)

These individuals often found it difficult to motivate themselves to engage in physical activity. Some stated that they would prefer to exercise with others to support and encourage each other. The majority of Elefriends were not aware of any local mental health exercise groups in their area**,**

> *I'm not aware of any activities specifically for mental health in my area, but I think they sound like a great idea* (Elefriends online messenger interview)

Therefore, we recommend that the online Elefriends team consider ways that participants can access local information via the Elefriends platform attend group sessions/meet ups off line **[see recommendation 22].** However, some participants felt pride when they were able to exercise and had done so through their own volition.

> *Like I'd achieved something and like I hadn't let my anxiety control me* (Elefriend phone interview)

This was particularly relevant to participants who were already active. Although participants felt pride when they exercised alone or in mainstream facilities they also spoke about heightened anxiety when they did, and in particular if they were going somewhere for the first time. Participants worried about the unknown and the possibility of experiencing stigma from others for having mental health problems**.**

> *They would probably be more understanding than some of the people in mainstream that are far too busy to appreciate you* (Elefriend online messenger interview)

Participants wanted to be part of mainstream activities to avoid the perceived stigma they would receive from friends, family or other exercisers if they were to exercise with other mental health service groups**.**

> *I know it's up to me whether I'd share it or not, but I wouldn't really want to, whereas in the mainstream, I don't have that pressure because I don't have to worry about it, I only tell people if I want to and I've decided that I don't want to. So if I'm in an aerobics class, I'd rather be the person doing aerobics rather than the person with mental health problems who's doing aerobics (*Elefriend telephone interview)

We recommend encouraging staff to attend MHASPA training to reduce this perceived stigma in mainstream facilities **[see recommendation 18].** Successful experiences often involved the support of mainstream staff,

> *She found me a nice quiet corner to sit down in, in the public place it was like, you know, not many people walking by me, watching me, and I was able to sort of, she just sat with me and talked to me for a while until I felt well enough* (Elefriends telephone interview)

> *During the induction they gave me written notes for the equipment so I didn't have to remember it all. They also only showed me equipment and exercises that they knew fitted in with my health problems like chronic fatigue and mental health issues* (Elefriends online messenger interview)

Bad experiences were attributed to negative interactions with a member of staff in the sports facility,

> *Hmm, well a couple of years ago I tried out the gym and a friend booked me a training session as a present (said friend tried to really push me into going to the gym with him but that's another story). Trainer assumed I wanted to lose weight. I explained about my history and trying to build confidence. Trainer kept commenting on my "weak core" like I don't know that, then she wanted me to exercise in front of a mirror. I said I wasn't comfortable with it, she said 'but you're not looking at your fat, you're looking at your posture' (Elefriends online messenger interview)*

All participants, regardless of whether they exercised with a mental health exercise group or not, preferred to exercise in a supportive environment with others who were warm and welcoming,

> *People tend to judge that you're different, you know, it doesn't bother me personally what size or whatever they are, you know, we're all in it together but other people, the sort of general public do, and that can be a real deterrent for people to be able to feel that they can take part in mainstream activities* (Elefriends telephone interview)

Impact of online peer support on attitudes and perceptions of exercise

Reduced barriers to exercise were highlighted in the qualitative data, as well as the quantitative data (see Table 40 above). Specific reasons for his included:

1) Practical accessible advice and easy to navigate

Elefriends appreciated when the information was accessible and easy to navigate, particularly if the advice was practical. The practical advice helped the Elefriends to understand how they could feasibly incorporate activity into their daily lives,

> *A post about how walking can help with your mental health, especially if it's in a kind of natural environment, not in a built up one. So that kind of made me think more about the fact that I do have a river flowing through* (Elefriends telephone interview)

All participants agreed that the information provided via videos and Youtube clips was gentle, simple, used encouraging language, and was therefore easy to understand,

> *Well the non-shaming language and the fact that it's not a 'should' but a suggestion. And it's focused on mental health. I know it wouldn't be suggested if there wasn't truth behind it* (Elefriends online messenger interview)

> *Simple language - simple techniques, beautiful animation, stories from the herd* (Elefriends content exploration)

Although the information was perceived to use the right tone for Elefriends, the individuals we interviewed wanted more information that addressed; the barriers to exercise exacerbated by mental health problems, how to take the first initial steps to get active, and an acknowledgement that the journey is progressive and may not always be on a positive trajectory,

> *It's relevant, it's just not kind of helping me overcome that barrier to be able to actually go out and do it, it certainly encourages me to do stuff while I'm in the house* (Elefriend telephone interview)

Elefriends also wanted to know how they could access local information about sessions at little or no cost,

> *It would be good to know what schemes are available in certain areas and costs etc. Links to activities would be useful. The costs of using facilities can be expensive and low cost or free alternatives would be appreciated* (Elefriend telephone interview)

We recommend that the online Elefriends team consider ways that participants can access local information via the Elefriends platform attend group sessions/meet ups off line **[see recommendation 22]**. Many individuals (both telephone interviews and via the Elefriends content exploration) had not seen any of the information on Elefriends relating to physical activity,

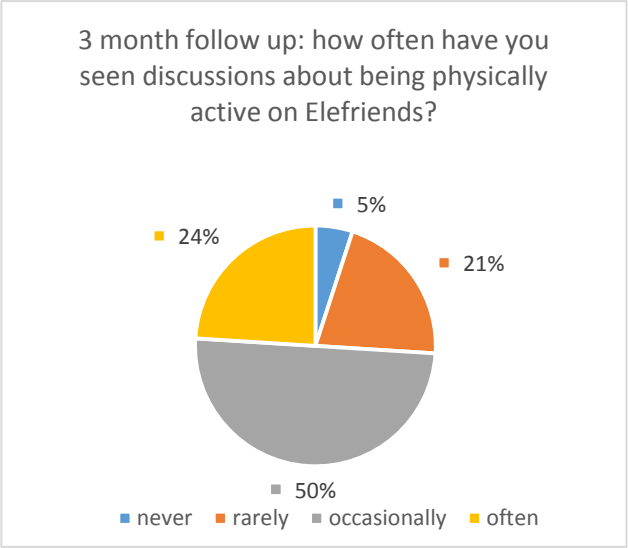
> *Haven't seen any* (Elefriends content exploration)

Of the 158 responses from the comments given on the Elefriends platform, 94 individuals (60 %) had not read any information on Elefriends, 29 % had seen some information relating to sport and physical activity and 11 % were not sure. When asked about the usefulness of physical activity discussions on Elefriends, 24 of 27 were positive and indicated that the information had helped.

> *It gives me inspiration when I can't think of anything to do & a reminder that exercise helps us to feel better* (Elefriends blog comment)

Elefriend users were asked to comment on how often they had engaged in discussions about physical activity. Just over half (50% at 3 months and 56% at 6 months) stated they had occasionally seen

discussions around physical activity (Figure 9). A small percentage indicated they had never seen any discussions (5% at 3 months and 2% at 6 months).



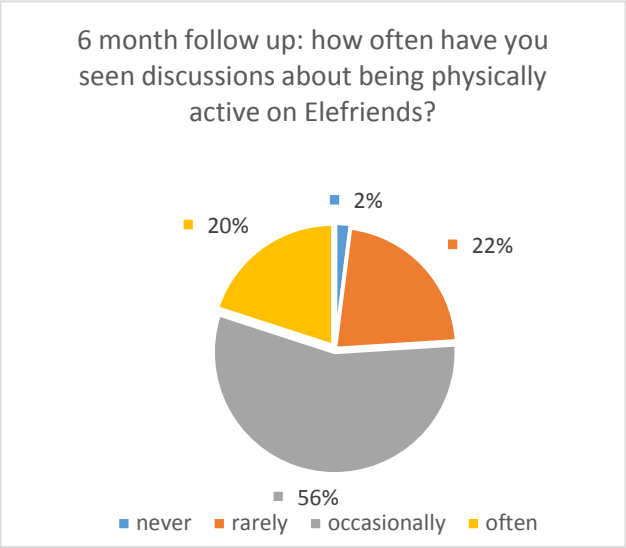


Figure 9: Visibility of physical activity information and discussions

1) Details of the benefits of exercise

Information detailing the benefits of exercise was a welcome prompt by many Elefriends and reinforced the message that exercise is good for mental health.

> R*eminding me how important exercise is for my mental health* (Elefriends content exploration)

Although the benefits of exercise were useful reminders for Elefriends, they continued to experience barriers to exercise (largely related to their individual mental health problems). Elefriends reported being aware of the benefits to exercise but needed guidance on how to overcome their perceived barriers,

> *Nothing very useful. I already knew exercise fights depression but when the latter beats me it's difficult to get going. I already knew I need to be active* (Elefriends content exploration)

It is also important to note that for some individuals, albeit relatively few, the information on physical activity contributed to a sense of pressure. They felt that they should be doing more to help themselves to aid their recovery,

> *Sometimes it puts a little bit of pressure and it makes me feel bad about myself that I could be doing something to help, but I'm not* (Elefriends telephone interview)

2) Testimonials

Reading and watching testimonials from peers with shared lived experience of mental health problems was effective in illustrating the point that engaging in exercise is achievable,

> *Real life someone has written a blog about running, and it details how hard they found it instead of the usual 'this is so good for me'* (Elefriends content exploration)

Although individuals enjoyed reading the testimonials, they were only effective in positively changing attitudes when the individual reading the testimonial did not perceive further barriers**,**

> *It's not high on my priority list when I'm struggling to go to work, get out of bed, get medications right, etc. It feels like a colossal joke when someone tells you exercise will help when you can't function at a basic level* (Elefriends content exploration)

We therefore recommend a continued focus on reducing barriers to exercise. Specifically, information should focus on *how* to overcome barriers and particularly the very initial barriers to adopting the behaviour **[see recommendation 5].**

3) A focus on the physically inactive

Participants appreciated that the information was targeted towards those who were physically inactive.

> *Well I think the information's useful if you don't know where to look and you have no idea where to go, I think it's a great starting point, and it's all in one place* (Elefriends telephone interview)

However, participants were concerned that the information did not include practical information of how to take the very first step and overcome their anxiety of the unknown,

> *What to expect when you've got a mental health problem and you're exercising. It doesn't have to be a class, it could be the gym, it could be walking through the doors of the gym, there's so many times that most of my panic attacks have actually been just as I've got to the gym to be honest* (Elefriends telephone interview)

And help with motivation at their lowest points,

> *When in deep depression it is impossible to find motivation to get out of the home. I need a way to get myself out the bed and moving around. I have no motivation at all and no friends to motivate me* (Elefriends blog comment)

Summary of Objective 4:

As with all 3 previous objectives, the shared lived experience of mental health problems present in the online platform contributed to maintained physical activity behaviour, although only for those who were already active. Interactions with others online (peer-to-peer support) helped to improve quality of motivation, and attitudes towards exercise. Quantitative information showed that, whereas levels of physical activity did not change over time, quality of motivation to be active and thus a more positive attitude towards exercise did increase over time. Associations highlighted that those with a higher quality of motivation, and therefore motivated to exercise because they enjoyed it or valued the benefits, also reported better mental wellbeing and reported higher levels of physical activity. Therefore, we can conclude that mechanisms underlying physical activity behaviour and mental wellbeing were present in the digital arm of GStG. These patterns of correlations point towards the positive implications of physical activity engagement and possible mechanisms for promoting increased activity.

Process evaluation suggested that the information available on the website also helped to positively change attitudes to exercise, specifically testimonials. Detailing the benefits of exercise reinforced the message that physical activity was beneficial for mental health. A focus on the physically inactive was welcomed. Increased visibility of the information and further detail of how to overcome the initial hurdles are recommended.

7.0 National communications and campaigns

This chapter will summarise the findings from the 3 National communications campaigns. The purpose of the 3 focus groups was to explore first impressions, attitudes and perceptions of the materials used in each of the National campaigns. Each campaign was aimed at a specific target population (see table 43 for details).

Table 43: National delivery workshop and focus group details

	Workshop 1	Workshop 2	Workshop 3
Date of delivery	12/08/2015	13/05/2016	06/04/2017
Focus of campaign	General public	Women	South Asian women
Number of attendees	6	7	11 8 emigrated from South Asian Country 3 British born South Asian

Table 44: Demographic data from those who attended the workshops

	Total sample (n)	Gender		Age (years)						Ethnicity							
		Male	Female	18-20	21-30	31-40	41-50	51-60	61 +	White British	White other	Mixed	Asian/Asian	African	Caribbean	Black other	Other
FG 1	6	1	4	0	0	0	1	2	2	4	0	0	0	1	0	0	0
FG 2	8	0	8	0	3	1	2	2	0	8	0	0	0	0	0	0	0
FG 3	10	0	10	0	1	3	4	0	2	0	0	0	9	0	1	0	0

	MH problem		Mental health diagnosis							
	Yes	No	Depression	Anxiety	Stress	Bipolar	Personality Disorder	PTSD	OCD	Schizophrenia
National Delivery										
FG 1	4	0	1	3	2	0	2	1	0	1
FG 2	6	1	4	6	3	0	1	0	1	0
FG 3	4	2	6	2	8	0	0	1	0	0

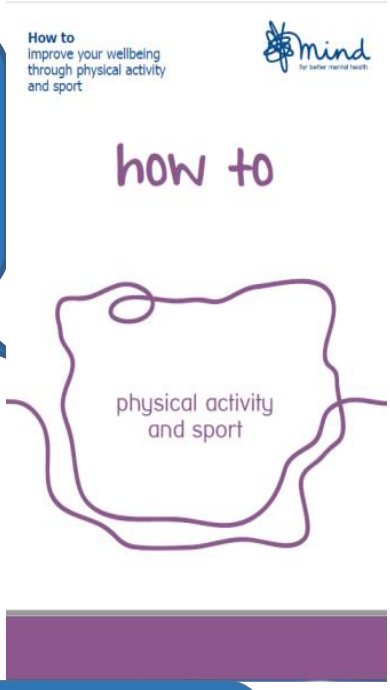
Participants reviewed a range of materials developed by Mind as part of the Get Set to Go National campaigns. Materials included written, visual and video content from websites, social media platforms and written guides (Table 45 presents the specific materials reviewed in each of the 3 interactive workshops to evaluate the 3 National campaigns).

Table 45: Materials reviewed in each of the workshops

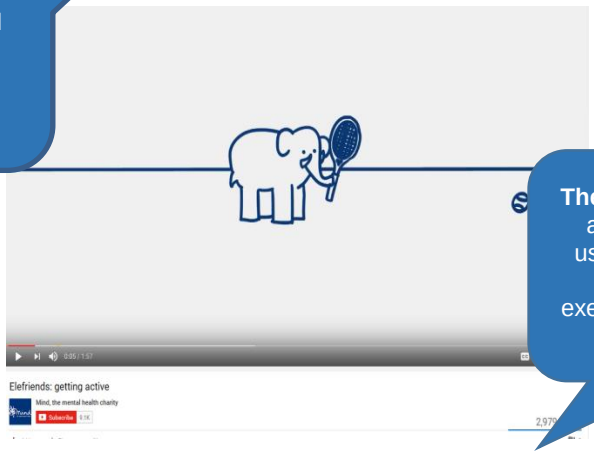
	Workshop 1	Workshop 2	Workshop 3
Website content:			
Online Guide 'Physical activity, sport and mental health'	Yes		
Mind 'Get Active, Feel Good' website			Yes
Dance gives me vitality – Shanili's story			Yes
Webpage: Getting active helps me feel more positive			Yes
Webpage: Getting active is good for your mental wellbeing			Yes
Asian Sports Foundation website			Yes
News for Mind users		Yes	
Illustrations, pictures and captions through social media:			
Twitter posts	Yes	Yes	Yes
Facebook adverts	Yes	Yes	Yes
Online videos			
5 ways to get moving and feel better	Yes		Yes
Elefriends 'getting active'	Yes		Yes
Sujan's story			Yes
The 'How to' physical activity and sport information booklet		Yes	

The following items were the most popular materials from each workshop:

The 'How to' booklet Relevant for people at different stages of their active journey. Included specific actions to help towards physical activity engagement



The '5 steps' video Inspired individuals to take action and seek out physical activity opportunities. Small steps towards improving activity levels



The Elefriends video Tone and inclusive language used. Acknowledged that an individual should exercise purely for personal benefit

Table 46: Summary of key findings for each separate workshop

Workshop 1: General Population	Workshop 2: Women	Workshop 3: South Asian Women
Positives Agreement that materials were helpful and motivational Wording of material was generally seen as positive and motivational (e.g. benefits of exercise to mental health). Any negatively framed information such as consequences of inactivity heightened anxiety Elefriends *'getting active'* clip gently highlighted how individuals can increase their physical activity. Participants appreciated the message that an individual should exercise for their own personal benefit	***Positives*** Material was seen as "considered and considerate" to individual needs. Participants appreciated that they were not alone in their feelings of worry or negative thoughts Cartoon images were popular as they added some humour Material covered a variety of issues which could appeal to a wide range of individuals Material encouraged individuals to make autonomous decisions to overcome individual barriers to exercise Content reflected that each individual's journey is complex; participants appreciated the understanding that what works for one person may not for another	***Positives*** First impressions were positive. It was mostly viewed as culturally appropriate, and for a range of age groups and cultures (some material was relevant to South Asian Muslim women and some to South Asian Hindu women) Participants described learning new information about the benefits of physical activity for mental health in the session Material was informative about how mental health problems can manifest in everyday life Individual testimonials from south Asian women highlighted that others had experienced similar cultural barriers to physical activity and had overcome those barriers Participants discussed not having conscious strategies to cope with stress and anxiety. The material informed participants of ways to alleviate their stress and anxiety
Points for consideration Participants suggested avoiding too much information at one time. Use headers, pictures and fewer text Language was perceived as quite advanced in places. Wording and language should be suitable for all levels of literacy ability Materials should highlight the complex nature of barriers to exercise. There are a multitude of barriers rather than a single barrier in isolation Participants felt that testimonials helped them to connect with the experience of others and are therefore beneficial to include Participants perceived some of the material to include gender stereotypes	***Points for consideration*** Participants appreciated their aim to be active could be achieved through small steps and wanted this emphasised in the material. Material could focus on simple, every day activity (e.g. walking around a shop or up and down the stairs at home to emphasise the importance of incorporating physical activity into their daily routine/lifestyle) Participants wanted material that was developed to provide information of what is happening in local areas and communities	***Points for consideration*** Participants suggested explaining or changing terminology that they were unfamiliar with such as 'panic attack' and 'inpatient' Participants emphasised the importance of translating information into different languages if the aim was to reach individuals who are seldom heard Women who had emigrated felt that the material was not always relevant for them due to cultural differences which are not present for British born South Asian women

General comments across all 3 workshops

Why the material was positively received by participants:

- Participants found the materials to be acceptable and often referred to the images and text as 'relatable'.
- Information was perceived as honest, realistic and encouraging for the participants' personal challenges. Specifically, participants appreciated the tone of the material, the variety of information and the range of materials available.
- The testimonials which provided real life examples encouraged participants to consider their own physical activity behaviour. They increased knowledge and positively changed attitudes towards the adoption of increased physical activity levels according to what might be realistic and achievable for them as individuals.
- The information provided and endorsed by Mind was fully trusted.

When participants had concerns over the material:

- Participants' continued to have concerns about exercising within mainstream sport. Consequently, the idea of exercising with other Mind service users generated feelings of comfort and reassurance.
- Participants further expressed positive opinions about exercising as a group or within a mental health community.
- Participants were keen to learn about the progressive steps needed to reach an end goal or achieve key milestones (e.g., running a distance of 5K).
- Participants felt the material was often focused on individuals who lacked the initial motivation to exercise or who were unaware of the positive benefits of exercise on mental health. Participant who attended the focus groups knew the benefits of exercise but they were looking for information on how to overcome their personal barriers.
- Participants were concerned that online material would only be accessible to those who were computer literate and familiar with online resources. A proportion of individuals would not have easy access to all of the information available to them. One example of an online channel used to disseminate information was through social media. Social media as a source of information sharing was deemed particularly useful for younger generations. Most participants viewed social media to play an influential role when seeking out information representative of an individual's personal interests. However, participants verbalised that the influence social media played was

not always a positive one, further explaining that becoming too involved or reliant on social media served to negatively impact their mental health. Adding to this, the national delivery materials were predominantly accessed digitally. Although digital platforms appeal to a large audience, there are certain populations (for example the elderly, individuals with visual impairments, low literacy levels or those without internet access such as the homeless) who therefore may not or cannot access digital resources. Therefore, this needs to be considered when designing materials for future campaigns.

Inclusivity of different population groups:

During the review of materials, participants reflected on the importance of considering different population needs when developing materials and advertising campaigns. The key populations considered included disability, age, low socioeconomic status, mental health and ethnicity. Participants emphasised the importance of using appropriate language within materials that was relevant to the particular population group. Also, participants highlighted the need to use appropriate platforms and delivery mechanisms according to the target population. As an example among the disabled population group, the following was recommended:

- 'Disability' could be termed 'function-ability' (serving to remove stigma associated with disabilities)
- Ensure the type(s) of disability (physical or mental) is clear when developing resources
- Ensure different disabilities are appropriately catered for (e.g. scripture or audio for visual impairment, subtitles for hearing impairment)
- Remove terminology around goal setting terminology for individuals who had eating disorders or were diagnosed with obsessive compulsive disorders (OCD)

Following each interactive focus group, the evaluation team provided the GStG research team with a written report detailing the effectiveness, appropriateness and impact of the materials used in the campaigns. The information was relayed to Mind's communications and campaigns team following each campaign to better inform subsequent campaigns.

8. 0 Recommendations

The recommendations are based on the qualitative and quantitative findings from the evaluation and correspond to the numbered recommendations throughout the document for the local delivery, the digital delivery and the evaluation. Please note that the recommendations below are numbered in the order they appear in the main text of this report.

Recommendations for the future of GStG (Local Delivery):

2. There were instances where family members could create barriers to exercise for participants. Equally, family members were also part of the participant support networks. For both situations, **we recommend that family members are included in the programme.** For example, unique 'bring a friend' sessions or information created specifically for family members. Previous research shows that positive support beyond a programme is conducive for long term physical activity behaviour (Kinnafick, Thøgersen-Ntoumani, & Duda, 2014). When implementing such programme components, it is important to be mindful not to isolate those who do not have family or friends present.

3. Having a regular structure to the weekly sessions was important for participants' wellbeing and regular attendance. Where possible **we recommend concentrating efforts on providing a regular timetable of sessions and minimising schedule changes and cancellations.** This will require a good relationship with mainstream facilities, including continued training for mainstream facility staff (i.e., MHASPA training) [recommendation 18], and retention, and support for the volunteers leading the sessions [recommendation 13].

4. Existing literature supports that autonomous and intrinsic motivation towards a behaviour is associated with better psychological wellbeing, as well as maintaining the behaviour (e.g., physical activity) (Deci & Ryan, 2000). Our findings support this proposition in that autonomous motivation was linked to improved mental wellbeing, social provision, coping and resilience and higher levels of physical activity. **We therefore recommend that the GStG programme focuses efforts on increasing the quality of motivation of their participants by facilitating feelings of autonomy, competence and connectedness.** For example; focusing on fun and enjoyment of the activity, increasing the value of exercise for the participant, promoting the learning of new skills within the capabilities of the individual, using non-controlling reinforcement, and acknowledging negative feelings.

5. Findings suggest that participants continued to experience barriers to exercise relating to their mental and physical health. As we might expect, barriers were negatively associated with physical activity

behaviour and a lack of motivation. **We therefore recommend a continued focus on reducing barriers to exercise.** Specifically, focusing information on *how* to overcome barriers and particularly the very initial barriers (e.g., how someone might feel when attending something or somewhere new). Literature supports that recommendation 4 will also contribute to reducing perceived barriers to exercise.

6. Consistent with literature on sitting behaviour, our findings suggest that increased time spent sitting is linked to reduced mental wellbeing and increased barriers to exercise (Hoare, Milton, Foster, & Allender, 2016). Increased time sitting is associated with risk factors of cardiovascular disease independent of the amount of physical activity that an individual does. **We recommend encouraging participants to reduce sitting time as well as increasing their amount of exercise.**

7. Although time spent walking did not increase over the course of the programme, participants did suggest that when they were experiencing low levels of motivation or increased perceived barriers to exercise, they were still able to go for a walk. **We recommend promoting walking as an achievable and sustainable method of being active, as well as promoting the numerous benefits of walking**. This should be promoted alongside other forms of sport and exercise.

9. Participants spoke about how levels of, and intensity of, exercise had different effects on physical and psychological wellbeing. High intensity or over-exercising could cause prolonged fatigue and heightened anxiety. In certain situations, the PN were crucial in the guidance of when to slow down and reduce levels of exercise. This guidance helped participants to reduce their levels of exercise rather than causing further damage. **We recommend that all Peer Navigators are provided with information on the signs of over training in order to provide effective guidance in these cases.** This is particularly pertinent for the participants who disclosed that they used high intensity exercise as a form of self-harm.

10. Group sessions led by the Peer Navigators were the most useful and effective intervention component to improve social provision (and our findings show increased social provision is associated with mental wellbeing) and increase physical activity (also associated with psychological wellbeing). The supportive social environment within GStG sessions is consistent with literature looking to understand when, why and for who group sessions are effective (Harden et al., 2015). **We recommend that group sessions continue to be used to promote quality connections with others within an empathetic and welcoming environment.**

12. The peer model embedded within GStG was effective in increasing perceptions of social provision which was associated with mental wellbeing, and attributed to taking part in sports sessions within a comfortable, safe and supportive environment. In support of existing literature (Davidson et al., 2012)

and our findings, **we recommend that this element of the programme continues to be a key part of the design.**

13. Davidson et al. (2012) stress that it is important to adequately support and train peers in community programmes. Our findings show that the Sports Coordinators were essential in the support of the Peer Navigators. This support was vital to PN wellbeing and confidence to carry out their roles effectively. **We recommend regular supervision sessions between SCs and peers**. Our findings also suggest that Peer Navigators and Peer Researchers may benefit from supporting each other. Therefore, **we also recommend putting a structure in place where Peer Navigators, and Peer Researchers can meet (either face to face or via online communication) regularly to discuss ideas, to raise concerns and share best practice.**

14. The first session was the most daunting for participants because for many, walking through the door to attend the initial meeting was the first and biggest step in their journey to greater mental wellbeing. A positive interaction with peers and Peer Navigators at this first meeting was crucial in supporting the participant to feel comfortable and willing to return for another session. **We recommend that concerted efforts are made with new participants to support them in the first session.** For example, it is useful to provide them with practical information about the session so they know exactly what to expect, thus reducing anxiety of the unknown.

15. Research shows that text messages can act as prompts to engage in a behaviour (Armanasco, Miller, Fjeldsoe, & Marshall, 2017). Prompts from the SC encouraged participants to attend sessions supporting this proposition. Messages were more effective if they were personalised and framed using supportive language. Further research has shown the effectiveness of using motivational text messages to encourage autonomous exercise behaviour (Kinnafick, Thogersen-Ntoumani, & Duda, 2016). **We therefore recommend that personalised supportive text messages are used as prompts** for participants including participants who have lapsed.

17. Some participants found it difficult to attend, or were not sure how they could attend certain groups sessions. **We recommend that when groups are organised, logistical considerations are made, and information is provided to participants on how they can get to the session.** It would be useful to have sessions running in different areas of the region to optimise the reach to participants. This will be dependent on what facilities are available in the region, availability of volunteers to run the sessions and relationships/partnerships with facilities.

18. Building good, strong relationships with mainstream facilities and local sports organisations was a key part of the successful delivery of the GStG programme. Good relationships helped to maintain

stability for the participants and provide a welcoming atmosphere. Building a good relationship took time and effort on the part of the SC and PNs. **We recommend that GStG continues to engage mainstream facilities in a positive manner. We also recommend that staff from mainstream facilities continue to attend the Mental Health Awareness for Sport and Physical Activity (MHASPA) training** to reduce stigma within the facilities, and provide information on how best to interact with individuals who may have mental health problems. Negative interactions with mainstream facilities caused distress to participants and resulted in drop out.

Recommendations for the future of GStG (Digital Delivery):

19. Elefriend users all agreed that the tone and pitch of the information from the Ele was appropriate. Some thought there was too much information from the Ele and others mentioned that they did not read the information. **We recommend that any information provided by the Ele is brief and concise. If the content needs to be long, consider breaking it up into bite size sections to attract more readers.**

20. Perceived mental wellbeing improved in participants who engaged in the evaluation of the digital delivery. This was attributed to the mutual support from other Elefriend users. In particular, it was the connection made with similar others that appeared to be most effective. However, participants also spoke about negative experiences due to personal negative symptoms, negative comments and an overly large network where comments were lost. Participants found it difficult to re-connect with the same people due to the size of the Elefriends community. Literature is inconclusive (largely due to methodological issues) regarding the success of online peer to peer interactions and calls for further research in this area (Eysenbach et al., 2004). **We recommend that the Ele continues to host specific chat room conversations around physical activity focusing on the initial barriers and what individuals have done to overcome those barriers.** Positive peer to peer interaction should be encouraged.

22. Elefriends were often not aware of sport or physical activity groups for mental health service users in their local areas, or which facilities, if any, were accessible at low costs**. We recommend that the online Elefriends team consider ways that participants can access local information via the Elefriends platform to attend group sessions/meet ups off line.**

Recommendations for future evaluation of GStG:

8. Changes to mental wellbeing was not detected in the evaluation of GStG. Methodological issues could be responsible for this. The WEMWBS measure of mental wellbeing was used to assess the general positive attributes to mental wellbeing (Stewart-Brown et al., 2011). Given that a large proportion of the

population had a diagnosable mental illness, **we recommend that future evaluation should use measures that also assess changes in negative symptoms.** For example, The Symptom Check list-90 (Schmitz & Hartkamp, et al., 2000), or The Hopkins Symptom Checklist (Parloff, Kelman & Johns, 1954, 1984). Measuring wellbeing on 4 occasions over 12 months may not provide the complete picture of the mental wellbeing of GStG participants due to fluctuations in mental wellbeing. Therefore**, we also recommend that the evaluation consider contextual and situational measures of mental wellbeing as well as global wellbeing.**

1. There was a considerable drop off in responses to the evaluation survey. **We recommend that the evaluation is fully embedded into the programme.** For example, by including survey follow ups as touch points with the local Minds and the participants.

11. Each local Mind delivered the programme slightly differently depending on access to sport facilities, referral processes and availability of volunteers. This is to be expected within a community based programme. However, in order to assess the effectiveness of the programme with the highest rigour, **we recommend that the local Minds are consistent with the length of time that participants can engage in the programme.** For example, it should be clear (and consistent) whether the programme is for 12 weeks as a one off, a 12 week programme which participants can re-enrol or a continuous programme where participants can attend every week for the entire duration of the programme.

16. Although those individuals who had dropped out of the intervention were invited to participate in the evaluation, very few provided data. Only 2 individuals who had completely dropped out of the local delivery provided qualitative information. However, those who had lapsed in attendance at different points, for different reasons and different amounts of time did provide some data. Information relating to drop out/lapsing is crucial to understand why a programme (or which parts, and for whom) have not been successful. **We recommend that future evaluation should make a concerted effort to work with the local Minds to engage individuals who are no longer attending sessions.**

9. 0 Limitations of the evaluation

It is important to consider the limitations of this evaluation when interpreting the findings. When considering the effectiveness of the peer navigator model at the heart of GStG, it is important to note that the GStG programme was not delivered in the same way across all local Minds. Therefore, fidelity across all sites was not achieved making a rigorous evaluation more challenging. Each local Mind is governed separately and will naturally have varying procedures relating to the programme. Each local Mind also offered a variety of different sessions depending on what was available in the area and their relationships with sports providers. This difference in delivery is to be expected in a community based multi-site programme. It is for this reason that we decided to adopt a realist evaluation approach to understand the contextual mechanisms present in the design of the programme that could trigger change. It is these common contextual mechanisms that have been presented throughout the report making the qualitative data, and information on the relationships between psychological variables and outcomes a strength of the evaluation.

The evaluation struggled to engage participants who had dropped out from GStG. Only 2, out of 35 individuals interviewed, no longer attended sessions. This means that important information relating to those individuals may be missing from this report. However, we did engage individuals who had lapsed for a variety of reasons and for different lengths of time. This information has been crucial to provide appropriate future recommendations.

The population group who engaged in GStG have complex issues which create exacerbated barriers to exercise. Examples of such barriers include problems with housing, physical health, medication, and negative symptoms of their current mental health. Therefore, we consider the engagement of the number of participants in the evaluation to be positive. We have made recommendations to increase these response rates further. Follow up response rates to the survey could be perceived as low (between 21-38%). However, these numbers appear to be in line with the response rates from other Get Healthy Get Active projects invested in by Sport England, highlighting the challenge of longitudinal follow up for community physical activity programmes of this nature. Considerations should therefore be made on the most appropriate way to collect data from this population group.

We included a small control sample (equivalent to a single local Mind) to make comparisons with a group who were not registered to GStG. We analysed the data for local Minds collectively as separating them would result in the analysis being underpowered. Given the lack of fidelity across the local Minds,

it is important to consider this when interpreting the findings comparatively with the control group. Further, the control sample is not a complete control. These individuals are mental health service users and are accessing a variety of support services that may or may not be influencing their mental health recovery. It is not ethical practice to ask these participants to stop accessing vital support for their mental health, nor is it logical to have a 'treatment as usual' control when treatment can vary vastly between individuals, and for the same individual depending on their mental health needs at any one time. This provides another reason why comparative results should be interpreted with caution.

10. Conclusions

Despite these limitations, we can conclude that the local delivery of GStG was successful in increasing levels of self-reported physical activity (up to the 12 month follow up), perceptions of social provision, reducing barriers to exercise and maintaining mental wellbeing over the course of the programme. Although perceptions of wellbeing was maintained, qualitative data provided important information on participant's experiences of mental wellbeing throughout the programme. For some, an improvement to wellbeing was life-changing. Participants gained confidence by stepping outside of their comfort zone when they were supported to try new experiences, and thus improved their perceptions of the self. This improved sense of self enabled participants to seek other positive experiences and support. GStG was deemed as an important first step in their recovery. Improved mood was articulated in terms of a clearer mind, reduced rumination and through laughter during the group sport sessions.

The realist approach to the evaluation (Pawson & Tilley, 1997) enabled us to collect important information relating to the key mechanisms that triggered change within the programme. The increase in physical activity (and adherence to the programme) was attributed to a supportive social environment created by the Sports Co-odinator, Peer Navigator and peers within the group sessions. This supportive social environment also contributed to an increase in quality social interactions. The shared lived experience of mental health problems contributed to facilitating this supportive environment and appeared to encourage sustained participation. Participants explained how they continued to experience episodes of poor mental health. However, and importantly, the supportive social environment allowed participants to feel able to return to the sport sessions when they recovered following a re-lapse in their mental health problem. In support of Self-Determination Theory (Deci & Ryan, 2000) where autonomous motivation is proposed to be linked with positive behavioural outcomes, positive affective outcomes (mood & wellbeing) and cognitive outcomes (positive attitudes

towards the behaviour), our correlational analysis showed that autonomous motivation to be physically active and believing that barriers can be overcome are linked to better mental wellbeing, perceived social support and ability to cope and be resilient. We can therefore suggest that the mechanisms of change targeted by the GStG programme (e.g., providing quality social support, increasing autonomous motivation to be active, and reducing barriers to exercise) are associated with positive mental health outcomes. Both qualitative and quantitative findings provide evidence on the important mechanisms by which social support may reduce barriers, increase motivation to participate, and thus increase physical activity behaviour and wellbeing.

Process evaluation revealed that participants were on the whole 'satisfied' or 'very satisfied' with the programme and rated the sport groups sessions, and Peer Navigators as the most useful elements. In support of previous research, the combination of peer-led (Davidson et al., 2012), group sessions (Harden et al., 2015) delivered in a motivationally supportive manner (Biddle et al., 2005) with the support of mainstream facilities (Whitelaw et al., 2010) are the important active ingredients for the effectiveness of the programme. Other successful delivery mechanisms within the programme included a clear line of communication between the Sport Coordinator, Peer Navigator, the participants and mainstream facilities. This was important to reduce confusion and anxiety for both participants and the Peer Navigators. A clear structure to GStG provided continuity for participants and served as guidance for Peer Navigators. The support process for Peer Navigators including supervision meetings with the Sports Coordinator helped with retention, and the continued improved mental health of the volunteers. The MHASPA training provided useful information for mainstream sport staff to increase their awareness of mental health problems, and provided practical information on how to adapt sessions for people with mental health problems. However, further engagement in the training from mainstream sport staff is needed to help reduce the stigma associated with mental health problems.

The majority of participants rated the Elefriends platform as 'somewhat' or 'very' useful for managing their mental health. The online peer support was particularly important to support individuals who were at their lowest. Quantitative data supported the qualitative explanation that the lived experience of mental health problems helped to reduce isolation, and increased perceived social provision, and enhanced mental wellbeing. This was particularly successful within the separate chatrooms where smaller numbers could interact. Positive interactions with others online helped to improve the quality of motivation, and attitudes towards exercise. These interaction facilitated reciprocity among peers where they gained a sense of wellbeing from helping others. However, when participants were experiencing particularly strong negative symptoms they sometimes felt pressure and

guilt if they were not able to help others. The shared experience of mental health problems online contributed to maintained physical activity behaviour, although only for those who were already active. Previous online interventions have been inconclusive in changes to physical activity behaviour, although similarly to GStG have been successful in improving mental health (Newby et al., 2013). Associations highlighted that those with a higher quality of motivation, and therefore motivated to exercise because they valued the benefits, also reported better mental wellbeing and higher levels of physical activity. Whereas levels of physical activity did not increase, mechanisms underlying physical activity behaviour and mental wellbeing were present.

Information provided from the Ele was useful to reinforce prior knowledge of how to improve mental health (e.g., by increasing physical activity) and was deemed to be from a trusted source. Participants appreciated when information was concise and gave practical advice Elefriends could use in their day to day lives. The information available on the website helped to positively change attitudes towards exercise. It was specifically testimonials and details of the benefits of exercise that reinforced that physical activity was good for mental health. Increased visibility of the information and further detail of how to overcome the initial hurdles are recommended. Little is known about the efficacy and acceptability of online physical activity interventions (Rosenbaum et al., 2015) so this qualitative information is important to further our understanding.

We conclude that participants involved in the evaluation are satisfied with the GStG programme, have increased their levels of physical activity (at a local level) and are displaying important improvements to psychological processes associated with improved mental health (at a local and digital level).

11.0 Appendices

A: Table 1: Sample size, mean (M) and standard deviation (SD) of physical activity variables for local Minds separated by region

B: Table 2: Sample size, mean (M) and standard deviation (SD) of variables associated with mental health for local Minds separated by region

C: Table 3: Demographic information split by gender for baseline, 3 and 6 months

D: Table 4: Demographic information split by age for baseline, 3 and 6 months

E: Table 5: Demographic information split by mental health diagnosis for baseline, 3 and 6 months

Appendix A: Table 1: Sample size, mean (M) and standard deviation (SD) of physical activity variables for local Minds separated by region

	North West				London				North East				West Midlands			
	M (SD)				M (SD)				M (SD)				M (SD)			
Time point (month)	**0**	**3**	**6**	**12**	**0**	**3**	**6**	**12**	**0**	**3**	**6**	**12**	**0**	**3**	**6**	**12**
Sample size (n)	253	17	17	9	180	13	21	10	149	19	18	14	119	15	14	24
1 x 30 mins (days)	2.42 (2.18)	4.14 (2.75)	4.35 2.87)	3.08 (1.79)	2.17 (2.32)	3.64 (2.53)	3.75 (2.40)	2.6 (1.71)	1.48 (1.79)	3.16 (1.92)	3.00 (1.61)	3.71 (1.38)	2.13 (2.19)	3.50 (2.07)	3.20 (2.15)	2.22 (1.30)
Sample size (n)	251	8	8	2	177	7	11	1	152	4	8	8	119	8	8	7
Days of Vigorous	0.87 (1.51)	2.13 (2.17)	2.50 (2.33)	2.8 (0.96)	0.58 (1.34)	1.57 (1.51)	2.09 (1.51)	2.0 (0)	0.76 (1.47)	2.75 (2.22)	2.00 (1.85)	2.0 (1.06)	0.78 (1.53)	2.50 (1.69)	2.88 (1.46)	2.5 (0.71)
Sample size (n)	129	7	7	1	96	6	12	1	80	4	5	6	46	8	4	8
Vigorous (mins)	52.08 (71.9)	94.29 (65.7)	91.43 (78.1)	66.2 (38.05)	39.20 (59.8)	105.8 (374.)	66.67 (41.6)	90.0 (0)	43.19 (58.9)	50.00 (21.2)	120.0 (47.4)	120.0 (82.7)	65.87 (61.3)	112.5 (85.9)	63.75 (18.8)	70.0 (0.0)
Sample size (n)	242	12	13	3	182	8	12	5	149	11	14	10	115	6	7	16
Days of Moderate	1.62 (2.01)	3.58 (2.50)	4.15 (2.41)	2.68 (1.95)	1.70 (2.34)	2.13 (2.10)	3.17 (2.41)	4.0 (2.82)	0.95 (1.70)	2.55 (1.64)	2.57 (1.45)	3.0 (2.3)	1.44 (2.07)	2.83 (2.23)	3.86 (2.12)	3.0 (1.0)
Sample size (n)	157	12	13	1	121	7	11	5	80	7	11	9	67	5	3	15
Moderate(mins)	58.92 (68.9)	99.17 (58.8)	75.00 (48.9)	73.3 (56.7)	49.74 (66.3)	75.00 (55.4)	54.09 (48.1)	59.0 (45.05)	42.75 (66.9)	66.43 (41.4)	135.7 (394.)	98.33 (89.4)	80.75 (181.)	83.00 (60.7)	50.00 (8.66)	20.0 (0.0)
Sample size (n)	237	19	19	7	170	13	23	10	148	17	16	16	113	12	14	24
Days of walking	4.15 (2.49)	5.37 (1.95)	5.68 (2.00)	4.62 (2.35)	4.45 (2.47)	5.15 (2.23)	5.39 (1.92)	4.7 (2.58)	4.67 (2.49)	5.00 (1.46)	4.06 (2.08)	5.18 (2.04)	4.13 (2.29)	5.33 (2.15)	5.21 (2.16)	2.85 (2.34)
Sample size (n)	220	14	18	5	156	10	20	10	130	13	11	15	103	10	10	21
Walking (mins)	61.44 (83.6)	76.79 (51.5)	83.33 (88.3)	66.9 (62.8)	53.75 (73.5)	43.50 (30.9)	42.25 (40.9)	64.5 (58.89)	61.08 (73.3)	70.00 (44.9)	70.45 (77.7)	63.33 (55.6)	69.95 (106.)	38.00 (24.8)	74.50 (69.7)	44 (5.18)
Sample size (n)	238	17	18	6	168	13	19	6	147	9	11	12	115	9	11	21
Sitting (mins)	199.4 (254.)	378.0 (192.)	322.1 (176.)	432.85 (345.2)	246.5 (321.)	540.0 (451.)	416.8 (289.)	510.0 (150.5)	327.4 (270.)	406.6 (211.)	534.5 (245.)	305 (174.3)	241.1 (403.)	493.3 (440.)	474.5 (312.)	555 (2.04)
Sample size (n)	125	6	4	3	95	12	13	1	74	4	10	8	82	6	6	5
Days of Sport	0.83 (1.51)	1.67 (1.63)	2.25 (1.26)	2.40 (1.51)	0.60 (1.32)	2.67 (2.07)	1.55 (1.51)	2.0 (0)	0.77 (1.22)	2.25 (0.96)	2.00 (1.05)	2.0 (1.19)	0.50 (1.09)	2.17 (2.04)	2.67 (1.63)	1.66 (4.62)
Sample size (n)	53	6	4	3	32	9	12	2	35	3	8	6	22	6	4	6
Sport (mins)	65.23 (87.1)	56.67 (33.8)	67.50 (15.0)	1.51 (29.4)	49.34 (47.4)	105.8 (374.)	61.36 (40.5)	90.0 (0)	54.29 (49.4)	63.33 (23.6)	103.1 (352.)	95.0 (48.0)	72.27 (76.1)	77.50 (33.4)	78.75 (28.4)	65.0 (2.35)

Note: A proportion of participants did not provide information relating to their local Mind and so are included in the combined only

Appendix B: Table 2: Sample size, mean (M) and standard deviation (SD) of variables associated with mental health for local Minds separated by region

	North West				London				North East				West Midlands			
	M (SD)				M (SD)				M (SD)				M (SD)			
Time point (month)	**0**	**3**	**6**	**12**	**0**	**3**	**6**	**12**	**0**	**3**	**6**	**12**	**0**	**3**	**6**	**12**
Sample size (n)	253	22	23	-	168	14	24	-	153	19	18	-	121	16	15	-
Social Support	3.06 (0.64)	3.32 (0.46)	3.17 (0.62)	-	2.72 (0.63)	2.91 (0.62)	2.88 (0.73)	-	2.97 (0.66)	3.01 (0.72)	2.83 (0.73)	-	2.88 (0.67)	2.90 (0.56)	3.05 (0.51)	-
Sample size (n)	252	22	23	-	167	14	24	-	154	19	18	-	122	16	15	-
Coping/Resilience	2.80 (0.62)	2.47 (0.77)	2.63 (0.69)	-	2.45 (0.63)	2.15 (0.79)	2.21 (0.59)	-	2.57 (0.68)	2.66 (0.73)	2.49 (0.67)	-	2.58 (0.70)	2.18 (0.74)	2.63 (0.71)	-
Sample size (n)	253	22	22	27	187	14	23	11	154	19	17	17	123	16	14	9
Mental Wellbeing	3.20 (0.97)	3.17 (0.79)	3.24 (0.81)	3.13 (0.86)	2.75 (0.80)	2.90 (0.81)	2.85 (0.99)	2.92 (0.78)	2.90 (0.80)	2.76 (0.68)	2.63 (0.76)	2.81 (0.96)	2.83 (0.82)	2.66 (0.72)	3.07 (0.74)	2.56 (1.13)
Sample size (n)	253	22	23	27	168	14	23	11	154	19	18	17	123	16	14	9
Pain	2.28 (1.28)	3.00 (1.63)	2.96 (1.11)	2.7 (1.38)	2.52 (1.41)	2.86 (1.17)	3.25 (1.11)	2.81 (1.16)	2.23 (1.27)	3.00 (1.49)	2.89 (1.37)	3.23 (1.43)	2.51 (1.35)	3.25 (1.34)	2.21 (1.19)	2.88 (1.61)
Sample size (n)	251	22	23	27	168	14	23	11	154	19	18	17	122	15	14	9
Overall health	2.77 (0.99)	2.59 (1.10)	2.96 (1.07)	2.59 (0.93)	2.40 (0.87)	2.50 (1.02)	2.58 (1.02)	2.36 (0.92)	2.55 (1.05)	2.37 (0.76)	2.17 (0.86)	2.23 (0.83)	2.27 (0.90)	2.13 (0.96)	2.80 (0.94)	2(1.22)
Sample size (n)	252	22	22	26	169	14	23	11	153	19	18	17	122	15	14	9
Motivation: Intrinsic	3.61 (1.06)	3.70 (1.17)	3.59 (1.51)	3.0 (1.6)	3.66 (1.08)	3.04 (1.38)	3.74 (1.06)	3.09 (1.31)	3.84 (0.93)	3.18 (1.33)	3.17 (1.27)	3.0 (1.32)	3.69 (0.99)	3.87 (1.17)	4.11 (1.10)	2.72 (1.27)
Sample size (n)	252	22	22	26	171	14	23	11	153	19	18	17	122	15	14	9
Motivation: Identified	3.84 (1.01)	3.32 (1.35)	3.82 (1.27)	3.63 (1.35)	3.98 (1.03)	3.50 (1.27)	4.15 (0.85)	4.04 (1.31)	4.08 (0.87)	3.50 (1.19)	3.17 (1.34)	3.32 (1.23)	4.00 (0.91)	3.70 (1.15)	4.18 (0.82)	3.22 (1.27)
Sample size (n)	253	22	22	26	170	14	23	11	153	19	18	17	122	15	14	9
Motivation: Introjected	2.57 (1.19)	1.89 (1.03)	2.09 (1.18)	2.32 (1.13)	2.69 (1.18)	2.36 (1.22)	2.46 (1.07)	2.40 (1.26)	2.84 (1.18)	2.42 (1.23)	2.14 (1.08)	2.2 (1.11)	2.90 (1.14)	2.83 (1.33)	2.93 (0.98)	2.5 (1.43)
Sample size (n)	252	22	22	26	167	14	23	11	153	19	18	17	122	15	14	9
Motivation: Extrinsic	1.83 (1.06)	1.61 (1.08)	1.34 (0.76)	1.67 (1.04)	1.88 (1.13)	2.18 (1.23)	1.87 (1.07)	2.18 (1.34)	1.73 (0.97)	1.66 (0.88)	1.36 (0.76)	1.47 (0.81)	2.03 (1.16)	2.23 (1.46)	1.75 (0.98)	1.66 (0.75)
Sample size (n)	251	22	22	26	168	14	23	11	153	19	18	17	122	15	14	9
Motivation: Amotivation	1.81 (1.01)	1.57 (0.85)	1.45 (0.86)	1.98 (1.09)	1.74 (0.96)	2.18 (1.30)	1.87 (1.06)	1.68 (0.71)	1.77 (1.00)	1.68 (1.12)	1.39 (0.63)	1.35 (0.6)	1.82 (1.01)	2.43 (1.39)	2.32 (1.54)	1.88 (1.47)
Sample size (n)	253	22	22	-	166	14	24	-	153	19	18	-	122	16	14	-
Barriers to exercise	2.12 (0.49)	2.07 (0.2)	2.01 (0.53)	-	2.06 (0.49)	1.83 (0.56)	1.68 (0.49)	-	2.17 (0.48)	2.08 (0.49)	2.14 (0.49)	-	2.11 (0.44)	2.25 (0.41)	2.08 (0.46)	-

Appendix C: Table 3: Demographic information split by gender for baseline, 3 and 6 months

		Male			Female		
		Baseline	3 months	6 months	Baseline	3 months	6 months
	Sample (n)	352	30	31	341	33	38
30minPADays		2.10 (2.21)	3.53 (1.85)	3.10 (1.83)	2.13 (2.11)	2.88 (1.97)	2.89 (1.78)
	Sample (n)	350	15	26	342	12	19
Vigorous PA (days)		.81 (1.49)	2.60 (1.84)	2.31 (1.62)	.69 (1.43)	1.67 (1.72)	2.37 (1.89)
	Sample (n)	185	15	13	165	10	15
Vigorous PA (mins)		54.04 (68.44)	112.67 (81.04)	98.08 (67.25)	42.27 (60.25)	70.50 (41.26)	68.00 (35.09)
	Sample (n)	348	20	22	333	16	34
Moderate PA (days)		1.46 (2.13)	3.00 (2.18)	3.55 (2.28)	1.46 (1.99)	2.38 (1.86)	3.21 (2.04)
	Sample (n)	215	17	19	207	13	19
Moderate PA (mins)		62.81 (117.36)	86.47 (55.45)	89.11 (86.15)	50.83 (65.73)	84.23 (53.92)	80.00 (53.31)
	Sample (n)	336	27	31	328	33	40
Walking (days)		4.25 (2.60)	5.70 (1.90)	5.23 (2.23)	4.41 (2.34)	4.76 (1.80)	5.08 (1.99)
	Sample (n)	305	23	26	299	33	32
Walking (mins)		70.52 (98.93)	63.91 (38.64)	56.15 (52.01)	50.29 (61.89)	56.52 (48.35)	74.22(82.85)
	Sample (n)	344	26	26	318	24	33
Sitting (mins)		263.56 (332.80)	466.15 (319.44)	496.15 (246.25)	225.66 (273.38)	422.50 (344.21)	360.00 (263.45)
	Sample (n)	182	12	17	190	10	14
Sport (days)		.71 (1.29)	2.50 (1.78)	1.94 (1.25)	.68 (1.38)	1.80 (1.62)	2.07 (1.54)
	Sample (n)	78	11	14	65	10	13
Sport (minutes)		64.03 (79.19)	88.12 (61.09)	79.29 (54.38)	54.38 (55.41)	66.00 (30.17)	75.00 (27.39)
	Sample (n)	344	33	34	330	37	44
Perceived Pain		2.24 (1.30)	2.91 (1.40)	2.91 (1.22)	2.49 (1.34)	3.13 (1.48)	2.86 (1.23)
	Sample (n)	347	33	34	333	37	45
Overall Health		5.42 (53.5)	2.55 (.94)	2.47 (1.11)	5.54 (54.61)	2.32 (.97)	2.76 (.93)
	Sample (n)	366	33	34	349	37	41
Mental wellbeing		2.92 (.87)	2.84 (.80)	2.72 (.72)	3.01 (.91)	2.93 (.74)	3.13 (.94)
	Sample (n)	357	33	34	333	37	45
Social Support		2.88 (.64)	2.96 (.58)	2.89 (.56)	2.98 (.66)	3.14 (.62)	3.07 (.73)
	Sample (n)	356	33	34	334	37	45
Coping & Resilience		2.61 (.63)	2.21 (.74)	2.49 (.58)	2.66 (.68)	2.54 (.77)	2.47 (.74)
	Sample (n)	357	33	34	332	37	43
Barriers to exercise		2.09 (.48)	2.11 (.56)	2.01 (.49)	2.15 (.48)	2.11 (.50)	2.01 (.52)

Appendix D: Table 5: Demographic information split by age for baseline, 3 and 6 months

	Age 18-20 years			Age 21-30 years			Age 31-40 years		
	Baseline	**3months**	**6months**	**Baseline**	**3months**	**6months**	**Baseline**	**3months**	**6months**
Sample (n)	140	7	9	74	5	4	137	13	8
30minPADays	2.16 (2.08)	2.00 (1.16)	3.67 (1.50)	2.24 (2.01)	3.40 (2.07)	3.75 (2.23)	1.83 (1.90)	2.23 (1.24)	2.13 (1.13)
Sample (n)	139	1	7	73	2	2	136	5	1
Vigorous PA (days)	.88 (1.58)	2.00 (N/A)	1.8 (.90)	.73 (1.08)	3.00 (1.41)	2.00 (1.41)	.88 (1.58)	1.60 (.89)	1.00 (N/A)
Sample (n)	73	1	6	46	2	1	72	6	1
Vigorous PA (mins)	47.95 (67.10)	60.00 (N/A)	81.67 (54.19)	37.61 (41.03)	142.50 (137.89)	90.00 (N/A)	53.64 (64.41)	68.33 (56.10)	30.00 (N/A)
Sample (n)	135	4	4	72	2	3	134	6	5
Moderate PA (days)	1.49 (2.09)	3.00 (2.83)	1.75 (.50)	1.40 (1.86)	1.50 (71)	4.00 (1.73)	1.48 (2.06)	2.67 (2.25)	4.00 (2.83)
Sample (n)	86	4	3	50	2	2	85	4	4
Moderate PA (mins)	37.72 (51.34)	56.25 (18.88)	110.00 (45.83)	57.08 (65.87)	52.50 (10.61)	161.50 (58.69)	60.20 (71.87)	75.00 (51.96)	48.75 (28.40)
Sample (n)	138	7	7	6	4	3	130	12	10
Walking (days)	4.82 (2.12)	4.57 (1.81)	4.57 (2.57)	4.66 (2.59)	6.25 (1.50)	6.00 (1.73)	4.32 (2.52)	4.58 (2.11)	5.70 (1.42)
Sample (n)	125	3	5	64	3	1	118	10	9
Walking (mins)	62.87 (84.04)	75.00 (45.00)	48.00 (13.04)	51.64 (60.19)	60.00 (51.96)	210.00 (N/A)	67.84 (100.83)	51.00 (40.33)	32.22 (12.02)
Sample (n)	136	3	5	69	(3	2	129	10	5
Sitting (mins)	248.29 (303.22)	520.2 (208.9)	300 (205.35)	304.84 (326.63)	400 (501.03)	600 (566.6)	248.48 (280.15)	372 (295.3)	384 (321.0)
Sample (n)	77	2	6	44	1	4	73	5	1
Sport (days)	1.05 (1.70)	1.00 (.00)	1.17 (.75)	.66 (1.18)	4.00 (N/A)	3.33 (1.16)	.67 (1.23)	1.60 (.89)	1.00 (N/A)
Sample (n)	38	2	5	20	1	2	35	5	1
Sport (minutes)	68.42 (99.88)	60.00 (42.43)	90.00 (60.00)	46.55 (50.97)	240.00 (N/A)	75.00 (63.64)	50.57 (43.57)	46.00 (13.87	30.00 (N/A)
Sample (n)	133	7	9	70	5	4	129	14	10
Perceived Pain	2.07 (1.22)	2.86 (1.46)	3.00 (1.00)	2.00 (1.27)	3.00 (1.87)	2.25 (1.50)	2.08 (1.26)	2.57 (1.28	2.90 (1.37)
Sample (n)	140	7	9	72	5	4	132	14	10
Overall Health	2.70 (1.02)	2.71 (.95)	2.89 (.78)	16.54 (117.42)	2.60 (1.82)	2.25 (1.50)	2.56 (1.02)	2.79 (.80)	2.60 (.84)
Sample (n)	145	7	9	74	5	4	142	14	9
Mental wellbeing	3.02 (.96)	2.86 (.87)	3.15 (.61)	3.02 (.81)	3.49 (.82)	2.82 (1.10)	3.04 (.97)	2.78 (.95)	2.80 (.82)
Sample (n)	138	7	9	69	5	4	136	14	10
Social Support	3.03 (.64)	3.46 (.52)	3.24 (.54)	2.97 (.71)	3.20 (.34)	2.98 (.67)	2.95 (.61)	2.81 (.72)	2.96 (.80)
Sample (n)	136	7	9	70	5	4	136	14	10
Coping & Resilience	2.71 (.64)	3.46 (.52)	2.36 (.53)	2.62 (.62)	2.52 (.45)	2.58 (.51)	2.68 (.70)	2.23 (.93)	2.57 (.76)
Sample (n)	137	7	9	71	5	4	132	14	10
Barriers to exercise	2.14 (.55)	2.84 (.34)	1.90 (.58)	2.13 (.48)	2.08 (.36)	1.93 (.52)	2.09 (.48)	2.11 (.62)	2.01 (.59)

	Age 41-50 years			Age 51-60 years			Age 61+ years		
	Baseline	3months	6months	Baseline	3months	6months	Baseline	3months	6months
Sample (n)	191	22	32	120	14	12	37	3	5
30minPADays	2.08 (2.23)	3.73 (1.80)	3.03 (1.94)	2.23 (2.38)	3.29 (2.27)	2.83 (2.04)	2.27 (2.61)	4.67 (3.22)	3.20 (1.64)
Sample (n)	194	13	11	119	6	9	36	N/A	5
Vigorous PA (days)	.70 (1.53)	2.69 (2.36)	2.91 (1.81)	.61 (1.33)	1.33 (.82)	1.67 (1.32)	.53 (1.18)	N/A	3.40 (2.88)
Sample (n)	85	11	9	60	5	8	13	N/A	3
Vigorous PA (mins)	47.69 (69.85)	102.73 (78.8)	85.00 (42.43)	50.23 (67.34)	102.00 (50.20)	77.50 (76.11)	32.58 (44.35)	N/A	100.00 (45.83)
Sample (n)	191	15	19	119	7	10	36	3	5
Moderate PA (days)	1.35 (2.00)	3.13 (2.03)	3.58 (1.81)	1.66 (2.29)	1.71 (.76)	2.80 (2.57)	1.14 (1.76)	5.00 (3.46)	4.00 (2.74)
Sample (n)	112	12	18	72	7	9	17	2	2
Moderate PA (mins)	71.72 (150.27)	84.58 (58.48)	91.94 (83.42)	56.49 (72.90)	101.43 (61.76)	48.89 (34.40)	37.68 (44.58)	120.00 (84.85)	135.00 (106.07)
Sample (n)	181	21	29	116	12	15	37	4	8
Walking (days)	3.98 (2.49)	5.33 (1.65)	4.62 (2.13)	4.17 (2.51)	5.58 (2.19)	5.93 (1.87)	3.97 (2.61)	5.40 (2.07)	5.00 (2.39)
Sample (n)	166	19	24	104	8	13	30	4	7
Walking (mins)	58.08 (68.61)	64.21 (47.50)	45.63 (47.83)	61.03 (101.06)	54.38 (42.97)	101.15 (103.87)	61.67 (60.78)	57.50 (45.00)	102.14 (76.04)
Sample (n)	180	14	23	119	12	12	33	4	6
Sitting (mins)	230.8 (266.4)	402 (72.2)	4277.13 (484.0)	255.35 (397.20)	555 (461.2)	340.2 (505.2)	190.00 (245.64)	225 (259.0)	400 (441.0)
Sample (n)	101	10	9	56	4	9	23	N/A	3
Sport (days)	.49 (1.03)	2.50 (1.84)	2.33 (1.23)	.38 (.93)	2.25 (2.50)	1.44 (1.13)	1.04 (1.99)	N/A	3.33 (2.08)
Sample (n)	29	9	10	12	4	8	6	N/A	1
Sport (minutes)	57.00 (55.5)	75.56 (34.04)	84.00 (40.13)	86.25 (85.84)	90.00 (34.64)	61.88 (32.51)	60.00 (37.95)	N/A	120.00 (N/A)
Sample (n)	188	24	31	121	15	17	37	6	8
Perceived Pain	2.42 (1.30)	3.04 (1.46)	2.90 (1.14	3.03 (1.30)	3.27 (1.39)	3.29 (1.26)	2.76 (1.30)	3.67 (1.51)	2.25 (1.28)
Sample (n)	185	24	32	117	15	17	37	6	8
Overall Health	2.50 (.94)	2.42 (.93)	2.63 (1.04)	10.80 (92.15)	1.93 (.70)	2.47 (1.07)	2.54 (.87)	2.17 (.98)	3.00 (1.07)
Sample (n)	199	24	29	123	15	17	37	6	8
Mental wellbeing	2.84 (.84)	2.91 (.51)	2.86 (1.04)	2.87 (.87)	2.84 (.81)	3.02 (.80)	3.04 (.72)	2.75 (.88)	3.14 (.53)
Sample (n)	196	24	32	119	15	17	36	6	8
Social Support	2.83 (.67)	3.06 (.54)	2.86 (.66)	2.89 (.68)	3.11 (.62)	3.05 (.68)	2.93 (.50)	2.90 (.67)	3.10 (.64)
Sample (n)	195	24	32	119	15	17	37	6	8
Coping & Resilience	2.58 (.64)	2.47 (.74)	2.40 (.64)	2.55 (.68)	2.17 (.70)	2.45 (.67)	2.60 (.66)	2.67 (1.09)	2.75 (.96)
Sample (n)	197	24	30	120	15	17	35	6	8
Barriers to exercise	2.06 (.41)	2.18 (.46)	2.07 (.48)	2.20 (.51)	1.98 (.54)	1.97 (.59)	2.13 (.47)	2.09 (.70)	1.91 (.45)

Appendix E: Table 5: Demographic information split by mental health diagnosis for baseline, 3 and 6 month

	Mood Disorder			Personality Disorder			Psychotic Disorder			Neuro & learning disorder
	Baseline	**3 months**	**6 months**	**Baseline**	**3 months**	**6 months**	**Baseline**	**3 months**	**6 months**	**Baseline**
Sample (n)	507	51	53	143	15	14	73	4	14	19
30minPADays	3.14 (1.98)	3.14 (1.98)	2.77 (1.74)	1.95 (2.08)	3.47 (1.96)	3.21 (1.89)	1.55 (1.89)	2.25 (1.50)	3.21 (1.89)	2.26 (2.18)
Sample (n)	506	19	22	142	15	9	73	N/A	9	20
Vigorous PA (days)	.63 (1.38)	2.37 (1.77)	2.27 (1.45)	.61 (1.33)	2.50 (1.69)	2.89 (1.90)	.26 (.93)	N/A	2.89 (1.90)	1.00 (1.65)
Sample (n)	239	19	18	73	8	8	26	N/A	8	9
Vigorous PA (mins)	41.97 (58.18)	106.05(77.2)	90.28(57.15)	39.62 (54.80)	115.00 (74.40	93.75(79.27)	40.04 (78.52)	N/A	93.75 (79.21)	66.78 (105.75)
Sample (n)	498	29	37	141	8	9	69	2	9	19
Moderate PA (days)	1.34 (2.00)	2.76 (2.03)	3.16 (2.08)	1.33 (1.85)	2.70 (2.11)	3.56 (2.24)	1.00 (1.93)	4.00 (4.23)	3.56 (2.24)	.95 (1.54)
Sample (n)	293	24	31	89	10	8	36	1	8	9
Moderate PA (mins)	52.72 (63.66)	88.54(52.01)	81.61(69.02)	61.85 (161.39)	78.33 (67.41)	99.38(110.7)	38.22 (48.91	3.00 (N/A)	99.38 (110.79)	87.33 (86.23)
Sample (n)	484	47	54	135	9	13	67	(3)	13	15
Walking (days)	4.10 (2.47)	5.28 (1.98)	4.80 (2.11)	4.14 (2.48)	6.09 (1.30)	5.46 (1.94)	4.22 (2.60)	4.67 (2.52)	5.46 (1.94	2.72 (3.53)
Sample (n)	440	36	45	128	11	13	(62)	3	13	16
Walking (mins)	60.41 (85.14)	54.03(37.87)	60.44(69.40)	54.73 (68.01)	67.22 (44.39)	57.69(61.43)	59.50 (78.36)	60.00(51.96)	57.69 (61.43)	52.56 (70.45)
Sample (n)	479	35	45	133	12	12	72	2	12	18
Sitting (mins)	279.90(333.5)	452.4 (276.0)	444.0(253.4)	246.02 (303.6)	505.2 (416.8)	405.0(285.0)	200.03 (283.3)	330 (221.8)	405.00 (285.04)	274.67 (336.1)
Sample (n)	262	16	21	67	6	10	32	N/A	10	8
Sport (days)	.51 (1.11)	2.38 (1.89)	1.90 (1.34)	.54 (122)	2.00 (1.27)	2.20 (1.75)	.22 (.55)	N/A	2.20 (1.75	.00 (.00)
Sample (n)	84	15	18	22	6	9	10	N/A	9	1
Sport (minutes)	55.26 (53.97)	83.00 (54.8)	77.50 (45.2)	42.09 (39.91)	106.67 (73.19)	66.67 (57.6)	54.00 (61.32)	N/A	66.67 (57.66)	.00 (N/A)
Sample (n)	491	57	60	137	16	15	71	4	15	18
Perceived Pain	2.53 (1.35)	3.14 (1.38)	3.05 (1.16)	2.77 (1.37)	3.31 (1.45)	3.00 (1.25)	2.16 (1.31)	2.50 (1.29)	3.00 (1.25)	2.17 (1.29)
Sample (n)	491	56	61	135	16	16	72	4	16	19
Overall Health	4.42 (44.99)	2.30 (.93)	2.48 (.94)	2.26 (.94)	2.44 (1.09)	2.88 (1.20)	2.44 (.97)	1.75 (.95)	2.88 (1.20)	2.53 (.91)
Sample (n)	520	57	58	145	16	16	75	4	16	20
Mental wellbeing	2.74 (.79)	2.84 (.72)	2.80 (.87)	2.63 (.80)	2.89 (.66)	3.27 (.45)	3.06 (.82)	3.29 (.49)	3.27 (.68)	2.80 (1.03)
Sample (n)	505	57	61	142	16	16	73	4	16	17
Social Support	2.83 (.64)	2.99 (.59)	2.87 (.65)	2.78 (.67)	2.99 (.57)	3.06 (.45)	2.83 (.62)	3.15 (.30)	3.06 (.45)	2.57 (.84)
Sample (n)	505	57	61	140	16	16	73	4	16)	17
Coping & Resilience	2.51 (.64)	2.28 (.72)	2.33 (.63)	2.39 (.69)	2.26 (.63)	2.53 (.58)	2.55 (.50)	2.83 (.46)	2.53 (.58)	2.30 (.63)
Sample (n)	505	56	34	138	16	16	73	4	16	18
Barriers to exercise	2.16 (.47)	2.23 (.53)	2.01 (.49)	2.20 (.44)	2.12 (.54)	2.00 (.59)	2.22 (.42)	2.10 (.21)	2.00 (.59)	2.0 .44)

12.0 References

Armanasco, A. A., Miller, Y. D., Fjeldsoe, B. S., & Marshall, A. L. (2017). Preventive Health Behavior Change Text Message Interventions: A Meta-analysis. *American Journal of Preventive Medicine*, *52*(3), 391–402. https://doi.org/10.1016/j.amepre.2016.10.042

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Caddick, N., & Smith, B. (2014). The impact of sport and physical activity on the well-being of combat veterans: A systematic review. *Psychology of Sport and Exercise*, *15*(1), 9–18. https://doi.org/10.1016/j.psychsport.2013.09.011

Caron, J. (2013). Santé mentale au Québec Santé mentale au Québec Une validation de la forme abrégée de l ' Échelle de provisions sociales : l ' ÉPS-10 items Une validation de la forme abrégée de l ' Échelle de provisions sociales : l ' ÉPS-10 items A validation of the Soc. *Santé Mentale Au Québec*, *38*(1). https://doi.org/10.7202/1019198ar

Cavill, N., Roberts, K., & Rutter, H. (2012). Standard Evaluation Framework for physical activity interventions. *Public Health*, 1–38. Retrieved from https://www.noo.org.uk/core/frameworks/SEF_PA

Chalder, M., Wiles, N., Campbell, J., Hollinghurst, S., Haase, A., Taylor, A., … Lewis, G. (2012). Facilitated physical activity as a treatment for depressed adults: randomised controlled trial. *BMJ (Clinical Research Ed.)*, *344*(June), e2758. https://doi.org/10.1136/bmj.e2758

Cooney, G., Dwan, K., Greig, C., Lawlor, D., Rimer, J., Waugh, F., … Mead, G. (2013). Exercise for depression (Review). *Cochrane Database Systematic Review*, (9). https://doi.org/10.1002/14651858.CD004366.pub6.www.cochranelibrary.com

Craig, C. L., Marshall, A. L., Sjöström, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., … Oja, P. (2003). International physical activity questionnaire: 12-country reliability and validity. *Medicine and Science in Sports and Exercise*, *35*(8), 1381–95. https://doi.org/10.1249/01.MSS.0000078924.61453.FB

Davidson, L., Bellamy, C., Guy, K., & Miller, R. (2012). Peer support among persons with severe mental illnesses : a review of evidence and experience. *World Psychiatry*, *11*, 123–128.

Davidson, L., Miller, R., & Flanagan, E. (2012). What's in it for me? The utility of psychiatric treatments from the perspective of the person in recovery. *Epidemiologia E Psichiatria Sociale*, *17*(3), 177–181. https://doi.org/10.1017/S1121189X0000124X

De Hert, M., Correll, C., Bobes, J., Cetkovich-Bakmas, M., Cohen, D., Asai, I., & Leucht, S. (2011). Physical illness in patients with severe mental disorders. Prevalence, impact of medications and disparities in health care. *World Psychiatry*, *10*(August 2010), 52–77.

Drake, R. E., & Whitley, R. (2014). Recovery and severe mental illness: description and analysis. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie*, *59*(5), 236–42. https://doi.org/10.1177/070674371405900502

Druss, B. G., Zhao, L., von Esenwein, S. A., Bona, J. R., Fricks, L., Jenkins-Tucker, S., … Lorig, K. (2010). The Health and Recovery Peer (HARP) Program: A peer-led intervention to improve medical self-management for persons with serious mental illness. *Schizophrenia Research*, *118*(1–3), 264–270. https://doi.org/10.1016/j.schres.2010.01.026

Ekkekakis, P. (2015). Honey, i shrunk the pooled SMD! Guide to critical appraisal of systematic reviews and meta-analyses using the Cochrane review on exercise for depression as example. *Mental Health and Physical Activity*, *8*, 21–36. https://doi.org/10.1016/j.mhpa.2014.12.001

Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., & Stern, A. (2004). Primary care Health related virtual communities and electronic support groups :, *328*(May), 1–6.

Firth, J., Rosenbaum, S., Stubbs, B., Gorczynski, P., Yung, A. R., & Vancampfort, D. (2016). Motivating factors and barriers towards exercise in severe mental illness: a systematic review and meta-analysis. *Psychological Medicine*, (2016), 1–13. https://doi.org/10.1017/S0033291716001732

Fox, K. R. (1999). The influence of physical activity on mental well-being. *Public Health Nutrition*, *2*(3A), 411–418. https://doi.org/S1368980099000567 [pii]

Harden, S. M., McEwan, D., Sylvester, B. D., Kaulius, M., Ruissen, G., Burke, S. M., … Beauchamp, M. R. (2015). Understanding for whom, under what conditions, and how group-based physical activity interventions are

successful: a realist review. *BMC Public Health*, *15*, 958. https://doi.org/10.1186/s12889-015-2270-8
Hardy, C., & Rejeski, W. (1989). Not what, but how one feels: the measurement of affect during exercise. *Journal of Sport & Exercise Psychology*, *11*, 304–317. https://doi.org/10.1123/jsep.11.3.304
Hoare, E., Milton, K., Foster, C., & Allender, S. (2016). The associations between sedentary behaviour and mental health among adolescents: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, *13*(1), 108. https://doi.org/10.1186/s12966-016-0432-4
Johnstone, R., Nicol, K., Donaghy, M., & Lawrie, S. (2009). Barriers to uptake of physical activity in community-based patients with schizophrenia. *Journal of Mental Health*, *18*(6), 523–532. https://doi.org/10.3109/09638230903111114
Kazdin, A. E., & Rabbitt, S. M. (2013). Novel Models for Delivering Mental Health Services and Reducing the Burdens of Mental Illness. *Clinical Psychological Science*, *1*(2), 170–191. https://doi.org/10.1177/2167702612463566
Kinnafick, F. E., Th??gersen-Ntoumani, C., & Duda, J. (2016). The effect of need supportive text messages on motivation and physical activity behaviour. *Journal of Behavioral Medicine*, *39*(4), 574–586. https://doi.org/10.1007/s10865-016-9722-1
Kinnafick, F.-E., Thøgersen-Ntoumani, C., & Duda, J. L. (2014). Physical activity adoption to adherence, lapse, and dropout: a self-determination theory perspective. *Qualitative Health Research*, *24*(5), 706–18. https://doi.org/10.1177/1049732314528811
Markland, D., & Tobin, V. (2004). A Modification to the Behavioural Regulation in Exercise Questionnaire to Include an Assessment of Amotivation. *Journal of Sport & Exercise Psychology*, *26*, 191–196.
McCrone, P. R., Dhanasiri, S., Patel, A., Knapp, M., & Lawton-Smith, S. (2008). *Paying the price: the cost of mental health care in England to 2026*.
Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. London: Sage publications, London.
Pentecost, C., Farrand, P., Greaves, C. J., Taylor, R. S., Warren, F. C., Hillsdon, M., … Taylor, A. H. (2015). Combining behavioural activation with physical activity promotion for adults with depression: findings of a parallel-group pilot randomised controlled trial (BAcPAc). *Trials*, *16*(1), 367. https://doi.org/10.1186/s13063-015-0881-0
Pommier, J., Guével, M.-R., & Jourdan, D. (2010). Evaluation of health promotion in schools: a realistic evaluation approach using mixed methods. *BMC Public Health*, *10*, 43. https://doi.org/10.1186/1471-2458-10-43
Psychiatry, T. L. (2014). Physical and mental health: Activate and integrate. *The Lancet Psychiatry*, *1*(3), 163. https://doi.org/10.1016/S2215-0366(14)70322-0
Rickwood, D. J., Telford, N. R., Parker, A. G., Tanti, C. J., & McGorry, P. D. (2014). headspace — Australia's innovation in youth mental health: who are the clients and why are they presenting? *The Medical Journal of Australia*, *200*(2), 108–111. https://doi.org/10.5694/mja13.11235
Rosenbaum, S., Newby, J. M., Steel, Z., Andrews, G., & Ward, P. B. (2015). Online physical activity interventions for mental disorders: A systematic review. *Internet Interventions*, *2*(2), 214–220. https://doi.org/10.1016/j.invent.2015.04.001
Rosenbaum, S., Tiedemann, A., Sherrington, C., Curtis, J., & Ward, P. B. (2014). Physical Activity Interventions for People With Mental Illness. *The Journal of Clinical Psychiatry*, *75*(9), 964–974. https://doi.org/10.4088/JCP.13r08765
Rosenbaum, S., Tiedemann, A., Stanton, R., Parker, A., Waterreus, A., Curtis, J., & Ward, P. B. (2016). Implementing evidence-based physical activity interventions for people with mental illness: an Australian perspective. *Australasian Psychiatry : Bulletin of Royal Australian and New Zealand College of Psychiatrists*, *24*(1), 49–54. https://doi.org/10.1177/1039856215590252
Schmitz, N., & Hartkamp A. (2000). The Symptom Check-List-90-R (SCL-90-R). A German validation study. *Quality of Life Research*, *9*, 185–193.
Sechrist, K., Walker, S., & Pender, N. (1987). Development and psychometric evaluation of the exercise benefits/barriers scale. *Research in Nursing and Health*, *10*(6).
Smith, B., & McGannon, K. R. (2017). Developing rigor in qualitative research: problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology*, 1–21. https://doi.org/10.1080/1750984X.2017.1317357
Soundy, A., Stubbs, B., Probst, M., Hemmings, L., & Vancampfort, D. (2014). Barriers to and facilitators of physical activity among persons with schizophrenia: a survey of physical therapists. *Psychiatric Services*, *65*(5), 693–6. https://doi.org/10.1176/appi.ps.201300276

Stewart-Brown, S. L., Maheswaran, H., Parkinson, J., Weich, S., Tennant, R., & Taggart, F. M. (2011). Plenary session : the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) : A valid and reliable tool for measuring mental well-being in diverse populations and projects. *Journal of Epidemiology and Community Health*, *65*(Suppl II), 38–39. https://doi.org/10.1136/jech.2011.143586.86

Stubbs, B., Firth, J., Berry, A., Schuch, F. B., Rosenbaum, S., Gaughran, F., … Vancampfort, D. (2016). How much physical activity do people with schizophrenia engage in? A systematic review, comparative meta-analysis and meta-regression. *Schizophrenia Research*, *176*(2–3), 431–440. https://doi.org/10.1016/j.schres.2016.05.017

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., … Stewart-brown, S. (2007). development and UK validation, *13*, 1–13. https://doi.org/10.1186/1477-7525-5-63

Vancampfort, D., Correll, C. U., Probst, M., Sienaert, P., Wyckaert, S., De Herdt, A., … De Hert, M. (2013). A review of physical activity correlates in patients with bipolar disorder. *Journal of Affective Disorders*, *145*(3), 285–291. https://doi.org/10.1016/j.jad.2012.07.020

Vancampfort, D., De Hert, M., Vansteenkiste, M., De Herdt, A., Scheewe, T. W., Soundy, A., … Probst, M. (2013). The importance of self-determined motivation towards physical activity in patients with schizophrenia. *Psychiatry Research*, *210*(3), 812–818. https://doi.org/10.1016/j.psychres.2013.10.004

Walker, E. R., McGee, R. E., & Druss, B. G. (2015). Mortality in Mental Disorders and Global Disease Burden Implications. *JAMA Psychiatry*, *72*(4), 334–341. https://doi.org/10.1001/jamapsychiatry.2014.2502

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. *Journal of Personality and Social Psychology*, *54*(6), 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

Whitelaw, S., Teuton, J., Swift, J., & Scobie, G. (2010). The physical activity - Mental wellbeing association in young people: A case study in dealing with a complex public health topic using a “realistic evaluation” framework. *Mental Health and Physical Activity*, *3*(2), 61–66. https://doi.org/10.1016/j.mhpa.2010.06.001

Wilson, M. (2006). “It’s Who I Am Really!” The Importance of Integrated Regulation in Exercise Contexts’, 79–104.

Wittchen, H. U., Jacobi, F., Rehm, J., Gustavsson, A., Svensson, M., Jönsson, B., … Steinhausen, H. C. (2011). The size and burden of mental disorders and other disorders of the brain in Europe 2010. *European Neuropsychopharmacology*, *21*(9), 655–679. https://doi.org/10.1016/j.euroneuro.2011.07.018