WISH (WELL-BEING INTERVENTION FOR SELF-MANAGING HEALTH): A FEASIBILITY WORK-BASED SELF-MANAGEMENT INTERVENTION FOR EMPLOYEES WITH LONG-TERM HEALTH CONDITIONS

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1.0 Systematic Review

Are work-based psychological interventions for employees' effective at developing self-management skills, increasing feelings of emotional and physical wellbeing, and improving work-related performance?

This review determines the characteristics and feasibility of psychologically based workplace interventions that develop self-management skills (e.g. goal-setting, problem-solving, reframing, etc.) in relation to improving feelings of emotional and physical wellbeing, whilst also improving work-related performance (i.e. absenteeism, motivation, productivity, Presenteeism). Search strategies included the use of Medline, Cinahl, PsychArticles, PsycInfo, ASSIA, and SOCIndex electronic databases, as well as grey literature searches using Google Scholar. Publications from 2005 to 2013, that reported characteristics of psychological work-based interventions, were accepted. Data were extracted, synthesized, and interpreted, resulting in eleven references being accepted. The interventions were all categorized into the broad health-related area of lifestyle management, but also had aspects of behaviour change built into the programme. Health-related and organisational outcomes, which were linked to employer-sponsored well-being initiatives, have both been included in this review. The selected studies varied in their method of intervention, recruitment procedures and outcome measures. Therefore, the heterogeneity meant that it was not feasible to combine the results in a meta-analysis. However, both the impact and the potential advantages of the diversity of approaches were considered. All the interventions methods combined an educational aspect with a recognized psychologically based training component, which together provide a mix of knowledge and skills to enable the worker to define and achieve their own goals. It was not possible to discern whether any intervention, within a workplace setting, was more effective than any other. However, all showed some form of increase in self-confidence for the workers taking part, with some studies showing a greater or lesser amount of success in meeting both individual and organisational outcome measures.

1.1 Introduction

Work well-being is a hot topic in the UK today. Research has shown that being in work is generally good for people's health and well-being (Waddell & Burton, Is work good for your health and well-being?, 2006). However, remaining in work is not always that easy if faced with a mental or physical health condition. Statistics have provided clear evidence that the considerable costs associated with mental and physical well-being in the workplace (The Sainsbury Centre for Mental Health, 2007) weighs heavy, not just on the employer, but also on the employee. Encouraging employees to look after their mental and physical health and well-being (for example making healthy choices such as a balanced diet and exercising, helping to build mental and emotional resilience) is not just a concern of the National Health Service (NHS). Employers also must share the burden, as it has been estimated that UK employees are absent from work 7.7 days per year, with costs of between £400 and £889 per employee, depending on the employment sector. Therefore, the importance of implementing effective workplace interventions is crucial in tackling the problem.

However, although the NHS and employer takes some responsibility for managing employee health, the final responsibility must fall in some part to the employee, who is solely responsible for implementing individual behaviour change. Thus, the empowerment approach, from a health perspective, has emerged from patient education and self-management practices for patients with chronic diseases. The aim of the approach is to provide a 'combination of knowledge, skills and a heightened self-awareness regarding values and needs, so that patients can define and achieve their own goals' (Feste & Anderson, 1995). However, this review aims at applying this approach to organisational interventions that empower all employees, not just those with chronic conditions, to develop skills and techniques which will not only improve their own personal sense of well-being, but also to have an impact on organisational outcomes, such as absenteeism, productivity and turnover. Ongoing measurement of such improvements can prove difficult, however organisational outcomes such as absenteeism and productivity are already measured within possibly all Organisations, through performance reviews

and as a function of Human Resource Management. In more progressive organisations, such as the Civil Service, surveys are undertaken on an annual basis to monitor individual outcomes such as well-being, providing an indication of the direction of improvements. However, internal surveys which track individual improvements in areas such as personal wellbeing, self-efficacy, and self-confidence are not usually undertaken by most organisations.

Psychologically based interventions, such as Cognitive-Behavioural Therapy (CBT) and Mindfulness, have been utilized not only within the health care setting, but also is becoming widely used within vocational settings. There is a dearth of reviews on such psychological therapies/interventions, amongst other psychological approaches within the workplace. Therefore, this review aims to utilize the empowerment/self-management approach to psychological interventions within the workplace to determine their effectiveness from an individual, as well as organisational perspective.

1.2 Materials and Methods

Search strategy:

The Medline, Cinahl, PsychArticles, PsycInfo, ASSIA, and SOCIndex electronic databases were searched for articles with an abstract in English, from 2000 onwards. A grey literature search, through Google Scholar, of articles and unpublished dissertations was also undertaken. References of selected articles were checked for new relevant titles. The aim was to identify articles that report on the characteristics of employer-sponsored well-being interventions and their impact on both health-related and organisational outcomes.

A single search strategy utilizing PICOT in which groups of search terms for population (workers/employees), interventions (psychological/work-based/self-management/empowerment), and outcome measures (well-being/turnover/productivity/absenteeism) were combined with the Boolean term AND gave only a few results. It was concluded that the field of work-based psychological interventions is so peripheral to regular interventions, that articles are generally not indexed by combining intervention terms with outcome terms. Therefore, a separate search strategy was eventually developed for each database in which each field was searched separately using the Boolean term OR (Haafkens, Moerman, Schuring, & van Dijk, 2006). Subsequently this search strategy was combined using the Boolean term AND.

Selection of articles:

All titles or abstracts were screened using the following inclusion criteria:

- the article reports on an experimental study – the reason for only including experimental studies in this review, was that they are less susceptible to bias or researcher control of variables, as well as a higher level of control.
- includes a description of a work based psychological intervention, from an empowerment perspective
- the intervention is aimed at improving either motivation, productivity and/or reducing absenteeism by means of problem solving work-related problems, and improving sense of physical or emotional health and well-being

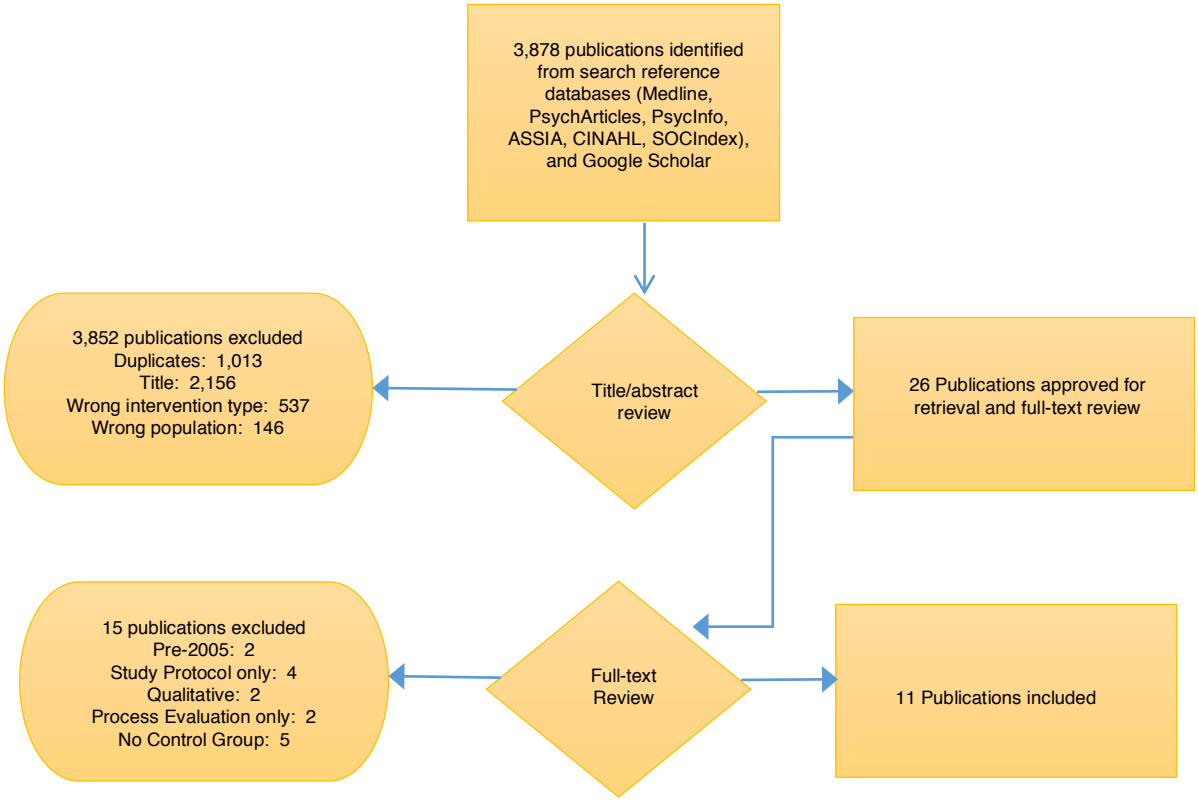
An empowerment perspective has been defined as offering knowledge and skills to clients, enabling them to adopt an active attitude to defining and solving problems. If there was any doubt about inclusion, a second reviewer also screened the abstract. Full text articles were assessed to ensure that the intervention was aimed at increasing the individual's sense of well-being and improving outcomes for either motivation, productivity and/or reducing levels of absenteeism, through the delivery of an intervention from an empowerment perspective.

Further exclusion criteria were then applied, as follows:

- only articles from 2005 onwards
- a study design must include a control group, preferably RCT
- analysis must use quantitative methodology

There were no restrictions concerning intervention type, if the primary method was psychologically based. (*Please see Fig 1, below following flow chart to diagrammatically demonstrate the process followed*)

Fig. 1: Literature Search flow chart



Psychologically based interventions:

The interventions were all categorized into the broad health-related area of lifestyle management, but also had aspects of behaviour change built in to the programme. The interventions included: CBT-based (face to face); MBSR; Web-based CBT; Motivational Interviewing (MI), and Yoga/Hypno-relaxation.

Lifestyle management included any activity that promoted a healthy lifestyle. Although this can include such activities as fitness interventions, these were only included if they had a significant health educational/training component offered through classes, web-based delivery systems, and/or printed literature. Lifestyle management also included an aspect of behaviour change, for example, one-to-one MI coaching.

Outcomes:

Health-related and organisational outcomes are linked to employer-sponsored well-being initiatives have both been included in this review. Therefore, the health-related outcomes included the practice of healthy behaviours (i.e. coping self-efficacy, sleep quality, stress management, work-life fit, exercise behaviour), and self-reported outcomes (i.e. perceived self-efficacy, self-esteem, control, positive emotions, mood, general sense of well-being). The organisation outcomes included indirect costs, such as absenteeism, productivity and turnover. Direct organisational costs have not been reviewed in this paper.

Data collection and analysis:

All studies were reviewed for quality of design utilising a data extraction form (See appendix 1 on Page 43). Quality was assessed under several key headings, including: Study Characteristics; Study Design; Confounders; Data Collection Methods; Withdrawals and Dropouts; Intervention Integrity; and Findings. Each category was then rated as either: Strong, Moderate, or Weak. A final overall rating was then given from the combined ratings from each section. These included: Strong, Moderate, Weak, and Inconclusive. The following features of the interventions were described: objectives of the intervention, intervention methods,

structure of the interventions, number and discipline of trainers, and recruitment procedure, country of origin, and type of organisation. The following characteristics of the studies were assessed: pretest and/or posttest measurement, use of a control group, and number of participants, follow-up period, outcome measures, effectiveness of the intervention, and overall quality rating of the study.

1.3 Results

Search and selection of studies

The initial database search yielded 3,878 citations. After deducting duplicate citations 2865 citations remained. A further 2,839 citations were excluded on Title and Abstract search, due to the wrong type of intervention (i.e. not a work-based employer-sponsored psychological intervention) or population being studied (i.e. not employee). 26 citations were selected for full-text review, however 15 were excluded, on discussion with second reviewer due to additional exclusion criteria (i.e. no control group, study completed pre-2005, was a study protocol or process evaluation, and analysis not quantitative). The additional exclusion criteria were added, to ensure that the citations reviewed were the best-fit for study inclusion.

Characteristics of intervention programs

Table 1 summarizes the features of the interventions, in ascending alphabetical order. The health-related outcomes and organisational outcomes, were the primary goals for all studies. Most authors had also included additional related objectives, which it was felt added to health-related outcomes by improving both physical and mental well-being, which could potentially lead to improved organisational outcomes. In general, the objectives can be classified in the following categories:

- To develop self-management skills (coping self-efficacy, sleep quality, work-life fit, exercise, and stress management skills)
- To increase feelings of physical and mental well-being (perceived self-efficacy, self-esteem, control, positive emotions)
- To improve work-related performance (absenteeism, productivity, job satisfaction, turnover)

Eight interventions consisted of group-based training. The number of sessions varied between 1 and 20 sessions. The group sessions varied between two 10-minutes sessions (1), one-hour (4), three hours (2) and one intensive (2.5 days) which did not specify how this was delivered (Siu, Cooper, & Phillips , 2013).

One of the interventions (Hasson, Anderberg, Theorell, & Arnetz, 2005) was individual web-based training, where participants could log-on as many times as they felt necessary, and download printable material as required. Another intervention (Mills, Kessler, Cooper, & Sullivan, Impact of a Health Promotion Program on Employee Health Risks and Work Productivity, 2007) involved several individual activities, including access to a web-based health information portal, with the addition of individualized health and well-being reports, and four on-site seminars, which focussed on prevalent well-being issues. Only one intervention offered individual MI-based coaching (Butterworth, Linden, McClay, & Leo, 2006), which lasted for 3 months with a minimum of one initial session, followed by two follow-up contacts.

All the interventions, except for the MI-based coaching, offered some form of education, combined with Mindfulness (2), CBT (3), Yoga/relaxation (2), and general well-being training (3). Some interventions were more focussed on work-related problems, such as cultivating better relationships or identification of goals to enhance feelings of well-being, others were more health behaviour change, for example managing issues such as stress in the workplace, others were more orientated toward self-management and prevention, such as teaching employees different techniques for breathing, relaxation, pacing, physical activity, and nutrition. Most interventions were aimed at improving mental and physical well-being of the participants, but one studies focus seemed to be directed at a more organisational objective of improving work performance (Mills, Kessler, Cooper, & Sullivan, Impact of a Health Promotion Program on Employee Health Risks and Work Productivity, 2007).

The trainer in some interventions were qualified health professionals (5), some program structures did not require a trainer, such as web-based training (2), whilst other interventions failed to disclose the number and discipline of the trainers (3). The trainers came from varied backgrounds and included: an organisational/health psychologist, a physiotherapist, qualified MBSR instructors, qualified Viniyoga teacher, and a registered psychologist.

Recruitment procedures varied across the studies, with specific organisational requirements influencing the recruitment methods for some studies, in particular (Kennedy & Ball, 2007), where randomization of participants to control and experiment groups was not possible, due to employer insistence on workers being allowed to select which group they would prefer to be in. Only three of the studies reviewed stated the method of randomization, and four of the studies stated that no randomization occurred. However, the remaining four did not make it clear whether there was any randomization or not. Two of the studies stated the use of incentive measures to recruit participants. Hasson et al (*2005*) utilized an unstated incentive to recruit all participants, where Butterworth et al, only used the incentive of a 'Power Bar' to recruit control group participants. However, most of the studies relied on workers' interest in taking part, except for Mills et al (*2007*), who provided a personalized health and well-being report as an initial part to the study. Therefore, although this is not a formally stated incentive, it could be argued that workers interested in their own health would view this, as an enticing bonus for taking part in the study. Most methods of recruitment involved internal advertisements through internal magazines, posters, flyers, talks, emails and verbal referrals, among others.

Table 1: Features of the Intervention

	Objective of intervention	Intervention Method	Structure of Intervention	Number and Discipline of Trainers	Recruitment Procedure	Country of Origin	Type of Org.
Butterworth, S,. Linden, A., McClay, W., Leo, M.C., (2006)	Primary goal of intervention is to improve both physical and mental health status of university employees	MI-based health coaching	Three-month health-coaching sessions, with a minimum of 1 initial session and 2 follow-up contacts. However, participants determined actual number of sessions based on need and interest. Mean number of sessions was 2.7.	Number of trainers not disclosed, but were MI trained health care professionals (discipline not disclosed)	Experimental group recruited via web site announcements, posters, or verbal referrals. Control group recruited through active enrolment methods with incentive of Power Bar. No randomisation - case/control method.	United States of America	University Setting (White Collar Only)
Edries, N., Jelsma, J & Maart, S. (2013)	To improve HRQoL, by increasing the opportunity for health behaviour change, improvements in BMI, and reduction in absenteeism	CBT plus exercise classes over 6 weeks	Employee Wellness Programme: six 1-hour weekly sessions - 30 minute CBT based health promotion talk & 30-minute exercise class. Control Group received a one-off 30-minute health promotion motivational talk by Physiotherapist + health promotional pamphlets.	1 trainer: Physiotherapist	Promoted by letter to 18 clothing manufacturers (3 agreed to participate). Participation open to all employees & promoted through posters & talks. Approx. 40 workers volunteered at each factory. 30 employees randomly selected by lottery method to take part then randomly allocated to experimental or control group using same method	South Africa	Manufacturing Companies

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	Objective of intervention	Intervention Method	Structure of Intervention	Number and Discipline of Trainers	Recruitment Procedure	Country of Origin	Type of Org.
Geary, C. & Rosenthal, S.L. (2011)	To improve self-reported stress levels and daily spiritual experiences in academic health care workers following completion of an MBSR course; and assess the potential correlation between pulse rate variability and self-reported stress levels.	MBSR over 8 weeks	Mindfulness Based Stress Reduction (MBSR): 8 weekly 3-hour sessions, plus 1 x 8-hour retreat between weeks 5 and 7. No intervention offered to control group.	Taught by certified MBSR Instructor (CAG).	59 participants recruited for experimental group from course participants attending courses between 08/06 and 08/07 from University of Texas Medical Branch. 49 Control group recruited from Neonatal Intensive Care Unit. No randomisation.	United States of America	University Health Care Setting
Hasson, D., Anderberg, U.M., Theorell, T., Arnetz, B.B. (2005)	The primary objective of the intervention was that the intervention group would improve compared to the reference group on biological stress markers and health and recovery-related ratings.	Web-based health promotion and stress management training	Real-time 24/7 access to web-based intervention for a 6-months' period. Exercises offered to participants' in form of web-site plain text, downloadable printable documents, and flash animation involving image and sound. Reference Group (Control) had access to web-based intervention minus cognitive exercises and chat. Exposure for both groups logged via number of logins to website.	Web-based tool developed by Researchers - techniques modified to become more or less self-instructing for self-help purposes.	Ten companies approached by funding organisation (6 out of 10 responded), 2 to 4 departments within each company selected were asked to participate. No incentive offered to participate. N=317 Participants' enrolled (with n=14 excluded). Randomised by lottery into intervention (n=129) and reference (n=174) groups.	Sweden	Information Technology and Media Companies (White Collar Only)

Table 1: Features of the Intervention

	Objective of intervention	Intervention Method	Structure of Intervention	Number and Discipline of Trainers	Recruitment Procedure	Country of Origin	Type of Org.
Kennedy, G.A., & Ball, H. (2007)	To significantly reduce fatigue, improve mood, physical health and satisfaction with work	Hypnorelaxation "power-breaks"	2 x daily 10 minute scripted hypnorelaxation "power-breaks" over a four-week period. Control Group continues with tea breaks yoked to "power-break" sessions.	N/A	Participants recruited (n=75) from small company of 120 employees. No randomisation occurred on request of employer. Employees split between experimental and control group based on employee choice. Experimental group consisted of 18 men and 25 women (n=43). Control group consisted of 14 men and 18 women (n=32).	Australia	Telecommunication Call Centre's (White Collar Only)
Millear, P.M., Liossis, P., Shochet, I.M., & Biggs, H.C. (2008)	Objective of intervention: to promote well-being, improve coping self-efficacy, reduce mental health problems	Resilience training/stress management based on CBT principles	11 x 1hr weekly sessions. Delivered in groups of between 8 and 14 individuals. Interventio n method: Promoting Adult Resilience Programme. (PAR). PAR programme a mixed methods intervention involving: strength & resilience material, stress management, CBT principles, problems-solving techniques, and interpersonal skills.	Registered Psychologist x 1.	Experimental group recruited from small resource sector company (n=150) with only 28 volunteering to take part. Insufficient number for control group, so comparison control group recruited from University through e-magazine article, following link to internet survey (n=71).	Australia	Resource Sector Company (White Collar Only)

Table 1: Features of the Intervention

	Objective of intervention	Intervention Method	Structure of Intervention	Number and Discipline of Trainers	Recruitment Procedure	Country of Origin	Type of Org.
Mills, P.R., Kessler, R.C., Cooper, J., Sullivan, S. (2007)	Objective of intervention: to improve health risk status and work performance	Multi-component health promotional programme	Personalised health and well-being report; access to password protected health promotion portal; tailored 2-weekly emails; paper-based information packs; on-site seminars;	Not reported	Not reported	United Kingdom	Multi-national Manufacturing (White Collar Only)
Page, K.M. & Vella-Brodrick, D.A. (2013)	To help participants identify and apply their strengths, by striving for self-concordant goals, crafting their jobs, getting into flow, and cultivating relationships to enhance well-being	Mixed educational small-group based training	Working for Wellness Programme: six 1-hour small group based sessions. Control group received no intervention.	1 Trainer (first Author): Post-Doctoral Research Fellow (Organisational/Health Psychologist)	Advertisements in host organisations newsletter. Randomly allocated to control or intervention group using random.org	Australia	Government Agency (White Collar Only)
Proudfoot, J.G., Corr, P.J., Guest, D.E., & Dunn, G. (2009)	CBT training programme aimed at changing employees' attributional style, would improve self-esteem, job-satisfaction, psychological well-being, productivity and turnover.	Training programme based on CBT principles.	7 x 3hr CBT based group sessions, followed by review session 3 months after conclusion.	Details not disclosed.	Employees of organisation invited to attend programme, particularly those deemed by managers or themselves to be experiencing stress in their job. 166 employees took part (experimental group: n=81; control group: n=81)	United Kingdom	Insurance Companies (White Collar Only)

Table 1: Features of the Intervention

	Objective of intervention	Intervention Method	Structure of Intervention	Number and Discipline of Trainers	Recruitment Procedure	Country of Origin	Type of Org.
Siu, O.L., Cooper, C.L., Phillips, D.R. (2013)	To decrease participants self-reported levels of burnout, whilst improving work well-being (fewer physical/psychological symptoms, and higher level of job satisfaction) and improving the level of positive emotions. A further objective of the intervention is to show greater improvement in recovery experiences.	Secondary integrated intervention approach	(Study 2 only) A 2.5-day educational training intervention providing stress management techniques, Recovery, and sleep management. No specific behaviour change model mentioned. Control Group received no intervention.	Not disclosed.	50 participants recruited (20 men, 30 women) from primary and secondary teaching profession. Participants volunteered for study asked to recruit colleague for control group. No randomisation occurred.	China	Health Care and Educational Settings
Wolever, R.Q., Bobinet, K. J., McCabe, K., Mckenzie, E.R., Fekete, R., Kusnick, C., Baime, M. (2012)	Primary objective: evaluate viability and proof-of-concept for two mind-body workplace stress reduction programmes. Secondary objective: to evaluate 2 delivery methods (i.e. online vs. in-person).	2 x Mindfulness-Bases-Stress-Reduction programmes (one in-person, and one on-line); Viniyoga Stress-reduction Program (in-person only)	MBSR: 12 x hour-long sessions, plus 1 x 2hr intensive practice session in week 10. The online version was provided in an online virtual classroom that allowed for real-time bi-directional communication. VSRP : 12 x hour-long weekly sessions, introducing tools for managing stress including physical postures, breathing techniques, guided relaxation, and mental techniques. Control group received same assessments, but only	MBSR: Same experienced mindfulness meditation teacher for both in-person and online interventions. VSRP: Taught by qualified American Viniyoga Institute teachers for both in-person sites,	Recruitment emails directed interested employees to dedicated internal website offering study information and consent, plus screening documents. Employees only admitted to study if scored 16 or more on PSS and met study's strict inclusion criteria. 239 out of possible 683 eligible for study. Participants then randomised into MBSR (online & in-person), VSRP, and control groups. Method	United States of America	Insurance Company (White Collar Only)

Table 1: Features of the Intervention							
	Objective of intervention	**Intervention Method**	**Structure of Intervention**	**Number and Discipline of Trainers**	**Recruitment Procedure**	**Country of Origin**	**Type of Org.**
			received list of resources offered by employer.		of randomisation not explained.		

Feasibility of the interventions

Only one study considered the feasibility of the intervention program (Page & Vella-Brodrick, 2013), which used participant feedback and facilitator's field notes to determine the effectiveness of the program. The Author's suggested that work-based interventions that focus on improving individual well-being might be more cost-effective for many organisations restricted by time or budget, instead of large-scale organisational initiatives. However, this statement could not be corroborated through the data.

One study compared the effectiveness of a MBSR intervention with a Viniyoga Stress Reduction intervention, within the same workplace settings (Wolever, et al., 2012). The control group was provided with a list of resources, which were available from their employer (e.g. discounted fitness programs, Behavioural health services, wellness coaching, etc.). A secondary objective was to test the effectiveness of the MBSR delivery, i.e. in-person in a conventional classroom setting, or online through a virtual classroom, which allowed for bi-directional communication. Both the Yoga program and the MBSR were shown to be effective at reducing stress for Group x Time Differences, but had no effect on productivity compared to the control group. Interestingly, both modes of delivery for the MBSR intervention (i.e. in-person or online) proved equal in their effectiveness as a means of delivering interventions.

Methodological quality of the studies and outcome measures

Table 2 details the characteristics of the studies reviewed in ascending alphabetical order. All studies were quantitative in design, albeit one study which had a qualitative aspect to the study (Page & Vella-Brodrick, 2013). However, for the purposes of this review the qualitative data has been excluded from the analysis. All the studies reviewed used a control group, with five using a randomized controlled trial (RCT), five using a non-randomized control design, and one (Butterworth, Linden, McClay, & Leo, 2006) utilising a non-randomized matched case control group to minimize the effect of selection bias. The number of participants varied between 28 and 618 for the intervention group. Numbers for the

control group varied between 30 and 1679. However, it must be noted that the highest number of participants for both the intervention and control groups came from web-based studies. The highest number for group-based interventions was 81 for the intervention and 81 for the control group (Proudfoot, Corr, Guest, & Dunn, 2009). On the only face-to-face individual intervention (Butterworth, Linden, McClay, & Leo, 2006), there were 145 in the intervention, with 133 in the control, with 44 in both the case control groups. Follow-ups varied between 3 and 12 months. However, most studies (6) only did a posttest data collection, with no follow-up. The 12-months' follow-up was only completed for the study considering mainly organisational outcome measures (Mills, Kessler, Cooper, & Sullivan, Impact of a Health Promotion Program on Employee Health Risks and Work Productivity, 2007).

Table 2: Study Characteristics: methodological characteristics, outcome measures and results

	Pre-test / Post-test Measurement and Use of Control Group	No. of Participants (+ Controls)	Follow-up after Intervention	Outcome Measures	Results	Overall Assessed Quality of Study
Butterworth, S,. Linden, A., McClay, W., Leo, M.C., (2006)	Pretest - posttest, with non-randomised control group. Matched case control group used to minimise effect of selection bias.	145 intervention (+ 133 control); Cases 44 (+ 44 matched control)		Health Survey (SF-12 v2)	Statistically significant improvements shown in intervention group for both Physical ($p = .035$) and Mental Health ($p < .001$) components of health survey. No significant improvements in control group. Although similar improvements to PCS and MCS scores for case-control group, insufficient sample size to prove statistical significance.	Strong
Edries, N., Jelsma, J & Maart, S. (2013)	Pretest - posttest, with randomised control group	39 intervention (+ 41 control).		Health-related Quality of Life (HRQOL), Absenteeism, Exercise Behaviour, BMI	No significant differences were found in HRQOL. Exercise Behaviour increased significantly for all exercise behaviours except swimming within intervention group, but no significant differences between groups. No significant difference for Absenteeism. Significant reduction in BMI within intervention group ($p<0.001$), but not between groups.	Strong

Table 2: Study Characteristics: methodological characteristics, outcome measures and results

	Pre-test / Post-test Measurement and Use of Control Group	No. of Participants (+ Controls)	Follow-up after Intervention	Outcome Measures	Results	Overall Assessed Quality of Study
Geary, C. & Rosenthal, S.L. (2011)	Pretest - posttest, with non-randomised control group	59 intervention - University employees, (+ 49 control group - New-born Nursery and neonatal ICU employees)	At one year follow-up	Perceived Stress Score, General sense of well-being, and daily spiritual experience	Significant improvements found in all aspects, except physical component under general sense of well-being for intervention group. No significant results for control group Results maintained at one-year follow-up.	Moderate
Hasson, D., Anderberg, U.M., Theorell, T., Arnetz, B.B. (2005)	Pretest - posttest, with randomised control group	129 intervention (+ 174 control)		Self-related health, Stress and Well-being at work, health economics and performance at work. Please note: biological markers have been excluded from this analysis.	Significant improvements were across all areas ($p < .05$) between intervention and control group.	Moderate
Kennedy, G.A., & Ball, H. (2007)	Pretest - posttest, with non-randomised control group	43 intervention (+ 32 control)		Physical health, mood, job satisfaction.	Physical Health symptoms and mood showed slight improvement, but was not significant. However, interact effect between groups and time was significant for both ($p<.005$ and $p< .01$ respectively). Job satisfaction effects for group not significant, but effect over time was ($p< .01$)	Strong

Table 2: Study Characteristics: methodological characteristics, outcome measures and results

	Pre-test / Post-test Measurement and Use of Control Group	No. of Participants (+ Controls)	Follow-up after Intervention	Outcome Measures	Results	Overall Assessed Quality of Study
Millear, P.M., Liossis, P., Shochet, I.M., & Biggs, H.C. (2008)	Pretest - posttest pilot. with non-randomised control group	28 Intervention (+ 71 comparison control)	At 3 months, and 9 months	Mental health: including depression, anxiety and stress. Well-being: including satisfaction with life, self-efficacy, coping, and work -life fit.	Intervention group showed significant improvements, in coping self-efficacy ($p < .01$), decreases in stress levels ($p < .001$) and depression, and greater work-life fit ($p < .05$), compared to control group. These results were consistent across follow-ups.	Moderate
Mills, P.R., Kessler, R.C., Cooper, J., Sullivan, S. (2007)	Pretest, with non-randomised control group	618 intervention from U K companies (+ 1679 control from community)	12 months after baseline	Absenteeism, work performance, and Health Risk Assessment	Improvements in all three-outcome measures ($p < .05$) were significantly greater in intervention group compared to control group.	Weak
Page, K.M. & Vella-Brodrick, D.A. (2013)	Pretest - posttest, with randomised control group	31 intervention (+ 30 control)	At 3 months, 6 months, and de-brief / focus group at one year	Utilised Theoretical model of employee well-being (Page & Vella-Brodrick, 2009), including subjective well-being (Psychological Well-being (PWB), Subjective Well-being (SWB) and Affective Well-being (AWB)) and workplace well-being (WWB).	Significant time by group interactions for PWB ($p < .01$) and SWB ($p < .05$). Significant main effect of group on AWB ($p< .01$). No significant effects on WWB. Feedback suggested focus on strengths and group delivery most effective components.	Strong

Table 2: Study Characteristics: methodological characteristics, outcome measures and results

	Pre-test / Post-test Measurement and Use of Control Group	No. of Participants (+ Controls)	Follow-up after Intervention	Outcome Measures	Results	Overall Assessed Quality of Study
Proudfoot, J.G., Corr, P.J., Guest, D.E., & Dunn, G. (2009)	Pretest - posttest, with randomised control group	81 intervention (+ 81 control)	At 3 months	1. Psychological Outcomes: Attributional style, psychological distress, job satisfaction, self-esteem, job withdrawal cognitions. 2. Organisation Outcomes: Bottom line financial results, and sales productivity.	Consistent improvements in all psychological areas directly post intervention ($p < .001$) and at 3-months follow-up for intervention group compared to waiting-list control group. Similar improvements were shown when intervention delivered to waiting-list control group following 3-month period. Organisational outcomes showed similar improvements between intervention and waiting-list control group with Productivity ($p = .05$) and turnover ($p < .002$).	Strong
Siu, O.L., Cooper, C.L., Phillips, D.R. (2013)	Study Two Only: Pretest / posttest, with non-randomised control group	50 intervention (+ 48 control)		Work well-being, positive emotions, and emotional exhaustion	No significant differences between group, but intervention group showed slight increases in positive emotions, and slight decreases in levels of emotional exhaustion. Only partial support for Hypothesis 2.	Moderate

Table 2: Study Characteristics: methodological characteristics, outcome measures and results

	Pre-test / Post-test Measurement and Use of Control Group	No. of Participants (+ Controls)	Follow-up after Intervention	Outcome Measures	Results	Overall Assessed Quality of Study
Wolever, R.Q., Bobinet, K. J., McCabe, K., Mckenzie, E.R., Fekete, R., Kusnick, C., Baime, M. (2012)	Pretest - posttest, with randomised control group	96 Mindfulness, 90 Yoga, (+ 53 control)		**Objective 1:** Primary outcome - Perceived stress; Secondary outcomes - sleep quality, mood and pain, productivity, mindfulness. **Objective 2:** same outcome measures as Objective 1. Please note Biological Markers have been excluded from this analysis.	**Objective 1:** statistically significant differences in both intervention groups for perceived stress ($p<0.001$) and sleep quality ($p<.05$). Improvements also shown for mood and work productivity but were not statistically significant. **Objective 2:** No significant differences were found between mindfulness intervention modes of delivery.	Moderate

Outcome of the interventions

It must be noted that no one study reported on all outcome measures, i.e. development of self-management skills, increase in feelings of physical and mental well-being, and improvements in work performance. Therefore, we have reported each outcome measure individually, but not combined them as a whole.

The development of self-management skills was assessed (coping self-efficacy, sleep quality, stress management, work-life fit, exercise behaviour) was assessed in some of the studies reviewed. Most studies showed significant differences between the intervention and control groups across all self-management skills, including perceived sleep quality (Wolever, et al., 2012), coping self-efficacy, work-life fit (Millear, Poppu, Shochet, Biggs, & Donald, 2008), increased exercise behaviour (Edries, Jelsma, & Maart, 2013), and statistically significant decreases in levels of stress were seen in most of the studies reviewed. In the studies that included a follow-up, the results appeared to remain consistent.

The increase in feeling of physical and mental well-being (perceived self-efficacy, self-esteem, control, positive emotions, mood, general sense of well-being) was assessed in several of the studies reviewed. Most studies showed significant improvements in both physical and mental well-being, for example using the Health Survey (SF-12v2) Butterworth et al (*2006*) showed statistically significant improvements in both areas of well-being. However, due to an insufficient sample size in the case-control group, this could not be proven as significant, despite the results being similar. Significant results were also identified for perceived self-esteem, self-efficacy, improved mood, increase in positive emotions, and general sense of well-being for several studies, e.g. Proudfoot et al (*2009*). Interestingly, similar effects were found in the waiting list control group, when the intervention was delivered to them after the 3-months follow-up. However, this only showed a posttest result, as follow-ups on the control group were understandingly not taken (Proudfoot, Corr, Guest, & Dunn, 2009).

In two of the studies improvements in work-related performance was seen across all organisational outcomes, namely absenteeism, productivity, and turnover (Proudfoot, Corr, Guest, & Dunn, 2009) (Mills, Kessler, Cooper, & Sullivan, Impact of a Health Promotion Program on Employee Health Risks and Work Productivity, 2007). However, this improvement in organisational outcomes was not consistent with the findings of other studies, where no such improvements were demonstrated (Page & Vella-Brodrick, 2013) (Edries, Jelsma, & Maart, 2013) (Siu, Cooper, & Phillips , 2013). In these studies, improvements were shown on an individual level, but not an organisational one. Wolever et al (*2012*) did show some improvement in productivity, but this was not significant. With regard to job satisfaction, Kennedy and Ball (*2007*) did not find that 'Power Breaks' were an effective intervention for improving organisational outcomes and individual outcomes only showed a slight improvement.

1.4 Discussion

Eleven studies were reviewed, to determine the feasibility of psychologically based interventions, aimed at improving individual health-related outcomes (i.e. coping self-efficacy, sleep quality, stress management, work-life fit, and exercise behaviour); self-reported outcomes (i.e. perceived self-efficacy, self-esteem, control, positive emotions, mood, and general sense of well-being); and organisational outcomes (i.e. absenteeism, productivity and turnover) . The selected studies varied in their method of intervention, recruitment procedures and outcome measures. Therefore, the heterogeneity meant that it was not feasible to combine the results in a meta-analysis. However, it does offer the opportunity to consider both the impact and the potential advantages of the diversity of approaches. All the interventions methods combined an educational aspect with a recognized psychologically based training component, which together provide a mix of knowledge and skills to enable the worker to define and achieve their own goals. Unfortunately, it was not possible to discern whether any intervention within a workplace setting was more effective than any other. However, all showed some form of increase in self-confidence for the workers taking part, with some studies showing a greater or lesser amount of success in meeting both individual and organisational outcome measures.

Of the studies that considered an organisational outcome measure, most were relatively successful in improving some, but not all, aspects. The types of intervention that were considered regarding organisational outcomes were: CBT-based (face-to-face); MBSR, and Web-based CBT. All studies had a RCT design, except for one. MBSR showed moderate improvements only, whilst CBT and web-based CBT were divided on organisational results. This mix of results recognizes the importance of determining the objective outcome, prior to determining the design of the intervention.

For organisational outcomes, no one intervention stood out as being stronger. However, some studies were stronger in their methodology than others. For example, Mills et al (*2007*) used a non-randomized quasi-experimental design.

Despite the lack of randomization, the control group was sufficiently similar to provide an acceptable level of consistency as the control group was recruited from the community of people who were office based and worked in the service sector. However, it is not known whether the control group was recruited from similar organisations in respect to size, region and turnover. Also, the relatively high level of drop-outs at follow-up for the intervention group could not be explained fully by the Authors. This high level of drop-out may have been reflected in the positive results, but how much of an effect is unclear.

Regarding the other studies which considered organisational outcomes; all used a RCT design, which is usually seen as the gold standard. Two of those studies showed no significant differences for organisational outcomes. This is possibly due to the data the self-reported nature of the data, which was not supported by actual data from the companies. One study, (Proudfoot, Corr, Guest, & Dunn, 2009) stated that an RCT design was implemented, did show improvement for organisational outcomes, but gave no description of the method of randomization. Factual data with respect to productivity and turnover was utilized to obtain this result, but no data for absenteeism was collected in this study. Therefore, considering the negative results it is impossible to come to any conclusions concerning effectiveness of these interventions on organisational outcomes.

Regarding personal improvements, the types of interventions can be categorized into: CBT based, MBST, Web-based CBT, MI based coaching, and Hypnorelaxation. Most were shown to be effective in some aspects of individual outcomes, both for the development of self-management skills and increases in physical and mental well-being. However, it was not clear whether any psychological intervention was any more effective than another. Each intervention type had a mix of RCT and non-randomized designs, but this did not appear to impact greatly on the results. CBT-based interventions seemed stronger at improving general sense of well-being, whereas MBSR interventions results appeared to be a more effective intervention for both stress and sense of well-being. This was also the case for the web-based CBT intervention. The results for MI-

based coaching also seemed effective in stress reduction and improving a general sense of well-being. However, hypno-relaxation only showed slight improvement, but nothing significant. As was seen with the organisational outcomes, it reflects the importance of determining the objective of the intervention, before determining the type best suited to meet those needs.

Although many studies claimed effectiveness, it was not always supported by strong evidence based on a strong study design. All studies in this review made use of a control group, as this was one of the criteria for selection into this review. However, the number of participants in some studies was low, with only one study describing itself as a randomized controlled pilot study, which would allow for fewer numbers of participants (Wolever, et al., 2012). Several aspects of the studies reviewed were excluded from this review. Firstly, in relation to Sui et al, (*2013*), only study 2 was included in this review, as study 1 did not contain a control group. Secondly, physiological results in both Edries et al, (*2013)* and Mills et al (*2007*) have been omitted in this review.

A limitation of this study was the limited number of studies reviewed. Although several different sources were used to retrieve suitable studies, it is unknown whether further suitable articles would have been identified if different databases had been utilized. A further limitation, is the comparisons made between publications was difficult due to the variety of outcomes, the different interventions reported, as well as insufficient details about the interventions provided by many articles.

Conclusion:

Our results may have implications for the feasibility of psychologically based workplace interventions. The studies in this review, suggests that further research needs to be undertaken in this area, due to the dearth of literature on psychologically based interventions. This review has shown that the feasibility of the type of intervention is highly dependent upon the objective purpose for implementing it. It has determined that interventions based around CBT, MBSR, MI-based Coaching,

and Web-based CBT, are all effective to a small degree in improving an employee's sense of well-being, but can equally have an impact upon organisation outcomes such as absenteeism, productivity, and turnover, which may go some way to reducing the costs relating to absenteeism, identified at the start of this review. However, causal relationships between psychologically based interventions and employee well-being and organisational outcomes has not been addressed by this review. Therefore, further research is needed to support the implementation of a psychologically based well-being intervention. Specifically, randomized controlled trials and economic review into the feasibility of implementation, including the causal relationship between participation in a well-being intervention and the organisational and individual health-related outcome measures; and the relationship between these outcome measures and possible factors affecting the success.

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Appendix 1: Data Extraction Form

Data Extraction Form | SYSTMEMATIC REVIEW | Work Wellbeing Intervention

Ref. ID:		Review Date:		Checked by:	
Author, Year:					
Journal/Source:					
Country of origin:					
Publication Type:	Fulltext				
	Abstract				
	Book Chapter				
	Internal Progress Report				
	Other (Please Specify)				

Intervention Type:				Fate:		
Weight Mgt:	YES	NO	If No, Exclude	Decision Pending	YES	NO
Exercise:	YES	NO	If No, Exclude	Check References	YES	NO
Coaching:	YES	NO		Use for Discussion	YES	NO
MBCT:	YES	NO		EX without listing	YES	NO
CBT:	YES	NO		EX with listing	YES	NO
Mixed:	YES	NO		Other (please specify)	YES	NO

Section A - Study Characteristics:

Selection Bias:

Q1. Are the individuals selected to participate in the study likely to be representative of the target population?

1 Very Likely
2 Somewhat Likely
3 Not Likely
4 Can't tell

Q1. Answer:

Q2. What percentage of selected individuals agreed to participate?

1 80 - 100% Agreement
2 60 - 79% Agreement
3 Less than 60% Agreement
4 Not Applicable
5 Can't Tell

Q2. Answer:

Rate this selection:	STRONG	MODERATE	WEAK
	1	2	3

Section B - Study Design

Q 1. Indicate clearly the study design:

1 Randomised Controlled Trial
2 Non-Randomised Pre-Post Intervention
3 Cohort analytic (two group pre + post)
4 Case Control
5 Cohort (one group pre + post (before and after))
6 Interupted time series
7 Other specify:
8 Can't tell

Q1. Answer:

Q2. Was the study described as randomised? If NO, go to Component C: YES NO
Q3. If YES, was the method of randomisation described? Yes NO
Q4. If YES, was the method appropriate? YES NO

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Rate this selection:	STRONG	MODERATE	WEAK
	1	2	3

Section C - Confounders

Q1: Were there important differences between groups prior to the intervention?

1 Yes
2 No
3 Can't tell

Q1 Answer:

If YES, what was the confounder:

1 Race
2 Sex
3 Marital Status/family
4 Age
5 SES (income or class)
6 Education
7 Health Status
8 Pre-intervention score on Outcome measures
9 Other, specify:

Answer:

Q2. If yes to Q1, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?

1 80 - 100% (Most)
2 60 - 79% (Some)
3 Less than 60% (few or none)
4 Can't tell

Q2 Answer:

Rate this selection:	STRONG	MODERATE	WEAK
	1	2	3

Section C - Data Collection Methods

Q1. Were data collection tools shown to be valid?

1 Yes
2 No
3 Can't tell

Q1 Answer:

Q2. Were data collection tools shown to be reliable?

1 Yes
2 No
3 Can't tell

Q2 Answer:

Rate this selection:	STRONG	MODERATE	WEAK
	1	2	3

Section D - Withdrawals and Drop-Outs:

Q1. Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?

1 Yes
2 No
3 Can't Tell
4 Not Applicable (i.e. One time surveys or interviews)

Q1 Answer:

Q2. Indicate percentage of participants completing the study. (if percentage differs by group record the lowest).

1 80 - 100%
2 60 - 79%
3 Less than 60%
4 Can't Tell
5 Not Applicable (i.e. Retrospective case-control)

Q2 Answer:

Rate this selection:	STRONG	MODERATE	WEAK
	1	2	3

Section E - Intervention Integrity

Q1. What percentgage of participants received the allocated intervention or exposure of interest?

1 80 - 100%
2 60 - 79%
3 less than 60%
4 Can't tell

Q1 Answer:

Q2. Was the consistency of the intervention measured?

1 Yes
2 No
3 Can't tell

Q2 Answer:

Q3. Is it likely that participants received and unintended intervention (contamination or co-intervention) that may influence the results?

1 Yes
2 No
3 Can't tell

Q3 Answer:

Rate this selection:	STRONG	MODERATE	WEAK
	1	2	3

Section F: Findings

Q1. Did the findings address the research purpose?

1 Yes
2 No
3 Can't tell

Q1 Answer:

Q2. To what extent are the study finding generalisable?

1
2
3

Q2 Answer:

Data Extraction Form | SYSTMEMATIC REVIEW | Work Wellbeing Intervention

Q3. What is the country of study?

Q4. Are the study findings applicable to the system in the UK?

1 Yes

2 No

Q4 Answer:

Rate this selection:	STRONG	MODERATE	WEAK
	1	2	3

Section Rating:	
Section	**Rating**
A	
B	
C	
D	
E	
F	

Overall Rating:	
Strong	
Moderate	
Weak	
Inconclusive	

Comments:

2.0 SYSTEMATIC REVIEW UPDATE

As the Systematic Review was undertaken in 2014, a further search was carried out for 2015 – 1017, utilising the same search parameters as the original review. The search identified 8 additional papers published during this period. However, following a full review of the 8 papers, 6 were excluded according to the Systematic Review exclusion criteria. The final selection contained only 1 published papers, which fitted the inclusion criteria for this Review update. The papers included in this Systematic Review update, is detailed in Tables 1 and 2 (below).

Table 1 (below) summarises the features of the intervention. As with the Systematic Review, the general objectives in both above studies were consistent with those previously identified, i.e. to develop self-management skills, increase physical and mental wellbeing, and improve work related performance.

The study offered interventions which developed individual self-management skills as around a theme of health promotion/health prevention. The intervention involved a 6-week self-management programme, adapted from the Chronic Disease Self-Management Programme (Lorig & Holman, 2003). The methodological design utilised a quasi-experimental, wellness standard of care comparison (waiting-list control group), prospective cohort design. The Study utilised a pre-test and post-test measurement, as well as follow-up data collection (see table 2 below).

Although the study was apparently workplace focussed, however there was no measures taken in relation to employment related outcomes, such as absenteeism, Presenteeism, etc. Recruitment procedures included a geographic block randomisation procedure which was designed specifically for the study. The intervention considered topics such as wellbeing, levels of physical activity, nutrition, and stress management, goal setting, and action planning, etc. The intervention was delivered by specifically trained wellness instructors already known to the organisation. Recruitment procedures were relatively robust, with only a few concerns with the lack of heterogeneity of participants were very apparent, i.e.

participants were mainly white non-Hispanic females. Therefore, replication of the results may be affected if a different population was used, where race and/or gender differed significantly. Participant numbers were adequate (N=73 for Intervention Group; N= 52 for Wellness Standard of Care Comparison Group), with relatively high drop-outs reported, with only 54 participants out of 73 completing the intervention, and a further 12 not completing the follow-up data collection.

In conclusion, since 2014, there remain a low number of studies considering psychological interventions within the workplace from an empowerment perspective, with only two studies fitting the criteria for the systematic review. The intervention reviewed was primarily designed to promote healthier living for all workers, and did not specifically consider employees with long-term health conditions, where issues relating to health management and absence within the workplace are critical. The study had a few methodological issues mentioned above, such as the lack of organisational outcome in Schopp and colleagues (2015) study, which made assessing the interventions suitability in the workplace challenging. These methodological issues in the study put into question the heterogeneity of the interventions provided, and whether the results could be replicated with more heterogeneous population and/or in a different type of organisation. The conclusions therefore, remain consistent with the existing Systematic Review, undertaken in 2014, showing a dearth of quality studies into the development of effective workplace psychological interventions from an empowerment perspective, particularly for those with long-term health conditions, as managing absence levels and maintaining performance for those with chronic health concerns is still a key issue for many employers and employees alike.

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Table 1: Features of the Intervention

	Objective of interventions	Intervention Methods	Structure of Intervention	Number and Discipline of Trainers	Recruitment Procedure	Country of Origin	Type of Organisation
Schopp L.H., Bike D.H., Clark M.J., Minor M.A. (2015)	Objective of the intervention was to address health prevention behaviours using a self-management model specifically for employees during the work day	A multi-component health prevention programme including action planning, goal setting, etc. The intervention was adapted from the Chronic Disease Self-Management Programme.	6-weekly 50 minute sessions	Specifically, trained co-leaders (i.e. already had an existing relationship with the employer wellness programme)	Participants recruited vial advertisement, email, and dissemination via networks. 125 attended pre-enrolment, from which 91 participants were recruited. 50 received the intervention immediately, 41 were placed in a waiting list control group, and received the intervention 6-weeks later.	USA	University Setting

Table 2: Study Characteristics: methodological characteristics, outcome measures and results

	Pre-test / Post-test Measurement and Use of Control Group	No. of Participants (+ Controls)	Follow-up after Intervention	Outcome Measures	Results	Overall Quality of Study
Schopp L.H., Bike D.H., Clark M.J., Minor M.A. (2015)	Pretest - posttest, with block randomisation and waiting-list control group	N=91 Participants. (N=50 intervention; N=41 waiting–list control).	3-months follow-up	Self-related Abilities for Health Practices (SRA); Health Promoting Lifestyle Profile II (HPLP-II);	Significant differences were found for Health Self-efficacy and health behaviour frequency from baseline to post-intervention ($p<0.001$). Significant differences were also found between post-intervention and follow-up ($p<0.005$)	Strong

3.0 ABSTRACT

Aim: The aim of this feasibility study is to design and evaluate the effectiveness of providing a self-management workplace intervention to employees with long-term health conditions, working in a Civil Service Department. **Method:** The WISH intervention (Well-being Intervention for Self-managing Health) was delivered in four-weekly sessions to two intervention groups, and compared to a waiting-list control group. 33 individuals took part in the study, with 21 participants (17 = female; 4 = male) taking part in the intervention, and 12 participants (11 = female; 1 = male) in the waiting-list control group. The Individual outcomes were competence, Self-efficacy, and well-being. The Organisational outcomes were: Absenteeism, Presenteeism, and Work-engagement. Measures included the Perceived Competency Scale (PCS); the Stanford Self-Efficacy for Managing Chronic Diseases (CDSE); the Stanford Presenteeism Scale (SPS-6); the Utrecht Work Engagement Scale (UWES); a modified version of the Gallup-Healthways Well-being Index; and a study-specific demographic questionnaire. Baseline data was taken at pre-intervention, followed by subsequent data being recorded at post-intervention, 3-months and 6-months. **Results:** The intervention demonstrated significant increase for Competence, Self-efficacy and Well-being over the 6-month period. A significant decrease in Absenteeism was also found over the 6-month period of the study. There were no differences found for primary health diagnosis, gender, or age. **Conclusion:** The feasibility study found the WISH workplace intervention, for employees with long-term health conditions, to be an effective programme for reducing organisational absenteeism in those with health concerns, but equally a beneficial and positive experience for the individual employees in empowering them to manage their health and well-being within the workplace setting.

4.0 INTRODUCTION

'Work well-being' is a hot topic in the UK today. The Chartered Institute of Personnel Development (CIPD) defines work well-being as a balance between the needs of the employee and the needs of the organisation. Thereby, 'creating an environment to promote a state of contentment which allows employees to flourish and achieve their full potential for the benefit of themselves and their organisation' (Chartered Institute of Personnel Development, 2007). A working definition by NICE cites: "*Mental well-being is a dynamic state in which the individual is able to develop their potential, work productively and creatively, build strong and positive relationships with others and contribute to their community. It is enhanced when an individual is able to fulfil their personal and social goals to achieve a sense of purpose in society*" (Foresight Mental Capital and Well-being Project, 2008). This eudemonic approach suggests there is a strong connection between physical and mental health and well-being. Research has shown that being in work is generally good for people's health and well-being (Waddell & Burton, Is work good for your health and well-being?, 2006), by providing economic stability, social networking and self-esteem that are all essential aspects of an individual's physical and mental well-being (The Sainsbury's Centre for Mental Health, 2007). However, remaining in work is not always easy if faced with a mental or physical health condition. Statistics have provided clear evidence regarding the considerable costs, associated with mental and physical well-being in the workplace, for example cardiovascular disease costs £8 billion per year in productivity loss, £29 billion in sickness absence, and £15.1 billion in Presenteeism (See Fig. 1 below) per year (British Heart Foundation). This burden weighs heavy, not just on the employer, but also on the employee. In addition to this, the impact of a significantly changing age profile of the UK workforce, predicting that by 2020 as much as a third of workers in the UK labour market will be aged over 50 (Banner, 2011). Due to these aging trends in the workforce, the prevalence of long-term health conditions that contribute to workplace pain, fatigue, task limitations, and reduced productivity, as well as absenteeism, is likely to increase over the coming years, caused by conditions such as low back pain, arthritis, depression, diabetes, heart disease, and asthma.

However, it must be noted that this is not limited to older workers; even among younger workers the prevalence of obesity and the onset of Long-Term Health Condition's (LTHC) has increased (Office for National Statistics, 2015). Therefore, the importance of devising effective and sustainable solutions to these issues is more important than ever.

Fig. 1: What does poor health and well-being cost UK business (British Heart Foundation)

The eudemonic definition adopted by NICE is synonymous with interventions focussed on well-being, that are implemented to promote employee health. Encouraging employees to look after their mental and physical health and well-being (for example making healthy choices such as a balanced diet and exercising, helping to build mental and emotional resilience) is not just a major concern of the National Health Service (NHS). It is also a burden employers must share, although where this responsibility for workplace health and well-being lies is contested. The Disability Discrimination Act (1995) and the Equality Act (2010) have put a legal framework in place requiring employers to make appropriate work place adjustments and provide suitable support for individuals with health conditions. However, the situation of employer responsibility, was made clearer by NICE, who looked at the employer's role in, and responsibility for the promotion of mental health and well-being in the workplace (National Institute for Health and Care Excellence

(NICE), 2015). NICE recommended that employers make health and wellbeing a core priority, encouraging a consistent, positive approach to all employees', and establishing clear links between employees' health and well-being and improved productivity. NICE also suggested that employers should offer support and training to employees to help them feel more competent, and promoting a sense of community. Thus, the importance of devising and implementing effective workplace interventions which enhance employee's feelings of competence and well-being are crucial, from the prospective of both the individual employee, as well as providing financial benefits to the employer.

Besides the cost of ill health at work, the potential threats to individuals coping strategies, for example the potential of losing their job, due to persistent sickness absences, is a real threat. So much so, those workers are often resorting to utilizing annual leave entitlement to buffer the effects of their continual absences. However, despite this, most working-age adults with LTHC's desire to remain in paid employment. For employers, the cost of sickness absenteeism is increasing dramatically, with costs of almost £29 billion for UK organisations' alone (Stevens, 2013; The Sainsbury's Centre for Mental Health, 2007). In addition, the Government is cutting back drastically on welfare bills, forcing adults with long-term conditions to re-enter the workplace, putting a further strain on the absence figures, as individuals with LTHC's have an increased likelihood to require more time off due to ill-health. Therefore, evidence-based interventions designed to help workers to remain in employment by developing a greater understanding of self-management strategies. This will enable employees to take a more pro-active approach to maintaining their long-term health conditions, have a financial benefit to employers, as well as providing employees with a greater sense of control over how much their health may impact on their work-life. This primary health promotion interventional approach has been defined by the World Health Organisation as the process of enabling individuals to "*increase control over, and to improve their health*" and state that "*To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realise aspirations, to satisfy*

needs, and to change or cope with the environment" (World Health Organisation (WHO), 2009).

However, a systematic review undertaken, by the current author (Jones & Whitehead, 2014), found that there was a dearth of quality studies utilising the self-management approach to the development of organisational interventions that empower employees with LTHC's. Evidence-based interventions (e.g. that enable employees to develop skills, that will not only improve their own personal sense of well-being and self-efficacy, but also to have an impact on organisational outcomes, such as reduced absenteeism and increased productivity, are few and far between. It is important to remember, that sound employer policies and practices are crucial in preventing unnecessary cases of work disability. However, enhancing employee self-efficacy and well-being through self-management skills training (e.g. problem solving, goal-setting, managing stress through mindfulness, sleep management, etc.), would be a further feasible strategy that may lead to increased productivity and motivation, and a reduction in absenteeism, as well as increasing an individual employees' ability to cope in the face of ill-health adversity. Therefore, in light of the findings from the systematic review, and in consideration of all the issues mentioned above, such as the costs of ill health to both the individual employee and to the organisation, as well as the shared onus of responsibility for health and well-being, this feasibility study hypothesised that an intervention, specifically designed to utilise the principles of LTHC self-management within the workplace setting, may be effective in achieving both these individual and organisation outcomes.

4.1 Theoretical Background

According to Michie and colleagues, the process of designing an intervention suggests that all types of intervention must have a system, enabling the designer to match the characteristics of the intervention to the behaviour change desired, the target population, and the situation in which the intervention is being delivered (Michie, Atkins, & West, The behaviour change wheel: A Guide to Designing Interventions, 2014). They go on to describe an evaluative framework which can be used to determine the usefulness of an intervention, namely:

comprehensiveness, i.e. ensuring that the design does not miss options that may be helpful; coherence, i.e. utilising topics that come together without overlapping under a similar subject heading; and finally linked to overarching models of behaviour, so that it is possible to draw on evidence from behavioural science. This framework, provides a useful means by which to design and evaluate the intervention for employees with long-term health conditions in this study. However, the suitability of the framework to a work-based health behaviour change intervention remains untested, therefore it will be used as a means of guidance only.

In a working population, a need for a certain amount of employee autonomy in managing long-term health conditions is desirable to reduce the impact of the illness on the organisation (Egan, et al., 2007). Therefore, designing a work specific intervention which enhances employee autonomy is desirable, both for the employee themselves and the employing organisation. This requires a theoretical evidenced-based approach which develops this sense of autonomy, but also enhances the individuals' motivation to continue performing those autonomous behaviours and actively utilising support mechanisms within the work environment to reduce the chances of the behaviour changes relapsing. Thus, for the purposes of this feasibility study, an intervention that fulfils the determination for usefulness, as outlined by Michie and Colleagues (Michie, Atkins, & West, The behaviour change wheel: A Guide to Designing Interventions, 2014), should therefore utilise the theoretical approaches of the Theory of Planned Behaviour (TPB) (Ajzen L. , 1991) and Self-Determination theory (SDT) (Deci & Ryan, 2002).

4.2 Theories of Health Behaviour Change:

The application of theory is posited as an essential step, by the UK Medical Research Council's guidance for developing and in designing and evaluating an intervention (Campbell, et al., 2007; Campbell, et al., 2000). Therefore, in determining the most appropriate theories for the design framework of the intervention, several theories were considered in this process. These included the Health Belief Model (HBM), the Theory of Reasoned Action (TRA), and the Trans-Theoretical Model (TTM). The HBM (Janz & Becker, 1984) focuses mainly on two

aspects of individuals' representations of health and health behaviour, i.e. threat perception and behavioural evaluation. It has been predominantly used to prospectively predict health behaviours, such as screening attendance, smoking cessation, and diet and exercise. Although, more recently it has been utilised as the theoretical framework for an educational self-management intervention (Jalilian, Motlagh, Solhi, & Gharibnavaz, 2014), with some success. However, while the HBM is health behaviour focussed, the TPB is framed at higher levels of generalisation (Azjen, 1998), making it more suitable in the design of this self-management intervention for individual with both physical and emotional LTHC's. A further point to consider is that there are fewer studies which have considered the "Cues to Action" and the "motivational" components of the Health Belief model. This is possibly due to the lack of clear construct definitions. A further point to consider is the lack of perceived self-efficacy (Bandura, 1994) in the model, which has been well established at an important determinant of health behaviour. Although Janz and Becker recognised the importance of this concept, they speculated that it may be thought of as a component of perceived barriers, rather than an additional theoretical construct. For these reasons, the HBM was considered inappropriate as a theoretical framework for the design of the intervention in this study.

Another theoretical model of behaviour change considered for this study, was the Trans-Theoretical Model (Prochaska & Di Clemente, 1983). It has been applied to a wide range of different health behaviours, such as dietary, physical activity and medication adherence, although smoking cessation remains the most popular application of the model. A systematic review of informatics interventions suggested the TTM was one of the most popular and influential models in guiding intervention design for self-management (Riley, et al., 2011). However, TTM is less about the motivation required to change behaviour, and more about the how an individual makes sense of their LTHC and what stage they are at in relation to that behaviour change. As one of the main drivers for the intervention relates to motivation to make the behaviour changes, this would suggest that TTM is not particularly suitable as a model on which to base the design of the WISH intervention. In addition, the TTM is an extremely complex model, it can be argued

that the TPB and TRA are more mathematically specific and therefore are more parsimony in their design. If we apply the theory of Occam's Razor to this process, it could be argued that when faced with competing ideas that lead to the same outcome, we should go with the simpler one. Thus, having fewer more clearly defined components, the TPB may enhance the efficiency and consistency of their use.

Another theoretical model considered for this study, was the Theory of Reasoned Action (TRA) created by Ajzen and Fishbein (Ajzen & Fishbein, 1980). Per TRA, sociodemographic variables plan an important role in determining behaviour. However, since behaviours that are not fully volitional are also influenced by the individual's perception of his or her own ability to perform the behaviour (self-efficacy), then the TRA would not be a sufficient theoretical base for the design of a work-related self-management intervention (please refer to Theory of Planned Behaviour for further discussion). Therefore, the Theory of Planned Behaviour (Ajzen L. , 1991), which suggests that self-management behaviour could be considered on the belief concerning the amount of control (i.e. self-efficacy) an individual has over their own health in respect to work, is a more appropriate theoretical base for this purpose.

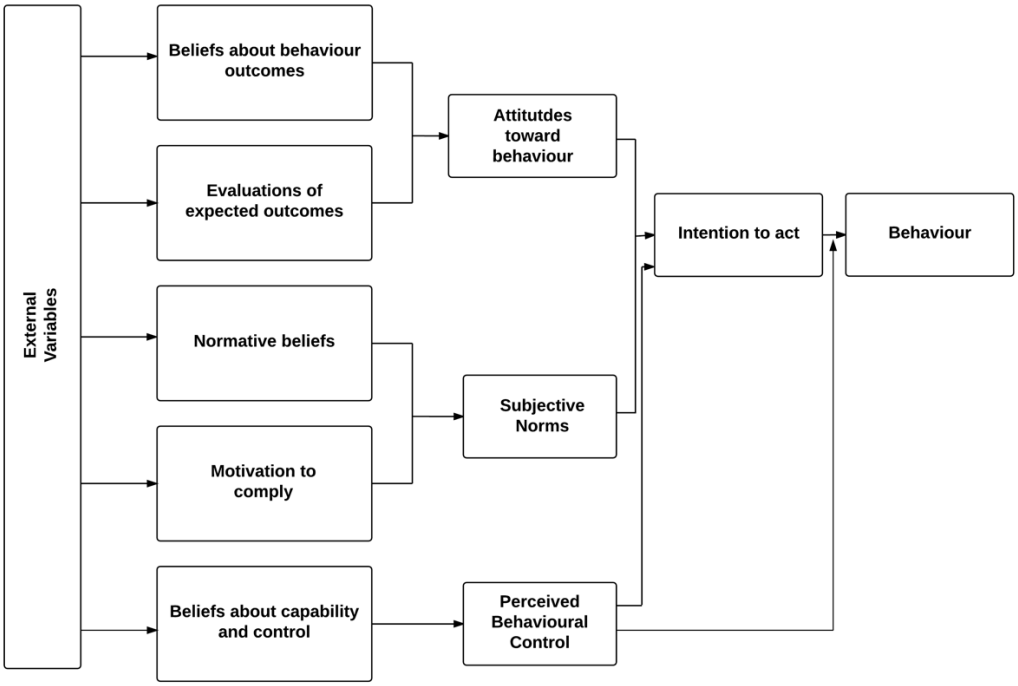

Fig 2: Adapted from the Theory of Planned Behaviour ***(Ajzen L. , 1991)***

TPB is particularly helpful in understanding the way health behaviours are adopted. According to the theory, behaviour is directly dependent on the intention to performing it, and on the perception of control. In turn, intention is directly influenced by three psychosocial determinants: 1) a favourable or unfavourable attitude toward the target behaviour; 2) the subjective norm, or the perception of the opinion of important others, towards it; and 3) perceived behavioural control, or the perception that one can access resources, and therefore can act on. The latter idea of perceived behavioural control is similar to the concept of self-efficacy put forward in Social Cognitive Theory, addressing an individual's level of confidence in their ability to perform desired behaviours and accomplish set goals. As mentioned above, TPB clearly addresses volitional behaviours, in which individuals' have a choice of whether to engage in the behaviour or not.

Sociodemographic and concurrent variables, because of the mediating effects they exert on the constructs of the model, are considered external variables. TPB has received a considerable amount of support across a variety of health-related behaviours (Armitage & Conner, 2001). According to Ajzen, past behaviours or records of past behaviours have bearing on future behaviours indirectly, in as much as they contribute to the formation of intention and perceptions of control, and to the development of habit (Ajzen L. , 1991), which if measured reliably could be an important ingredient in influencing future behaviours. TPB suggests that self-management behaviour could be considered on the amount of control (i.e. self-efficacy) an individual has over their health. Self-efficacy is a psychological construct that has received much attention in the management of various long-term health conditions. It was introduced by Bandura (1977), as a cornerstone of his Social Cognitive Theory. It has been defined as "people's beliefs about their capabilities to produce designated levels of performance that exercise influences over events that affect their lives" (Bandura, 1994). Self-efficacy beliefs can influence how individual's feels, thinks, motivates themselves and behaves in relation to their LTHC. For example, it affects motivation, and health behaviours, by influencing the goals individual's set, how much effort they expend in accomplishing those goals, and their resilience when faced with difficulties or failure (Dixon, Thornton, & Yound, 2007).

TPB has inspired numerous behaviour change interventions, focussing on helping individuals to formulate intentions for improving their health behaviours, raise awareness of social norms in regard to those behaviours, and help individuals to gain increased levels of perceived behavioural control. According to a meta-analytic review of TPB-based interventions, attitudes, subjective norms and perceived behavioural control account for 39% of the variance in intention, and for 27% of the variance in behaviour, when reviewing a wide range of health behaviours (Armitage & Conner, 2001). However, for the development of a work-based intervention, where one of the key goals is the transition from intention to action it is important to ensure that the TPB should include volitional variables (i.e. self-regulatory strategies that promote performance of an individual's intention) to support the prediction of

behaviour (Sheeran, 2002). As planning is a key volitional variable that can support the transition from intention to behaviour (Norman & Conner, 2005), it is important that planning is one of the core features within the intervention. Evidence suggests that the impact of intentions on behaviour may be mediated by the extent to which one undertakes planning activities (Gutierrez-Dona, Lippke, Renner , Kwon, & Schwarzer, 2009). There is also evidence to suggest that developing implementation intentions (i.e. specific if-then plans that link a suitable behavioural response to a situational cue) supporting individuals to translate their goal intentions into behaviour (Gollwitzer & Sheeran, 2006).

4.3 Self-Management Interventions:

There is no clear definition of self-managing health, especially one with a work-related theme, as the self-management approach has historically been specific to the clinical management of long-term health conditions, such as diabetes and asthma. Therefore, the following definition was found to embody most closely the underlying philosophy of the research and was used to inform the intervention:

"Self-management refers to the individual's ability to manage the symptoms, treatment, physical and psychological consequences and life style changes inherent in living with a chronic condition. Efficacious self-management encompasses ability to monitor one's condition and to affect the cognitive, behavioural and emotional responses necessary to maintain a satisfactory quality of life. Thus, a dynamic and continuous process of self-regulation is established." (Barlow, Wright, Sheasby, Turner, & Hainsworth, 2002)

The World Health Organisation strongly supports the implementation of self-management interventions to empower individuals with LTHC's to manage their health and health care. They also identified chronic illness management as one of three evidence-based strategies that are essential in promoting the active role of patients with LTHC's (Askham, Coulter, & Parsons, 2008). Self-management interventions utilise peer support and psycho-educational techniques adapted from Cognitive Behavioural Therapy (CBT) techniques to improve coping skills and provide the individual with the tools for problem-solving and dealing with temporary setbacks (Lorig & Holman, Self-management education: history, definition,

outcomes and mechanisms, 2003; Barlow, Wright, Sheasby, Turner, & Hainsworth, 2002). The self-management approach attempts to reassess health symptoms and functional challenges as being within an individual's control and mastery using an active, problem-solving perspective (Lorig, Sobel, Ritter, Laurent, & Hobbs, 2001; Bodenheimer, Lorig, Holman, & Grumbach, 2002). However, the efficacy of utilising CBT techniques alone for individuals who have LTHC's may not be sufficient or even appropriate in all cases (Hind, et al., 2010). Research suggests that the adaption of CBT interventions, to integrate both the physical and emotional aspects may be required (Piette, Richardson, & Valenstein, 2004). The systematic review by the Author (Jones & Whitehead, 2014), into efficacy of work-related psychological interventions, found that Mindfully based approaches could be as effective as CBT, but not superior to cognitive approaches in supporting people to cope with their health conditions. However, it must be noted, that none of the interventions reviewed were specifically targeted at individuals with LTHC. Other factors may play a role in being a driver for behavioural change, such as peer support, expectancy for improvement, psychoeducation aspects, self-empowerment, the therapeutic alliance between the participants and the facilitators, etc.

Thus, self-management interventions suggest a further promising approach to improving outcomes and reducing work-related costs associated with employees with LTHC's. Self-management support aims to teach clients to actively participate in the management of their LTHC (Newman, Steed, & Mulligan, 2004) and is the provision of education and supportive interventions to increase individuals' skills and confidence in managing their own health conditions, using techniques such as, goal-setting and problem-solving (Adams, Greiner, & Corrigan, 2004). As such, self-management support embodies more than merely an educational, instructional programme that focuses on transfer of knowledge; even though self-management interventions often contain informative strategies, the main objective is to change behaviour, which is essential to initiate a sequence of effects (Bourbeau, Nault, & Dang-Tan, 2004). Self-management interventions tend to be lay-led courses, providing skills and knowledge from a 'real-life' experience perspective. It has been

suggested that empirically, the efficacy of self-management interventions for individual's with LTHC's has been put into question, advocating that their value may have been over-stated, with the benefits gained being generally short-term (Bury, Newbould, & Taylor, 2005). Methodological weaknesses of some self-management interventions, questionable significance of improvements and sustainability of outcomes, as well as lack of evidence to suggest that lay-led self-management interventions generate better outcomes than those that are professionally-led (Newbould, Taylory, & Bury, 2006). To overcome this potential weakness, this study has taken a pragmatic approach of utilising both a lay and professional facilitator to lead the intervention, to combining the benefits of professional support with 'real-life' experience.

As the definition suggests, self-management interventions not only affect the behavioural and emotional responses, but also the cognitive. An important element of a self-management intervention is the identification and modification of negative cognitions (Barlow, Wright, Sheasby, Turner, & Hainsworth, 2002; Burchardt, 2005). From a workplace survey of 3,800 employees undertaken by the Author within ONS, it was found that those diagnosed with LTHC's (i.e. 35.7% of the workforce) suffered from lower self-esteem and higher levels of stress than their healthier counterparts within the workplace. In particular, a lack of management/peer support was identified as a significant stressor across the organisation, but particularly for those with LTHC's. Thus, a key factor of this studies intervention is to support individuals in identifying and utilising techniques such as re-framing those negative emotions, to reduce their impact on their day to day roles within the organisation and improve their promotional opportunities. Self-management interventions have not previously been utilised in this work context, however it is felt that the approach will be beneficial in empowering employees with LTHC's, as Self-management intervention approaches have consistently shown improvements in not just physical functioning limitations, but also emotional distress in clinical trials (Lorig, Sobel, Ritter, Laurent, & Hobbs, 2001; Du & Yuan, 2010; Shaw, et al., 2012; Tvelto, Shaw, Huang, Nicholas, & Wagner, 2010). Thus, in the context of work, self-management could mean that employees are more likely to be able to manage their symptoms

effectively and remain in employment longer (Munir, et al., 2009). Being able to remain in work longer, and cope with the physical and emotional stress of a long-term condition, must therefore be one of the key drivers for the development of a workplace intervention for employees with LTHC's.

Existing self-management interventions generally focus on the management of symptoms (Johnston, Jull, Sheppard, & Ellis, 2013). However, little attention is given to the context in which self-management might occur (Glasgow, et al., 2012; Rogers, et al., 2008), particularly in relation to the workplace context (Shaw, et al., 2012). Research suggests that employees who can more effectively self-manage their condition within the workplace, are more able to negotiate the necessary reasonable adjustments, providing them with improved health and work outcomes (Gignac, Arthritis and employment: An examination of behavioral coping efforts to manage workplace activity limitations, 2005). In an earlier study, Gignac and colleagues showed that employees experienced reduced symptoms and increased psychological well-being, if workplace adjustments were made to improve the management of their condition (Gignac, et al., 2004). This approach of self-management techniques should address both aspects of coping with LTHC limitations within the Organisation, if balanced with activities discussing reasonable workplace adjustments

4.4 Self-Efficacy:

According to Albert Bandura (Bandura, 1994), self-efficacy is "*the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations.*" In other words, self-efficacy is a person's belief in his or her ability to succeed in a particular situation. Bandura described these beliefs as determinants of how people think, behave, and feel. A key aspect of a self-management intervention is empowering individuals to regain a sense of control and mastery, in other words a sense of self-efficacy, are a particularly prominent feature in the design of this study's work-related intervention, and is a key element of the Theory of Planned Behaviour, which, as mentioned above, forms one of the theoretical underpinnings in the intervention development. 'Beliefs about capability

and control' are particularly relevant to individuals with long-term health conditions, especially in the workplace. Coping with the substantial work pressures of working for a large employer where constant deadlines, performance management targets, and dealing with the constant organisation change affecting many civil service departments is not easy for a healthy employee, but managing the same organisational pressures on top of the daily hassles of living with a long-term health condition can be challenging to say the least. Therefore, ensuring that this key component was embedded into the core design of the intervention was an essential part of its development.

Self-efficacy has been identified as one of the main influences on successful self-management interventions (Clark, et al., 1991; Linden, Muschalla, Hansmeier, & Sandner, 2014), with empirical studies bearing witness to the critical role self-management interventions have on the development of self-efficacy (Dishman, et al., 2005; Clark & Dodge, 1999). Psychosocial variables including self-efficacy, sense of control and optimism, affect health behaviours, but also has a direct impact on physiological processes that influence health (Sobel, 1995; Varekamp, Verbeek, & van Dijk, 2006). Thus, the relationship between self-efficacy and self-management is bi-directional, as self-management interventions can enhance and increase self-efficacy (Barlow, Wright, Sheasby, Turner, & Hainsworth, 2002). Therefore, it was important to embrace this bi-directionality of self-efficacy within the intervention developed as part of this feasibility study, not only to enhance but also to increase feelings of self-efficacy and a sense of control as important core interventional goals, with the overall aim of motivating positive behaviour change within the work environment.

Barlow and colleagues (2002), suggest that some group participants "*may not feel able to embrace the concept of self-management*", due to a lack of motivation (Barlow, Wright, Sheasby, Turner, & Hainsworth, 2002). Psychological resources, such as maintaining a positive outlook and cultivating discipline and motivation also contribute to effective self-management (Schulman-Green, et al., 2012). An important aspect of self-management of a long-term health condition is the

motivation to adopt and continue utilising the techniques and tools, which have been learned during the intervention. Blankers and colleagues (2011), have suggested that self-management interventions generally have a less than 50% adherence rate. This tendency for attrition has been generally linked to participants' lack of continued motivation (Berger, Hammerli, Gubser, & Caspar, 2011; Blankers, Koeter, & Schippers, 2011). Another possible reason for this low adherence rate is that attendance at Self-management interventions are generally voluntary, with participants being willing to improve their self-management, or at least be committed to thinking seriously about making the change (Dijkstra, 2005). Therefore, an integral component of the intervention, developed in this study, has been the incorporation of motivational theory throughout the 4-weekly sessions of the intervention, with the express aim of increasing motivation during the programme and maintaining the motivation to continue utilising self-management strategies afterwards (see method chapter for further details). To ensure that motivation is integral to the development of the intervention, Self-Determination Theory (Deci & Ryan, 2002) has been utilised to provide additional theoretical underpinnings.

4.5 Self-Determination Theory:

Self-Determination Theory (SDT) (Deci & Ryan, 2002) is primarily concerned with the motivation behind the choices that people make, whether internal or external. SDT highlights the extent that behaviours are somewhat autonomous (i.e. originate from the self), contrasted with the extent that behaviours are relatively controlled. SDT suggests that people are intrinsically orientated toward growth, psychological well-being, and physical well-being. Thus, SDT is a general theory of human motivation and behaviour, that has influenced numerous research studies in health care and health promotion settings (Williams, Teixeira, Carraca, & Resnicow, 2011). It is predicted that SDT enhances physical health and well-being, when a person's psychological need for autonomy, perceived competence, and relatedness are satisfied (Deci & Ryan, 2002). Thus, incorporating SDT as one of the evidenced based theoretical underpinnings of the intervention, is paramount to ensure that both physical and psychological well-being is central to the design and overall health outcomes.

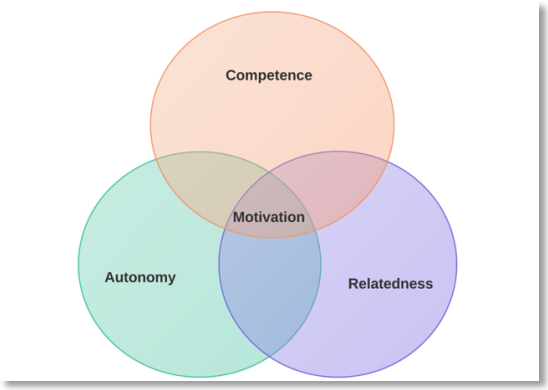

Fig 3: Adapted from Self-Determination Theory ***(Deci & Ryan, 2002)***

SDT uses the term 'internalisation' to describe the mechanism by which behaviours become more valued over time, in particular health behaviours, as the more autonomously-regulated a person is towards a given behaviour, the more significant the effort, determination, and engagement the individual is likely to demonstrate in that behaviour (Ryan & Deci, 2000). According to Deci and Ryan, SDT has identified three psychological needs critical to supporting the mechanism of internalisation and development of motivation and personal well-being. Firstly, the need for autonomy suggests that recognising whether a person feels more autonomous, reflecting the need of the individual to feel they have choices, and the originator of their own actions, and is a much more effective predictor of the value of a person's commitment, performance and well-being, (for example, taking responsibility for the management of one's own health) than being aware of their overall amount of motivational intensity (Deci & Ryan, 2012). Secondly, competence incorporates the need for individuals to feel a perceived sense of confidence, and capable in their interactions with the social environment (Deci & Ryan, 2002) as well as an intrinsic need to be competent in their own action's, skills and abilities (Elliot, McGregor, & Thrash, 2002), such as seeking to regain control and experience mastery over one's health. Beachboard and colleagues (2011), suggested that competence is an essential element of SDT, as individuals are motivated to adopt activities that make them feel their actions affect outcomes (Beachboard, Beachboard, Li, & Adkinson, 2011). Finally, relatedness reflects the need to feel close to and understood by others, such as the interaction and support received from others in similar situations. It has been suggested that promoting a

sense of community or belonging, can improve motivation and have a positive impact on outcomes (Deci & Ryan, 2002). Satisfaction of these needs, enable the internalisation of the autonomous self-regulations and perceived competence for healthy behaviours, such as maintaining self-management behaviours.

Given the prominence of need support in enabling internalisation, SDT has provided ideas for specific behavioural strategies, which can be utilised within the intervention, that may support one or more of these needs. For example: autonomy supportive behaviours include providing effective evidenced-based strategies for change, encouraging individuals to feel empowered by the choices and initiatives they make, and minimising the control and judgement of the facilitators; competence supports individuals feeling positive that they can succeed, using a non-judgemental approach to provide feedback, assisting individuals to identify barriers to achieving goals, skills building and problem solving, and enabling individuals to develop a wellness plan that is challenging to individuals' skills and experience; finally relatedness support includes giving unconditional positive concern (especially if the individual has failed to achieve their goals), being empathetic to individuals' fears, and providing a warm and friendly environment in which employees with LTHC feel less isolated within the workplace. Therefore, the workplace self-management behaviour change intervention, in this study, endeavoured to embrace all three concepts into its design to achieve the desired health related outcomes, particularly a more self-determined and motivated workforce which it is hoped will be a factor in reducing absenteeism and increasing Presenteeism. A good example of where SDT has been incorporated within the current study's self-management intervention, can be seen in the Healthy Eating topic delivered in week four, whereby the activity primarily focusses on the motivational strategies that could empower individuals to make healthy choices when it came to eating healthily, rather than providing basic skills knowledge of what heathy eating is, etc. The concept of an Intention-based tool, which was initially developed in a randomised study undertaken by O'Connor and colleagues (O'Connor, Armitage, & Ferguson, 2015), was adapted for the purpose. Although O'Connor's work related to identifying triggers to stressful situations enabling a

change from maladaptive to adaptive behaviours, the Author of the current study believed that the tool was a useful self-management strategy, which could be easily incorporated into the intervention, supporting the evidence-based approach defined by the autonomy aspect of SDT, empowering individuals in the choices that they make.

As mentioned above, the workplace intervention designed in this study utilising an evidence-based theoretical framework, constructed around the behaviour change model of TPB, as well as the motivational components of SDT. This enabled the development of a psycho-educational self-management workplace intervention for employees with LTHC, integrating the tools and techniques of CBT with a mindfulness-based approaches. This self-management approach, that is over and above the incorporation of teaching of essential knowledge and skill alone, but also includes cognitive processes to change behaviour in individual with LTHC's. These approaches were integrated into an accessible 4-week programme, designed to affect not only individual outcomes, such as increased self-confidence and general well-being, but also Organisational outcomes (discussed below), such as reduced absenteeism, Presenteeism and work-engagement.

4.6 Absenteeism, Presenteeism, Well-being and Work-Engagement Outcomes:

4.6.1 Absenteeism and Presenteeism

Reduction in absenteeism is a common measure of an organisations expected return on investment for employee workplace health related interventions (Mills, Kessler, Cooper, & Sullivan, Impace of a health promotion program on employee health risks and work productivity, 2007). However, increasingly the effects of Presenteeism (i.e. when an employee is present at work, but functioning at a reduced level of performance due to illness) are being assessed (Schulz & Edington, 2007). Johns (2010) in his dynamic model of Presenteeism and absenteeism, suggests that a "*fully productive regular attendance is interrupted by a "health event" that is either acute (e.g., the flu), episodic (e.g., migraine), or chronic (e.g., the onset of diabetes). To some extent, the nature of the health event*

will dictate whether absenteeism or Presenteeism ensues. Thus, severe stomach flu is likely to provoke absence and the early diagnosis of diabetes is likely to prompt presence. In less extreme medical cases, context will come into play." (Johns, 2010).

Presenteeism and absenteeism are often inter-connected. Employees may be absent from work, for a number of reasons: - if threshold of illness and quality of life is below a certain level; the type of work (i.e. manual or white-collar jobs); the type of illness (i.e. emotional or physical); the individuals' effectiveness in coping; and the support available within the employee's social network (Schulz & Edington, 2007). According to Koopmanschap and colleagues (2005), this means that the continuum between absenteeism and Presenteeism can be extremely variable over time, with an intervention being somewhat effective in reducing work absence, but only at the cost of an increase in Presenteeism, if problems with LTHC are not dealt with adequately (Koopmanschap, et al., 2005). However, there is evidence (not published) to suggest an alternative viewpoint. This can be demonstrated in a survey undertaken within a Civil Service Department, by the Author of this study, where it was found that employees with LTHC's had significantly higher absenteeism than their colleagues without health issues. However, Presenteeism in those employees with LTHC's was significantly less (i.e. they were more present in work). This suggests that those with LTHC's may be more motivated within their roles, potentially providing higher performance when they are in work to counter-act their higher absenteeism. In the eyes of the individual employee, this increased level of motivation could potentially be a way of demonstrating their worth in the workplace to their employer.

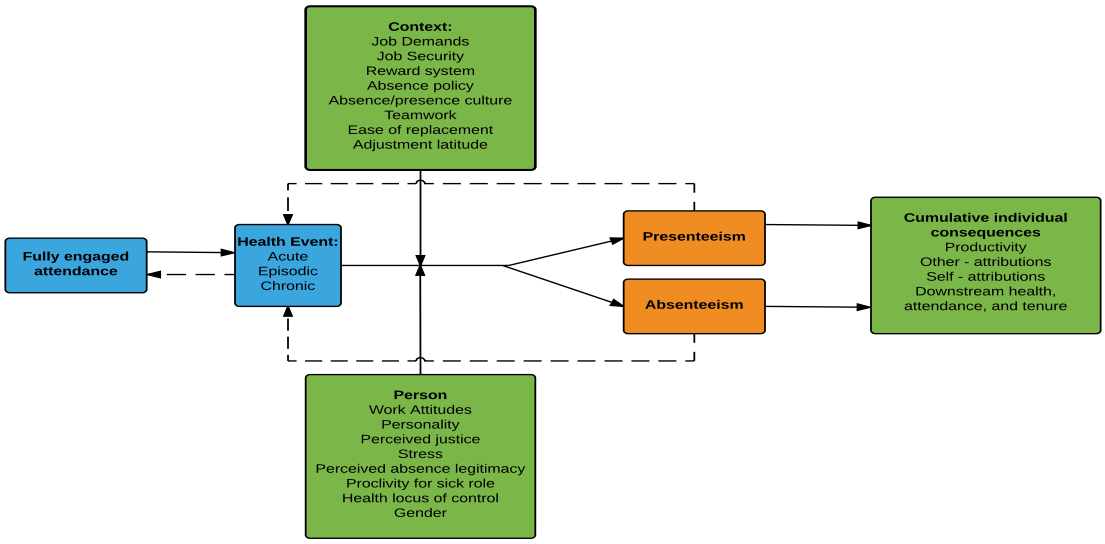

Fig. 4: Adapted from a dynamic model of Presenteeism and absenteeism (Johns G. , 2010)

4.6.2 Well-being:

Health and well-being is not just about reducing the costs of absence or poor performance, but requires a change in its perception by both employers and employees, willing to invest resources and change behaviour (Black, 2008). As the preamble to the Constitution of the World Health Organization states, "*Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity*" (World Health Organisation, 2016). The concept of well-being goes beyond physical health to encompass the broader aspects of a life well-lived, rather it includes positive features, such as quality of a job or happiness with one's life. Waddell and Burton (2006) advocated a definition of well-being that is "*the subjective state of being healthy, happy, contented, comfortable, and satisfied with one's life*" (Waddell & Burton, Is work good for your health and well-being?, 2006). Their definition includes physical, material, social, emotional (happiness), and development and activity dimensions. However, other aspects are also influential in well-being at work, including mental and physical health, job security, organisation of work, work engagement, work-life benefits, and wages (Muse, Harris, Giles, & Field, 2008; Waddell & Burton, Is work good for your health and well-being?, 2006).

An extensive body of literature links employee well-being to productivity, particularly in relation to health (Amick (3rd) & Gimeno, 2008; Goetzel, Ozminkowski, Pelletier, Metz, & Chapman, 2007). Although, there appears to be some important methodological limitations in how, well-being and productivity are measured (Tompa, 2002; Beaton, et al., 2009; Page & Vella-Brodrick, 2009). However, linking well-being and productivity at an individual level needs to be undertaken with care, as at an individual level it could result in a culture of blaming the worker for the poor performance, without considering factors, such as employer responsibilities.

Workplace interventions to improve the health component of well-being, (i.e. musculoskeletal disorders), and personal factors (i.e. smoking) have been relatively effective (Westgaard & Winkel, 1997; Sorensen, 2002). However, as more knowledge is gained about the determinants of well-being, it is essential to undertake research which is effective in influencing these determinants (Schulte, Goldenhar, & Connally, 1996). Thus, this study considers the determinants of well-being as outlined by the Gallup-Healthways' Global Well-being Index (Gallup-Healthways Inc., 2014) detailed under the measures used within the methodology chapter. Gallup-Healthways' suggested a multi-element approach to well-being, i.e. purpose, social, financial, community and physical health. In other words, they considered well-being to be whether individuals "*find daily work and life experiences fulfilling, enjoy strong relationships, feel financially secure, are actively involved in their communities, and are physically healthy*" (Gallup-Healthways Inc., 2014).

At an individual level, purpose well-being can be described as "workers who are engaged in their work have more energy to take on challenges, increase their productivity, and positively affect those around them" (Gallup-Healthways Inc., 2014); Social well-being can be described as "having supportive relationships…from kinship, friendship, or from anyone a person feels emotionally connect to and relies on in difficult times." (Gallup-Healthways Inc., 2014). This includes everyone in an individual's personal strata who may impact either positively or negatively on their feelings of well-being, including colleagues, managers, or

clients; Financial well-being can be described as “Effectively managing one’s economic life to reduce stress and increase security…” (Gallup-Healthways Inc., 2014). The impact of financial well-being, is important to those with LTHC’s, as sick absences can affect one’s financial well-being if, for example, a prolonged period of absence from work has resulted in being a reduction in pay or being forced to reduce the number of contracted hours to enable an employee to remain in employment; Community well-being, in this study, can be described as “liking where you work, feeling secure in your employment, and having pride in your role and your organisation”. For example, volunteering to take part in activities within the organisation that improve well-being not just for you, but also for other colleagues; and finally, physical well-being, can be described as “having good health and enough energy to get things done daily” (Gallup-Healthways Inc., 2014). Physical well-being is particularly essential for employees with LTHC’s, who need to be aware about making the right healthy choices and utilising self-management strategies to enable them to cope more effectively at work, reducing the impact of sickness absences. Although these well-being elements are each separate they have a direct effect on each of the others, either positively or negatively, which can either lead to growth or decline in those aspects. For example, by increasing social well-being employees with LTHC’s are able to create stable supportive relationships and networks, enabling them to focus on the tasks they do best every day.

Happiness concerns our well-being and flourishing. It is well recognised that the most reliable way to adjust our levels of happiness is to make changes to our behaviours and thoughts over time. Also, a greater sense of social support builds happiness. (Diener & Seligman, 2004). Thus, encouraging an increase in social support and participation within the intervention, could be seen as a means for increasing happiness, which in turn can positively affect well-being and work-engagement.

4.6.3 Work Engagement:

A further aspect of well-being, is the concept of work engagement. Engaged employees have a greater sense of energy and effective connection with their work

activities, and perceive themselves to be more effective at coping with the demands of their role. According to Schaufeli and colleagues (2003), work engagement is characterised by physical energy (vigour), emotional (dedication) and cognitive (absorption) components (Schaufeli, Bakker, & Salanova, 2003). Personal resources are positive self-evaluations referring to an individuals' perceived ability to control and impact upon their environment successfully (Hobfoll, Johnson, Ennis, & Jackson, 2003). Research by Judge and colleagues (2004), has shown that such positive self-evaluations predict goal-setting, motivation, performance, job and life satisfaction, career ambitions and other desirable outcomes (Judge, Van Vianen, & De Pater, 2004). Engagement has also been shown to be positively related to psycho-somatic health, implying that engaged workers are better able to perform well (Shirom, 2003).

5.0 RESEARCH AIMS

An internal survey undertaken by the Office for National Statistics (ONS), has shown that over one third of its workforce currently have either one or multiple long-term health conditions. As a Civil Service department, the ONS feels it not only has a duty to its employees to implement an effective well-being strategy that will assist people with long-term health conditions to remain in work, but also a desire to reduce the cost implication absenteeism has on the organisation. The figures show that the organisation currently has a mean absenteeism figure of 7.82 days per employee (in the last 6 months) due to their long-term health condition. Using the data on the ONS Health and Well-being Survey and current pay scales from the organisation, this would produce an estimated cost of between £100.86 and £205.18 per employee per day of absenteeism (dependent upon grade). The need to find new approaches to help reduce this cost is paramount and drives the necessity to undertake this study. To address these issues, the ONS have commissioned the services of the Researcher to undertake this study, to determine the feasibility and effectiveness of introducing a self-management behaviour change intervention into the workplace, both as a means of reducing the costs of

absenteeism, but also as a means of improving the sense of well-being for employees with long-term health conditions.

Whilst ONS, offer access-to-work assistance and workplace adjustments for employees with long-term health conditions, there is currently no policies or programmes which are designed to empower employees to manage their own long-term health conditions within the Organisation. Therefore, the aim of this study is to determine the feasibility and effectiveness of a pilot face-to-face employer-sponsored intervention, designed for employees with long-term physical and mental health conditions, to develop self-management skills within the workplace. It was hypothesised that such an employer-sponsored self-management group intervention would: -

Hypothesis One: Individual outcomes

a. Increase from baseline in Motivation (perceived competency) at post-intervention, 3-months and 6-months follow-up
b. Increase from baseline in Perceived Self-Efficacy at post-Intervention, 3-months and 6-months follow-up
c. Change from baseline in the Well-being Index Dimensions (i.e. Current and future live evaluation, purpose, social, financial, community and physical) at post-intervention, 3-months and 6-months follow-up

Hypothesis Two: Organisational outcomes

a. Change from baseline in Presenteeism (i.e. productivity) at post-intervention, 3-months and 6-months follow-up
b. Change from baseline in Work Engagement at post-intervention, 3-months and 6-months follow-up
c. Reduction from baseline in Absenteeism at 6-months follow-up

As this is a new intervention, for accurate assumptions to be made regarding participant recruitment and retention, and appropriateness of the intervention, it has been suggested by the Medical Research Council (Medical Research Council, 2008) that adequate piloting and feasibility work needs to be undertaken prior to a

main evaluation study. Thus, the rationale for the current feasibility study is to identify these parameters to inform a larger-scale study.

6.0 METHODOLOGY

6.1 Study Design:

This feasibility pilot study utilised an action research controlled design, of an employer-sponsored psycho-educational self-management group intervention, designed to empower employees to manage their own long-term health conditions within the Organisation. The study methodology involved recruiting employees with both physical and emotional LTHC's from the two main sites of the organisation, with one waiting-list control group recruited across both sites, and assessing changes in baseline individual and organisational outcome measures immediately after the intervention, with further follow up at 3 and 6 months following the end of the intervention. Due to the nature of the organization being based on two main sites, the same facilitators delivered the intervention at each site.

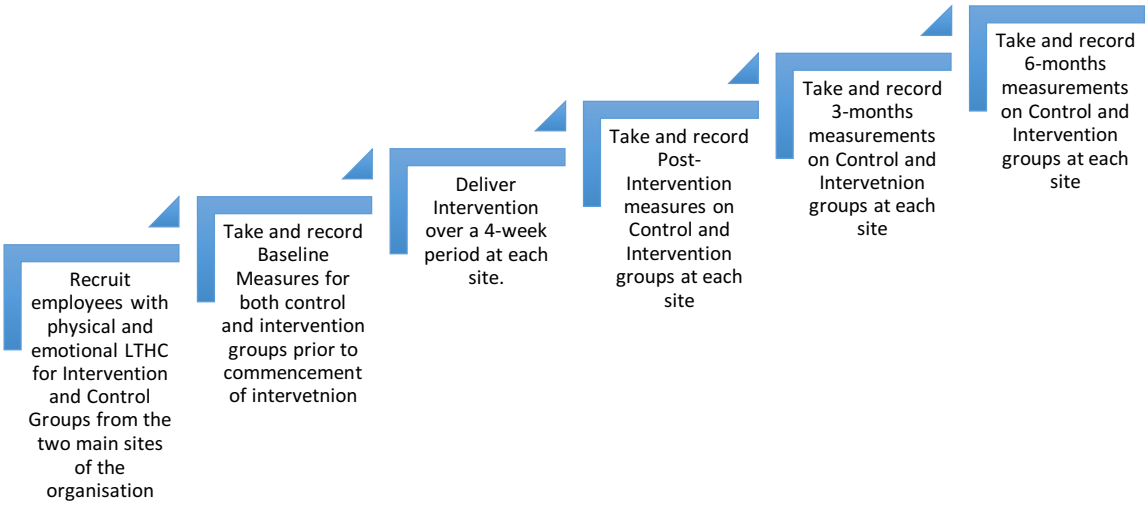

Fig 5: Study Design

6.2 Ethical Considerations:

Within the ONS, no ethical approval was required for this type of research, particularly as ethical approval was sought from the University of the West of England (UWE REC REF No: HAS/15/03/139). This study was also bound by the Code of Ethics and Conduct set by the British Psychological Society, and adhered

to the principles set out within the code, i.e. Respect, Competence, Responsibility, and Integrity.

The ONS are the commissioning organisation for this research, and hence had a vested interest in its success. However, although the organisation provided the support and funding to run the interventions, providing, for example, the time required by employees to attend the sessions, they had no input into the final report findings.

Informed consent was obtained from all participants, and participants were informed in the information sheet and consent forms of their right to withdraw from the study, at any time should they wish to do so.

Confidentiality was an integral and key component of the intervention, as participants needed to feel secure enough to be able to share information about themselves, if they chose to do so. Ensuring that principle was understood and adhered to by all those involved was essential and re-affirmed at the commencement of each session of the group intervention. Participants were also reminded that confidentiality would be assured by the Researcher in the storage of data, but also in the write-up of any findings.

6.3 Study Population:

The study population consisted of ONS employees who have at least one physical or emotional LTHC, and were interested in taking positive steps towards regaining a sense of control over their health and well-being through the process of learning and developing self-management strategies. The recruitment procedure (*See fig. 5 above: flowchart of recruitment procedure*) involved the circulation of an email to the general workforce, as well as targeted emails sent through the various internal departmental communications teams to each of the largest divisions. All respondents to the email, were sent an information sheet about the study, a consent form, and a managers' approval form, as from previous onsite interventions

delivered to employees had found that without this, there was a general lack of support and commitment from line managers, resulting in poor attendance on interventions due to work pressure and demands. Those who were unable to attend all four-weekly sessions of the intervention, were assigned to the waiting-list control group. The final numbers recruited for each group were: Intervention Group One (IG1) = 10 (8 Women and 2 Men); Intervention Group Two (IG2) = 12 (10 Women and 2 Men); and the Waiting-List Control Group (W-LCG) = 11 (10 Women and 1 Man). The minimum number of participants required was determined by an a priori power analysis, using G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009), which showed that a sample size of 12 is sufficient (See output in Fig. 6 below). The gender breakdown was relatively reflective of the population breakdown of ONS employees, according to a well-being survey undertaken by the Organisation in 2014. Attendance for each of the intervention groups was extremely good for each group, with the only exception being due to participant illness.

F tests - ANOVA: Repeated measures, within-between interaction

Analysis:	A priori: Compute required sample size		
Input:	Effect size f	=	0.5
	α err prob	=	0.05
	Power (1-β err prob)	=	0.95
	Number of groups	=	2
	Number of measurements	=	4
	Corr among rep measures	=	0.5
	Nonsphericity correction ε	=	1
Output:	Noncentrality parameter λ	=	24.0000000
	Critical F	=	2.9222772
	Numerator df	=	3.0000000
	Denominator df	=	30.0000000
	Total sample size	=	12
	Actual power	=	0.9806821

*Fig. 6: A Priori Power Analysis using G*Power 3.1* (Faul, Erdfelder, Buchner, & Lang, 2009)

6.4 Inclusion Criteria:

To be eligible for the study, participants had to work full or part-time for ONS, of age 18 years or older who have a diagnosed physical or emotional LTHC (> 6 months).

6.5 Exclusion Criteria:

There were no diagnostic exclusions, however, as the organisation had previously run Expert Patient Programme (EPP) intervention, it was decided to exclude any participant who had previously undertaken the EPP course on site, as it was felt that this may unnecessarily influence the outcomes of the piloted intervention. Participants were also excluded and allocated to the Waiting-list Control Group, if they were not able to attend all sessions of the intervention due to booked holidays.

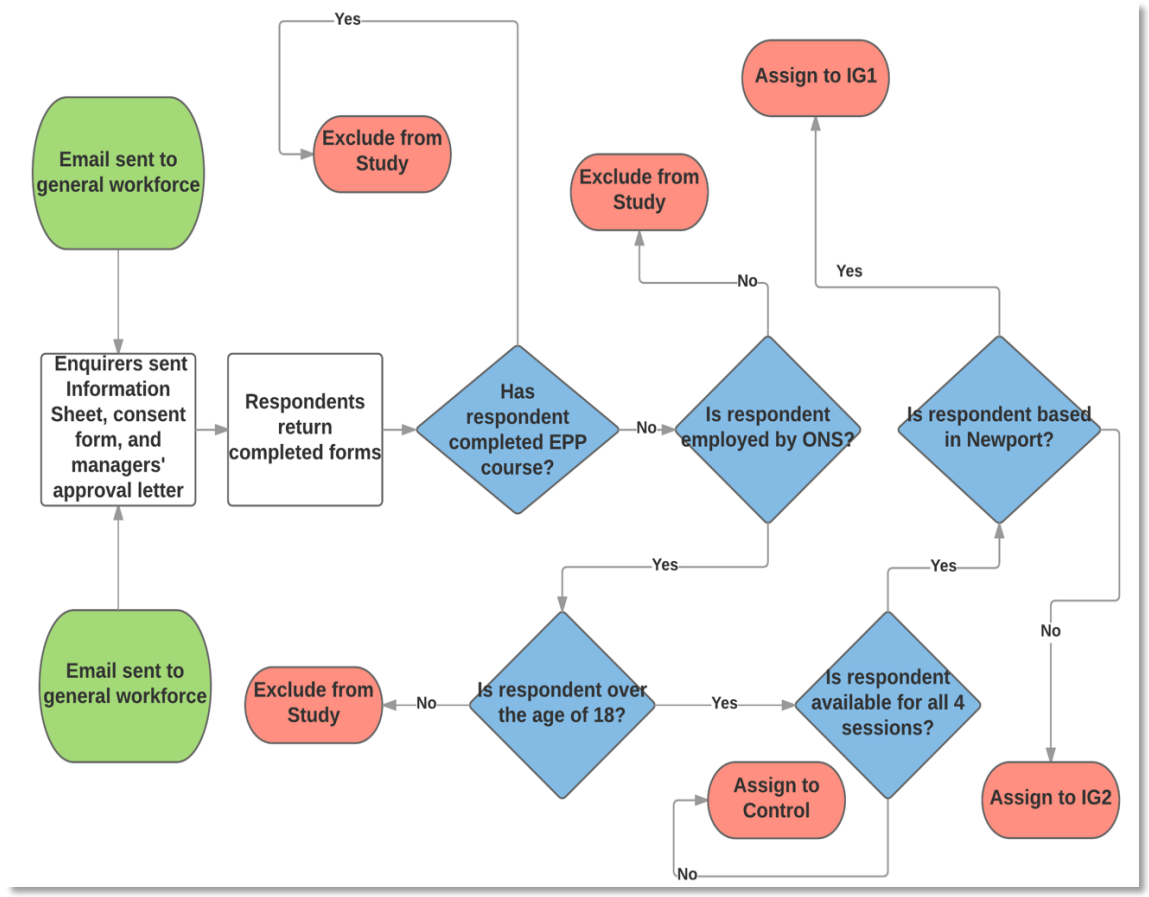

Fig 7: Flowchart of Recruitment Procedure

6.6 Intervention:

The theoretical bases of the intervention were the: Theory of Planned Behaviour (TBP) (Ajzen L. , 1991), which suggests that self-management behaviour could be considered on the amount of control (i.e. self-efficacy) an individual has over their

health in respect to work; and Self-Determination Theory, which was primarily concerned with the motivations behind the healthy behaviour's choices that individuals made. Thus, the intervention reflects the importance of planning, as a volitional variable within the TPB model, through the goal setting activity at the end of each week of the course, but also in relation to developing the long-term well-being and 'flare-up' plans that individuals can take forward to ensure their continued actions match up with their intentions, therefore preventing relapse into old behaviour patterns. Therefore, as the TPB has been demonstrated to predict a range of health related self-management behaviours for a range of populations, and planning appeared to play an integral role in the intention-behaviour relationship, the TPB provides a good theoretical basis for the development of a work-based intervention to improve self-management behaviours for employees with LTHC's, such as the one being developed as part of this current feasibility study.

The intervention integrated CBT-Mindfulness based educational behaviour change techniques, that aimed to enhance the individuals' self-management knowledge and skills in a group environment. Cognitive Behavioural approaches have become the most prevalent and widely researched of all evidenced-based psychological interventions. The three factors that have contributed to CBT's dominance: the strength of its theoretical foundation, the methodological rigor of supporting outcome studies, and the absence of any equally compelling research supporting alternative approaches. Mindfulness-based approaches have been conceptualized as the Third Wave of CBT (Hayes, 2002). Hayes characterizes this third wave by describing how "*the new behaviour therapies carry forward the behaviour therapy tradition, but they abandon a sole commitment to first-order change; adopt more contextualistic assumptions; adopt more experiential and indirect change strategies in addition to direct strategies; and considerably broaden the focus of change*." While the work of third wave interventions has its roots in CBT, there were significant differences between them. These differences include meta-level emphasis on the process of thought and emotion rather than content; focus on balancing change strategies with acceptance philosophies. Therefore, combining the behaviour change techniques of CBT and Mindfulness, into a work-based self-management

intervention provided a suitable platform in which to encourage participants to make appropriate and lasting behaviour change. However, a pragmatic approach was taken by the Author, in relation to the development of a self-management work-based intervention, in integrating the CBT behaviour change techniques of self-management interventions, and incorporating mindfully based aspects to incorporate the most effective attributes of each. However, it must be said that this was not Mindfully Based Cognitive Therapy, but a self-management intervention encompassing the appropriate behaviour change techniques of the two approaches within one group work-based intervention.

The intervention was designed from a review of existing evidenced-based self-management intervention elements to incorporate the key elements of a successful behaviour change intervention, such as problem solving, and goal setting, as well as other evidenced-based elements of self-management, discussed earlier (Adams, Greiner, & Corrigan, 2004; Newman, Steed, & Mulligan, 2004). The intervention included evidence-based behaviour change techniques primarily laid out in the Behaviour Change Taxonomy (v1) (Michie, et al., 2013) as well as other therapeutic tools and taught aspects, interactive activities and agreed tasks to complete between sessions. The intervention was held over four weekly 4-hour sessions at the two main sites of the organisation. The Researcher who is a trainee Health Psychologist and a lay-tutor facilitated the intervention. The trainee Health Psychologist provided the professional support and knowledge, whilst the lay tutor provided an additional level of empathy and understanding of self-managing a long-term health condition in the workplace. The combination of facilitation provided attendees with the best of both knowledge and ‘real’ experience.

Each session focussed on different self-management strategies, with each session containing a mix of psycho-educational presentation, group discussion, completion of in-session activities and brief homework tasks. The first session of the intervention focussed specifically on the constructs of the TPB that paid attention to the evaluation of participant’s attitudes and motivations towards developing behaviours that would enable them to self-manage their LTHC more effectively,

including the benefits and risks towards engaging with these behavioural changes. The session also considered the support each participant had from significant others, colleagues, and managers, as well as their perceived beliefs about the changes participants were wanting to make and wider cultural context and how this would impact on their roles and responsibilities, which incorporated constructs from both the TPB and SDT. The intervention, as a whole, identified participants perceived sense of control over their LTHC and each activity was focussed on promoting the development of self-efficacy and increasing their locus of control (Please see Tables 1 - 4, which shows a visual representation of the theoretical conceptual framework for the development of the intervention utilising the TPB and SDT).

The second session, commenced with a short meditation to ensure that participants were fully aware and focussed to enable them to engage completely with the various activities. The short mindfulness meditation was repeated at the commencement of each week's session. This session followed on from the activities undertaken in Session One, by reviewing the goals they had set the previous week, utilising problem-solving techniques to overcome any challenges they faced in achieving their goals. The main activities in week two, i.e. challenging difficult emotions, overcoming pain and fatigue, and meditation, were designed to provide a mix of physical and cognitive topics, providing participants with a variety of work-related strategies to enable them to overcome problems associated with their LTHC. This session built on the skills developed during session one, introducing new behaviour change tools, developed from both SDT and TPB theoretical models. Each strategy or tool, was repeated numerous times throughout the whole intervention, to ensure that participants could understand the versatility of each self-management technique. The repetition also provided a means of reinforcing the learning, with the aim of 'making it stick'.

A further key component of the intervention was a strong reliance on group peer support both in and between sessions, although this aspect was not mandatory. Although each session contained specific topics (e.g. Challenging Difficult

Emotions, Overcoming Pain and Fatigue, etc.), key themes interlaced the different topics each session forming an integrated mesh, empowering participants to develop individual detailed Wellness Plan to guide the self-management into the future. This format of the intervention was designed to keep participants engaged and motivated throughout the intervention process. *(Please see Tables 1 – 4, below for a detailed theoretical conceptual framework of the intervention).*

All participants received a manual of information, which were given in the form of handouts at each session, which they could add to as a permanent source of information. The manual also included all the activities that were undertaken at each session, enabling participants to complete them as a record, providing them with an individual plan of the tools they find the most beneficial. On the last session, a Wellness Workbook was also provided, to provide participants with a self-management plan, which was developed as an integral component of the last session. This provided the participants with a formal record, which they could use to ensure they continued to utilise self-management strategies into the future. The Wellness Workbook, also included a 'flare-up plan' in case their LTHC changed or got worse. The 'flare-up plan' provided participants with a resource of strategies they could utilise in difficult times, when perhaps they didn't feel as able to cope with their health needs in the usual way.

The control group, did not receive the intervention, but instead received a package of information produced by Public Health Wales concerning the Five Ways to Well-being, which gave hints and tips on titled: Connect, Be Active, Take Notice, Keep Learning, and Give. The five ways is a freely available self-help approach to encourage and motivate individuals to look after their own health.

WISH Session 1: Theoretical Conceptual Framework			
Activity	**Theoretical Concept**	**BCT Utilised**	**Desired Outcome**
Group Introductions / Identifying Course Objectives / Shared Experience	Attitude toward Behaviour - Beliefs about behaviours - Evaluations of expected outcomes	- Thought clouds - Discussion - Wellness Wheel	Determine behavioural intention of subjective risks and benefits of expected outcomes
	Subjective Norms - Motivation to comply - Normative Beliefs	- Thought clouds - Discussion - Introductions	Determine beliefs concerning support from significant others and colleagues: - What do others expect of me? - How do they expect me to behave? - Will I be supported or ridiculed?
	Perception of others	- Shared Experience	Increase perceived workplace support
	Relatedness	- Shared Experience	Increase perceived workplace support
Mindfulness Acceptance Exercise (Just sitting)	Competence	- Meditation	Increases awareness, clarity and acceptance of present moment reality
	Autonomy		
Introduction to self-management and the Wellness Wheels	Attitude towards behaviours - Evaluations of expected outcomes	- Educational component - Thought clouds	Reduce emotional distress and perceived work limitations countering automatic negative thoughts that are realistic and stoppable
			Identify contributory factors that facilitate and impede performance of control behaviours and increase perceived control and mastery of LTHC within work
Improving self-confidence and self-esteem	Attitudes towards behaviour - Evaluations of Expected Outcomes Subjective Norms - Normative beliefs - Motivation to comply Perceived behavioural control - Beliefs about capability and control	- Thought clouds - Educational component - ABC chart - Reframing - Positive Qualities Diary	Reduce emotional distress and perceived work limitations countering automatic negative thoughts that are realistic and stoppable
			Identify contributory factors that facilitate and impede performance of control behaviours and increase perceived control and mastery of LTHC
Relaxation 1: Breathing Techniques	Attitudes towards behaviour - Evaluations of Expected Outcomes Subjective Norms - Normative beliefs - Motivation to comply Perceived behavioural control - Beliefs about capability and control	- Educational Component - Practical activity	Identify contributory factors that facilitate and impede performance of control behaviours and increase perceived control and mastery of LTHC
			Improve work well-being and reduce perceived work limitations by increasing relaxation and body awareness
			Make use of strategies to reduce discomfort and stress
			Using breathing as a tool to focus on awareness to connect with bodily and emotional experience
Introduction to Goal setting	- Autonomy	- Educational components - Goal setting - Paired Activities - Problem solving - Decision making	Increase perceived control and mastery over LTHC by using systematic decision making
	- Competence		Reduce perceived work limitations by expanding alternative options to complete tasks
3-Minute Breathing Space	- Competence	- Meditation - Relaxation	Reduce stress, increasing relaxation and body awareness.
	- Autonomy		Increasing sense of clarity and acceptance of the present moment reality

Table 1: Theoretical Conceptual Framework of Session One

WISH Session 2: Theoretical Conceptual Framework			
Activity	**Theoretical Concept**	**BCT Utilised**	**Desired Outcome**
Mindfulness Acceptance Exercise (Just sitting)	Competence	- Meditation	Increases awareness, clarity and acceptance of present moment reality
Review Weekly Goals / Introduction to Challenging the Barriers	Competence	- Discussion - Educational components	Reduce perceived work limitations by expanding alternative options to complete tasks
	Autonomy	- Problem solving - Peer modelling - Feedback	Increase perceived control and mastery over LTHC by using systematic decision making
Challenging Difficult Emotions and Becoming More Resilient	Attitude towards behaviours - Beliefs about behaviours - Evaluations of expected outcomes Subjective Norms - Normative beliefs - Motivation to comply Perceived behavioural control - Beliefs about capability and control	- Thought clouds - Educational component - Re-Framing	Reduce emotional distress and perceived work limitations countering automatic negative thoughts that are realistic and stoppable Increase perceived control and mastery in work of LTHC
Overcoming Pain and Fatigue	Attitudes towards behaviour - Beliefs about behaviours - Evaluations of Expected Outcomes Subjective Norms - Normative beliefs - Motivation to comply Perceived behavioural control - Beliefs about capability and control	- Thought clouds - Educational component - ABC chart - Reframing - Positive Qualities Diary	Increase perceived control and mastery in work of LTHC Make use of strategies to reduce discomfort and stress in work Improve work well-being and reduce perceived work limitations by increasing relaxation and body awareness, increasing the use of tools and strategies to improve energy
Relaxation 2: Mindful Meditation	Attitudes towards behaviour - Evaluations of Expected Outcomes Subjective Norms - Normative beliefs - Motivation to comply Perceived behavioural control - Beliefs about capability and control	- Educational Component - Practical activity - Re-framing	Increase perceived control and mastery of LTHC in work Improve work well-being and reduce perceived work limitations by increasing relaxation and body awareness
Setting Weekly Goals	- Autonomy	- Goal setting - Paired Activities - Problem solving - Decision making - Planning	Increase perceived control and mastery over LTHC by using systematic decision making
	- Competence		Reduce absenteeism through pro-active planning and awareness
3-Minute Breathing Space	- Competence	- Meditation - Relaxation	Reduce stress, increasing relaxation and body awareness.
	- Autonomy		Increasing sense of clarity and acceptance of the present moment reality

Table 2: Theoretical Conceptual Framework of Session Two

WISH Session 3: Theoretical Conceptual Framework			
Activity	**Theoretical Concept**	**BCT Utilised**	**Desired Outcome**
Mindfulness Acceptance Exercise (Just sitting)	Competence	- Meditation	Increases awareness, clarity and acceptance of present moment reality
Review Weekly Goals / Introduction to Challenging the Barriers	Competence	- Discussion - Educational components	Reduce perceived work limitations by expanding alternative options to complete tasks
	Autonomy	- Problem solving - Peer modelling - Feedback	Increase perceived control and mastery over LTHC by using systematic decision making
Overcoming Depression / Low Mood	Attitude towards behaviours - Evaluations of expected outcomes	- Discussion - Peer modelling - Problem Solving - Educational component - Thought clouds - Planning	Reduce impact of depression in work by increasing awareness and understanding of the etiology and strategies to manage symptoms
	Autonomy		Increase perceived control and mastery of depressive symptoms by developing strategies to improve motivation and reduce their impact
The Power of Positive Thinking	Attitude towards behaviours - Beliefs about behaviours - Evaluations of expected outcomes Subjective Norms - Normative beliefs - Motivation to comply Perceived behavioural control - Beliefs about capability and control	- Thought clouds - Educational component - ABC chart - Reframing - Positive Qualities Diary - Peer Modelling - Discussion	Reduce impact of LTHC in work by increasing the use of positive thinking strategies
			Increase knowledge and awareness of Positive psychology, and the impact it can have on improving self-efficacy, self-esteem,
Getting a Better Night's Sleep	Attitudes towards behaviour - Beliefs about behaviours - Evaluations of Expected Outcomes Subjective Norms - Normative beliefs - Motivation to comply Perceived behavioural control - Beliefs about capability and control	- Educational Component - Thought clouds - Planning - Discussion - Problem Solving - Sleep Diary - Re-framing	Identify contributory factors that facilitate and impede performance of control behaviours and increase perceived control and mastery of LTHC
			Improve work well-being and reduce perceived work limitations by increasing relaxation and body awareness
			Increase awareness of practical strategies to increase sleep hygiene
			Increase perceived control and mastery by re-framing and increasing relaxation and body awareness
Setting Weekly Goals	- Autonomy	- Goal setting - Paired Activities - Problem solving - Decision making - Planning	Increase perceived control and mastery over LTHC by using systematic decision making
	- Competence		Reduce absenteeism through pro-active planning and awareness
3-Minute Breathing Space	- Competence	- Meditation - Relaxation	Reduce stress, increasing relaxation and body awareness.
	- Autonomy		Increasing sense of clarity and acceptance of the present moment reality

Table 3: Theoretical Conceptual Framework of Session Three

WISH Session 4: Theoretical Conceptual Framework			
Activity	**Theoretical Concept**	**BCT Utilised**	**Desired Outcome**
Mindfulness Acceptance Exercise (Just sitting)	Competence	- Meditation	Increases awareness, clarity and acceptance of present moment reality
Review Weekly Goals / Introduction to Challenging the Barriers	Competence	- Discussion - Educational components	Reduce perceived work limitations by expanding alternative options to complete tasks
	Autonomy	- Problem solving - Peer modelling - Feedback	Increase perceived control and mastery over LTHC by using systematic decision making
What role does Stress play?	Attitude towards behaviours - Evaluations of expected outcomes	- Educational component - Thought clouds - Discussion - Problem Solving - Peer Modelling	Reduce emotional distress and perceived work limitations countering automatic negative thoughts that are realistic and stoppable
			Identify contributory factors that facilitate and impede performance of control behaviours and increase perceived control and mastery of LTHC
Benefits of Healthy Eating and Exercise	Competence	- Educational component - Problem Solving	Increase the motivation to eat more healthily by establishing a strategy of planned alternatives to unhealthy eating habits in work
	Autonomy	- Thought clouds - Discussion	Increase the motivation to take part in regular exercise within work, by developing the use of tools and strategies to increase energy and physical health.
	Relatedness	- Peer Modelling - Planning - Goal Setting	increase exercise and healthy eating habits within work by Improving social support and motivation from co-workers
Introducing Pacing	Attitudes towards behaviour - Evaluations of Expected Outcomes Subjective Norms - Normative beliefs - Motivation to comply Perceived behavioural control - Beliefs about capability and control	- Educational Component - Peer Modelling - Problem Solving - Planning - Thought clouds	Identify contributory factors that facilitate and impede performance of control behaviours and increase perceived control and mastery of LTHC
			Improve work well-being and reduce perceived work limitations by increasing relaxation and body awareness
			Improve overall energy and physical well-being by increasing perceived control and mastery through implementation of pacing strategies
Bringing it all together: Developing a Wellness Plan	- Autonomy	- Goal setting - Paired Activities - Problem solving - Decision making - Planning	Increase perceived control and mastery over LTHC by using systematic decision making
	- Competence		Reduce absenteeism through pro-active planning and awareness
	- Relatedness		Increase social support in developing and implementing the wellness plan within work
3-Minute Breathing Space	- Competence	- Meditation - Relaxation	Reduce stress, increasing relaxation and body awareness.
	- Autonomy		Increasing sense of clarity and acceptance of the present moment reality

Table 4: Theoretical Conceptual Framework of Session Four

Table Key (Tables 1 – 4):	**Theory of Planned Behaviour**	**Self Determination Theory**

6.7 Primary Outcome Measures

Each of the measures used were tested prior to the intervention to provide baseline data and were repeated immediately post intervention. Baseline measurements will be obtained at the start of the first session. For the intervention group, post-intervention measures were obtained in person at the end of the last session. Further data collection will be taken at 3-month and 6-month at pre-arranged sessions, after the intervention has ended. Control Group data has been collected at similar periods via internal mail. The use of this method of data collection is to maintain confidentiality for those taking part.

6.7.1 Demographics:

The demographic data includes: age; grade; long-term health condition; treatment regimen; and number of self-disclosed number of sick absences (including annual leave used as absence days). Self-reported absenteeism data could be confirmed via the organisations employee management system. However, as this system does not report on Annual Leave, which has been taken by employees to keep their sickness records down, self-reported data will produce a more realistic measure. As part of each assessment, participants were asked to report the type of medical and rehabilitation services (e.g. counselling) used over the 6-months at both follow-up assessments. This is to determine whether there may be an impact on the results from alternative co-interventions. A single question relating to happiness was asked at each time interval. The question asked, “Are you feeling happy today?” The responses were either: Yes, No or Indifferent. Although this is not a recognised mood score such as Visual Analogue Mood Scale (VAS), it was asked to provide a simplistic indication of the participants’ mood when completing the questionnaires. At the time of design, there was no intention to utilise this score for any other reason. However, when the results were obtained, the findings were relatively interesting, therefore the analysis has been included as a point for discussion later.

6.7.2 Self-Efficacy in managing long-term conditions at work:

To measure self-management, the Stanford Self-Efficacy for Managing Chronic Diseases (CDSE) (Lorig, et al., 1996) has been used. The purpose of the scale was to assess how confident an individual with chronic conditions, can perform certain activities. The short version of the CDSE is a self-administered 6-item questionnaire using a 10-point response style (0 = not at all confident, 10 = totally confident). The validity of the CDSE, which is a uni-dimensional scale and has been used in several different languages, is very good with an internal consistency of .91, making it an extremely valid scale for measuring self-efficacy in employees with long-term conditions.

6.7.3 Health and productivity (Presenteeism):

To measure the impact of health on productivity, the Stanford Presenteeism Scale (SPS-6) (Koopman, et al., 2002) was developed out of a larger Presenteeism Scale (SPS-34). The SPS-6 is self-administered 6-item questionnaire using a 5-point likert type response. The SPS-6 has excellent psychometric characteristics, particularly when measuring health and productivity. The scale provided a high level of internal consistency, with a Cronbach Alpha co-efficient of .80.

A potential limitation of this study is the self-reporting of Presenteeism behaviours among the participants. It is a reasonable objection that self-perception may not always be accurate. However, after much repeated and peer-reviewed research in the field of Health and Productivity Management, it has long been found that self-reporting measures are reliable and accurate (Druss, Schlesinger, & Allen, 2001). Thus, in this feasibility study, self-reported measures for all outcomes, including Presenteeism, were utilised, as it was felt by the Author that this would not have any significant impact on the aims of the research.

6.7.4 Work Engagement:

To measure the concept of individual well-being and motivation, which could be described as ‘Work-Engagement”. Schaufeli et al (p. 288) defined ‘work

engagement' as: "a positive, fulfilling work-related state of mind that is characterized by vigour (i.e. a high level of energy and mental resilience while working and persistence in the face of difficulties), dedication (i.e. a sense of significance and enthusiasm), and absorption "characterized by a high level of energy and strong identification with one's work" (Bakker, Schaufeli, Leiter, & Taris, 2008). The Utrecht Work Engagement Scale (UWES) (Schaufeli, Bakker, & Salanova, 2003) is a self-administered 17-item questionnaire using a 7-point Likert type response from (0 = Never) to (6 = Always). The scale has 3 underlying dimensions: Vigour, Dedication, and Absorption. The reliability and validity of UWES is good, with a Cronbach Alpha co-efficient ranging from .75 to .83 for vigour, .86 to .90 for dedication, and .82 to .88 for absorption.

6.7.5 Individual Well-being:

A further measure of Well-being utilised a study specific version of the Gallup-Healthway's Well-being Index (Gallup Inc., 2011). The amendments made to the original version of the Well-being Index, included wording changes, which made the measure more appropriate for the target population being studied, i.e. for the employee population of ONS. This includes five elements of well-being, each with its own score on a 0-10 scale and a further component measuring life evaluation, which includes:

- **Life Evaluation**: Present life situation and anticipated life situation
- **Purpose**: Liking what you do each day and being motivated to achieve your goals
- **Social**: Having supportive relationships and love in your life
- **Financial**: Managing your economic life to reduce stress and increase security
- **Community**: Liking where you live, feeling safe and having pride in your community
- **Physical**: Having good health and enough energy to get things done daily

6.7.6 Motivation:

To measure the concept of motivation, the Perceived Competence Scale (PCS) (Williams & Deci, Internalisation of biopsychosocial values by medical students: A test of self-determination theory, 1996) was utilized. It is a short 4-item questionnaire, and is an accepted measure to assess Self-Determination Theory. The PCS assesses participant's feelings of competence about taking part in the intervention, engaging in healthier behaviour and following through with their commitment to changing their behaviour to a more self-managed lifestyle. The reliability and validity of PCS is good, with a Cronbach Alpha co-efficient of .80.

6.8 Statistical Analysis

The analysis has been completed utilising SPSSv20. Descriptive statistics were initially undertaken to determine mean averages, standard deviations, skewness, and kurtosis for all scales. Reliability analysis (Cronbach Alpha) was also conducted to assess validity. The main analysis was completed utilising a mixed 2 (intervention v control; physical v emotional) x 4 (time: Baseline, Post-intervention, 3-months & 6-months) ANOVA to determine differences between intervention and control samples, physical and emotional health diagnosis, age, and gender.

An informal basic form a qualitative analysis was performed on the feedback received from participants at the end of the intervention, to extract any themes that may have emerged from the responses.

7.0 RESULTS

The comprehensive, coherent, and evidenced-based WISH intervention showed considerable promise as a workplace self-management course for employees with LTHC's, demonstrating statistical significant improvements compared to the control in several of the key individual outcomes, including competence, self-efficacy, well-being, and one of the key organisational outcomes of absenteeism (detailed results for each measure is discussed later). The intervention was less effective for the organisational outcomes of work engagement (UWES) and Presenteeism (SPS6), although some improvements to the mean were made, compared to baseline data, but the results were non-significant (this is discussed later in more detail). The intervention also demonstrated a significant increase in perceived happiness of participants at post-intervention, compared to the control, which is discussed in more detail later. The improvements to the mean, in both individual and organisational outcomes, were shown to continue over the 6-months period of the study. The intervention, demonstrated little difference in the effectiveness, between those with a physical, compared to those with emotional primary health diagnosis, suggesting that the intervention was equally beneficial to either group of employees. Thus, demonstrating the generalisability of the intervention to all employees with LTHC's. There was also no significant difference in relation to gender or age, suggesting again suitability of the intervention for all employees with LTHC's.

7.1 Descriptive Statistics:

Utilising values for asymmetry and kurtosis between -2 and +2 as being acceptable to prove normal univariate distribution (George & Mallery, 2010). All but work-engagement (vigour and dedication) and Well-being (purpose and financial) scales, show that skewness and kurtosis indicated normal distribution across between intervention and control groups. For an examination of the measurements, mean, standard deviation skewness, and kurtosis were computed for all scales. In addition, reliability analyses (Cronbach's Alpha) were conducted (See Table 5).

Several analyses were conducted to examine the differences between the intervention and control groups. A mixed 2 (intervention v control) x 4 (time: Baseline, Post-intervention, 3-months, and 6-months) were computed to examine differences on the Dependent Variable (i.e. between Intervention and Control groups). Analyses for primary health diagnosis, age, and gender, were also computed. However, there were no significant differences for these variables. Therefore, these results have not been detailed. Please note for analysis purposes IG1 and IG2 were combined to create one variable (i.e. intervention group). In all analyses, where Sphericity cannot be assumed, a Greenhouse-Geisser correction has been performed.

Table 5: Descriptive statistics and reliability for baseline and 6-Months data of the PCS, CDSE, SPS16, UWES, and Well-being Index in the combined intervention groups and control group

	Combined Intervention Groups						Control Group					
	Baseline			6-Months			Baseline			6-Months		
	M	SD	α	M	SD	α	M	SD	α	M	SD	α
Perceived Competency	3.86	1.46	0.73	4.85	1.10	0.79	4.64	1.75	0.90	4.36	1.69	0.79
Self-Efficacy	5.26	2.10	0.88	6.47	1.80	0.92	5.64	1.67	0.92	5.98	2.19	0.93
Presenteeism	16.48	2.27	0.54	16.95	2.13	0.55	17.00	2.37	0.75	17.54	2.58	0.74
Work Well-being: UWES												
Vigour	2.99	1.02	0.85	3.40	1.23	0.85	3.06	1.03	0.96	3.06	1.23	0.95
Dedication	3.66	1.06	0.82	3.38	1.12	0.88	2.95	0.83	0.77	2.89	0.79	0.77
Absorption	3.08	0.90	0.80	3.24	0.87	0.84	3.20	0.89	0.91	3.03	1.23	0.93
Total	3.24	0.83	0.85	3.28	0.87	0.90	3.07	0.75	0.92	2.99	0.95	0.92
General Well-being:												
Now	5.00	2.05	0.79	6.52	1.94	0.80	5.36	1.80	0.95	5.36	2.54	0.89
Future	6.76	2.45	0.73	7.52	2.20	0.89	7.18	1.25	0.71	6.54	1.63	0.40
Purpose	5.26	1.64	0.76	5.83	1.83	0.82	5.18	1.72	0.83	5.00	1.91	0.88
Social	6.17	2.40	0.84	6.45	2.36	0.88	5.32	2.10	0.88	5.18	2.08	0.80
Financial	4.81	2.75	0.89	4.86	2.51	0.87	4.95	2.16	0.25	4.36	1.99	0.80
Community	4.52	1.49	0.76	5.21	2.06	0.77	5.41	2.11	0.79	4.86	2.10	0.75
Physical	4.45	2.39	0.78	5.62	2.09	0.90	4.45	1.85	0.91	5.18	2.47	0.90

Table 5: Comparison of means at baseline and 6-months by Combined Intervention Group and Control

Table 6: Breakdown of Participants by Gender, Age, Health Diagnosis and Exercise Habits			
	Intervention Group (n=22)	**Control Group (n=11)**	**Total (n=33)**
Gender			
Male	4	1	5
Female	18	10	28
Age Group			
Under 30	2	0	2
30 – 39	4	3	7
40 – 49	5	3	8
50 – 59	10	4	14
60+	1	1	2
Primary Diagnosis:			
Physical Health condition	15	10	25
Emotional Health condition	7	1	8
Exercise (3 x per week)			
Baseline	14	6	20
Post-Intervention	17	6	23
3-Months	16	7	23
6-Months	18	6	24

Table 6: Breakdown of Participants by Gender, Age, Health diagnosis, and Exercise habits

7.2 Hypothesis 1: Individual Outcomes

5.2a Change from Baseline in Motivation (Perceived Competence):

Intervention versus Control

In order to see if there was a change in motivation from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare Perceived Competence between the combined intervention groups (i.e. IG1 + IG2) and Control Group. This found that the mean scores were significantly different ($F(2.271, 45.430) = 8.278$, $p = .001$, $n\rho = .293$) for the intervention groups, but not for the control ($F(3, 30) = 0.954$, $p = .427$, $n\rho = .87$). Post hoc tests using a Bonferroni correction revealed that the intervention elicited a significant difference between baseline and post-intervention ($p < .001$); baseline and 3-month ($p = .001$); and baseline and 6-months ($p = .011$). Therefore, it can be concluded that the long-term effects of the intervention (i.e. 6 months) elicits a significant increase in motivation compared to the control group (see fig. 7)

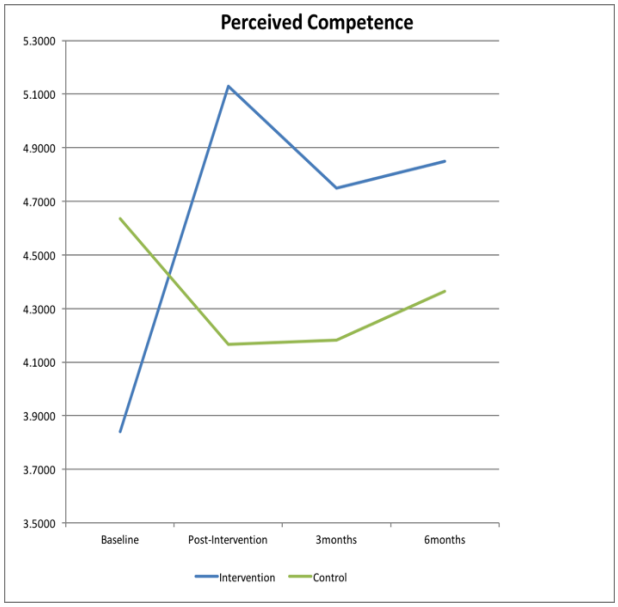

Fig 8: Means for Perceived Competence by Intervention Group

7.2b Change from Baseline in Perceived Self-Efficacy (CDSE)

Intervention versus Control

In order to see if there was a change in self-efficacy from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare Self-efficacy between the combined intervention groups (i.e. IG1 + IG2) and Control Group. This found that the mean scores were significantly different for the intervention group ($F(2.155, 43.093) = 8.466$, $p = .001$, $n\rho = .297$), but not for the control ($F(3, 30) = 0.684$, $p = .569$, $n\rho = .064$). However, with a small effect size, suggesting that the control group sample may have been underpowered due to insufficient sample size. However, results indicated that the control group were inadequately powered, with a partial *partial η2* of (0.64). Conversely though, the Observed power suggested that the sample was adequately powered (i.e. above .80) which may have resulted in a type II error. In summary, overall the graph (Fig. 8) demonstrates the beneficial effect of the intervention at post-intervention, which is relatively sustained over the subsequent time periods. This suggests that the intervention may be relatively effective at increasing an employee's sense of control and maintaining its effect over a 6-month period.

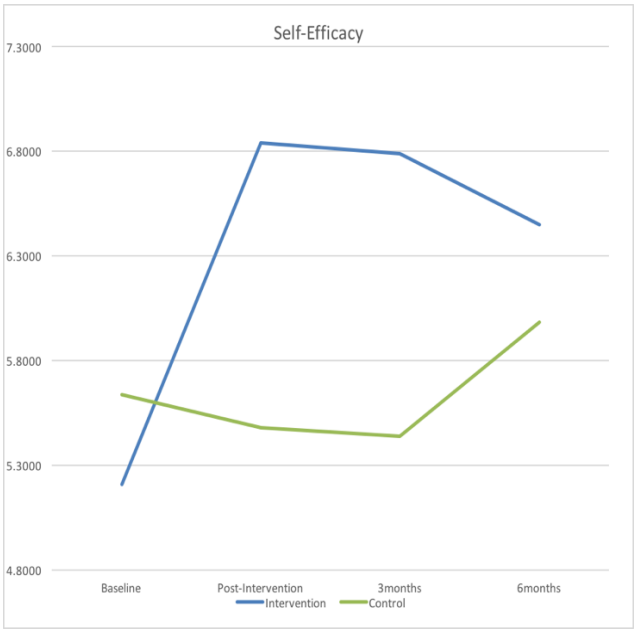

Fig 9: Means for Self-Efficacy by Intervention Group

7.2c Change from Baseline in the Well-being Index Dimensions

Well-being Current Life Evaluation – Intervention versus Control:

In order to see if there was a change in well-being (current life evaluation) from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare well-being between the combined intervention groups and the control group. This found that the mean scores identified a non-significant difference for the intervention group ($F(3, 60) = 7.900$, $p = .000$, $n\rho = .283$) for the intervention groups, but not for the control ($F(3, 30) = 0.816$, $p = .495$, $n\rho = .075$). Post hoc tests using a Bonferroni correction revealed that the intervention identified a non-significant at all time points. However, results indicated that both the intervention and control samples were inadequately powered, with a *partial η2* of (0.45 and 0.28, respectively). Conversely though, the Observed power suggested that both the intervention and control groups were adequately powered (i.e. above .80) which may have resulted in a type II error. Although, the graph (Fig. 9) demonstrates the beneficial effect of the intervention at post-intervention, which is relatively maintained over the subsequent time periods. This suggests that the intervention may be relatively effective at increasing mean current life evaluation and maintaining its effect over a 6-month period.

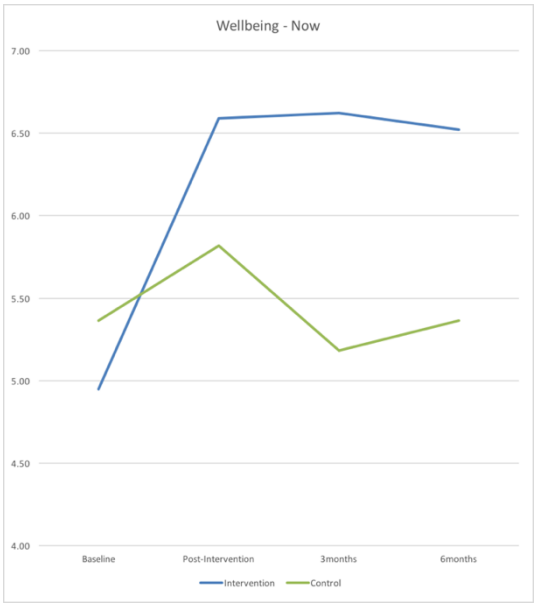

Fig 10: Means for current life evaluation by intervention group

Well-being Future Life Evaluation – Intervention versus Control:

In order to see if there was a change in well-being (future life evaluation) from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare well-being between the combined intervention groups and the control group. This found that the mean scores was non-significantly different ($F(1.808, 36.153) = 3.017$, $p = .066$, $n\rho = .131$) for the intervention groups, and for the control ($F(3, 30) = 0.702$, $p = .559$, $n\rho = .066$). Post hoc tests using a Bonferroni correction revealed that the intervention elicited a significant difference between baseline and post-intervention ($p = .001$); baseline and 3-month ($p = .044$). Therefore, it can be feasibly concluded that the long-term effects of the intervention elicit a more positive evaluation of their future life, which is relatively maintained over a 6-months period (see fig. 10).

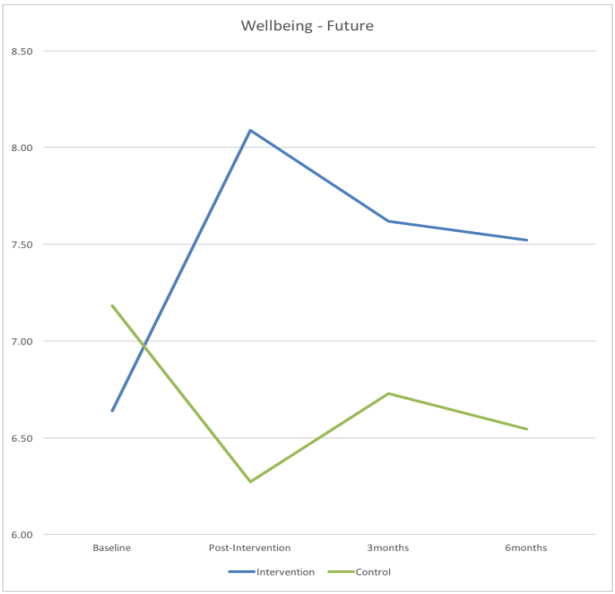

Fig 11: Means for future life evaluation by intervention group

Well-being Purpose – Intervention versus Control:

In order to see if there was a change in well-being (purpose) from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare well-being between the combined intervention groups and the control group. This found that the mean scores was significantly different ($F(3, 60) = 3.443$, $p = .022$, $n\rho = .147$) for the intervention groups, but not for the control ($F(3, 30) = 0.743$, $p = .535$, $n\rho = .069$), with a small effect size, suggesting that the control group sample may have been underpowered possibly due to a skewness between the sample, identified in the descriptive statistics above. Post hoc tests using a Bonferroni correction revealed that the intervention elicited a significant difference between baseline and post-intervention ($p = .039$); baseline and 3-month ($p = .000$), but not at baseline and 6-months ($p = .097$). Therefore, it can be feasibly concluded that the long-term effects of the intervention elicit an increased sense of purpose, which is relatively maintained over a 6-months period (see fig. 11).

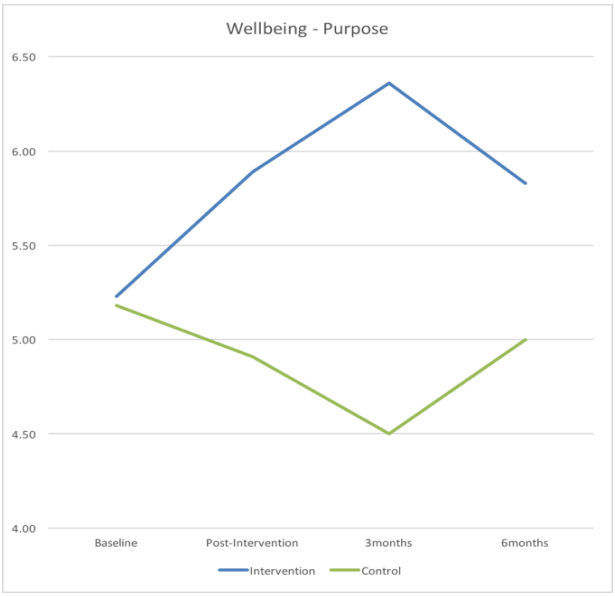

Fig 12: Means for sense of purpose by intervention group

Well-being Social – Intervention versus Control:

In order to see if there was a change in well-being (social) from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare well-being between the combined intervention groups and the control group. This found that the mean scores identified a non-significant difference for the intervention group ($F(3, 60) = 0.948$, $p = .423$, $n\rho = .045$), and control groups ($F(3,30) = 0.283$, $p = .837$, $n\rho = .028$). Post hoc tests using a Bonferroni correction revealed that the intervention identified a non-significant at all time points. However, results indicated that both the intervention and control samples were inadequately powered, with a *partial η2* of (0.45 and 0.28, respectively). Conversely though, the Observed power suggested that both the intervention and control groups were adequately powered (i.e. above .80) which may have resulted in a type II error.

Well-being Financial – Intervention versus Control:

In order to see if there was a change in well-being (financial) from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare well-being between the combined intervention groups and the control group. This found that the mean scores

identified a non-significant difference for the intervention group (F(3, 60) = 0.123, p = .946, nρ = .006), and control groups (F(3,30) = 0.644, p = .858, nρ = .025). Post hoc tests using a Bonferroni correction revealed that the intervention identified a non-significant at all time points. However, results indicated that both the intervention and control samples were inadequately powered, with a *partial η2* of (0.06 and 0.25, respectively). The Observed power supported this suggestion for the intervention group only (i.e. < .80) which may have resulted in a type II error due to the data being skewed at both post-intervention and 3-months (see descriptive statistics).

Well-being Community – Intervention versus Control:

In order to see if there was a change in well-being (sense of community) from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare well-being between the combined intervention groups and the control group. This found that that the mean scores identified a non-significant difference for the intervention group (F(3, 60) = 2.256, p = .091, nρ = .101), and control groups (F(3,30) = 1.915, p = .285, nρ = .117). Post hoc tests using a Bonferroni correction revealed that the intervention identified a non-significant at all time points.

Well-being Physical – Intervention versus Control:

In order to see if there was a change in well-being (physical health) from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare well-being between the combined intervention groups and the control group. This found that the mean scores was significantly different (F(2.029, 40.588) = 5.136, p = .010, nρ = .204) for the intervention groups, but not for the control (F(3, 30) = 0.886, p = .459, nρ = .081). Post hoc tests using a Bonferroni correction revealed that the intervention elicited a significant difference between baseline and post-intervention (p = .000); baseline and 3-month (p = .001), but not at baseline and 6-months (p = .053). Therefore, it can be feasibly concluded that the long-term effects of the intervention

elicit an increased sense of physical well-being, which is relatively maintained over a 6-months period (see fig. 13).

Fig 13: Means for sense of physical well-being by intervention group

7.2d Happiness

In order to see if there was a change in overall happiness over the course of the intervention a Wilcoxon signed-rank test was conducted using the measure of whether participants felt happy today. The responses were either Yes, No or Indifferent. This found that there was a statistically significant difference in perceived happiness from baseline to post-intervention, $(x^2(1) = 7000, p = .008)$. Post hoc analysis with Wilcoxon signed-rank tests was conducted with a Bonferroni correction applied, resulting in a significance level set at $p < 0.025$. There were not significant differences between happiness status for the control group $(Z = -0.447, p = .655)$. However, there was a statistically significant increase in perceived happiness in the combined intervention group $(Z = -2.428, p = .015)$ (see Fig. 14).

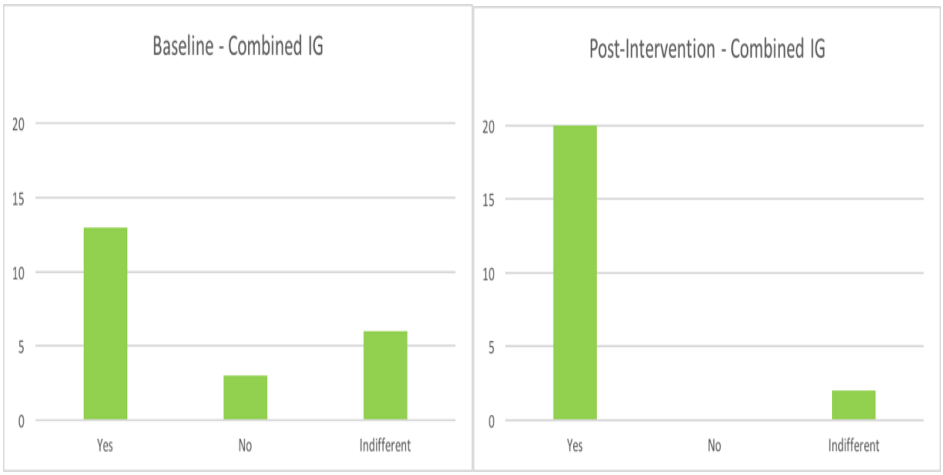

Fig 14: Perceived happiness at baseline and Post-Intervention

7.3 Hypothesis Two: Organisational Outcomes

7.3a Presenteeism (SPS-6):

Intervention versus Control:

In order to see if there was a change in Presenteeism from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare Presenteeism between the combined intervention groups and the control group. This found that there was no significant effect in for the combined intervention group ($F(3, 60) = 0.903$, $p = .445$, $n\rho = .043$) or the control group ($F(3, 30) = 0.371$, $p = .774$, $n\rho = .036$). Post hoc tests using a Bonferroni correction revealed no significant difference across all time points. However, results indicated that both the intervention and control samples were inadequately powered, with a *partial η2* of (0.43 and 0.36, respectively). Conversely though, the Observed power suggested that both the intervention and control groups were adequately powered (i.e. above .80) which may have resulted in a type II error.

7.3b Work Engagement (UWES)

Vigour – Intervention versus Control:

In order to see if there was a change in work engagement (vigour) from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare work engagement between the

combined intervention groups and the control groups. This found that there was no significant effect for those in the intervention group (F(1,194, 38,284) = 2.497, p = .098, nρ = .111) or with the control group (F(3, 30) = 1.222, p = .319, nρ = .109)(see fig. 19). Post hoc tests using a Bonferroni correction revealed that there was a significant difference at baseline and post-intervention (p = .027), and at baseline and 3-months (p = .012). No other significant differences were identified. This suggests that the intervention may be relatively effective at increasing an individuals' sense of resilience in facing challenges and generally maintaining its overall effect over a 6-months (see fig 15).

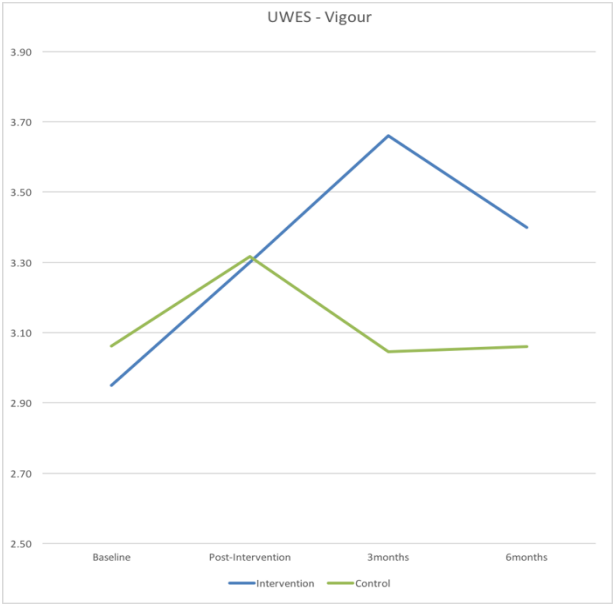

Fig 15: Means for Vigour (Resilience) by Intervention Group

Dedication – Intervention versus Control:

In order to see if there was a change in work engagement (dedication) from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare work engagement between the combined intervention groups and the control groups. This found that there was no significant effect for the combined intervention group (F(3, 60) = 1.457, p = .235, nρ = .068) or the control group (F(3, 30) = 0.008, p = .991, nρ = .004). Post hoc tests using a Bonferroni correction revealed no significant difference across all time points. However, results indicated that both the intervention and

control samples were inadequately powered, with a *partial η2* of (0.68 and 0.04, respectively). Conversely though, the Observed power suggested that both the intervention and control groups were adequately powered (i.e. above .80) which may have resulted in a type II error.

Absorption – Intervention versus Control:

In order to see if there was a change in work engagement (Absorption) from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare work engagement between the combined intervention groups and the control group. This found that there was no significant effect for the combined intervention group ($F(3, 60) = 1.276$, $p = .291$, $n\rho = .060$) or the control group ($F(3, 30) = 0.364$, $p = 0.779$, $n\rho = .035$). Post hoc tests using a Bonferroni correction revealed no significant difference across all time points. However, results indicated that both the intervention and control samples were inadequately powered, with a *partial η2* of (0.45 and 0.28, respectively). Conversely though, the Observed power suggested that both the intervention and control groups were adequately powered (i.e. above .80) which may have resulted in a type II error.

7.3c Change from Baseline in Absenteeism at 6-months Follow-up

Absenteeism – Intervention versus control:

In order to see if there was a change in Absenteeism from baseline, a mixed 2 (Intervention v Control) x 4 (Time: Baseline, Post-Intervention, 3-months and 6-months) ANOVA was conducted to compare number of days absent between the combined intervention groups and the control group. This found that the mean scores was significantly different ($F(1, 19) = 12.066$, $p = .003$, $n\rho = .388$) for the intervention groups, but not for the control ($F(3, 10) = 0.981$, $p = .345$, $n\rho = .089$). Therefore, it can be feasibly concluded that the long-term effects of the intervention elicit a decrease in absenteeism (see fig. 16).

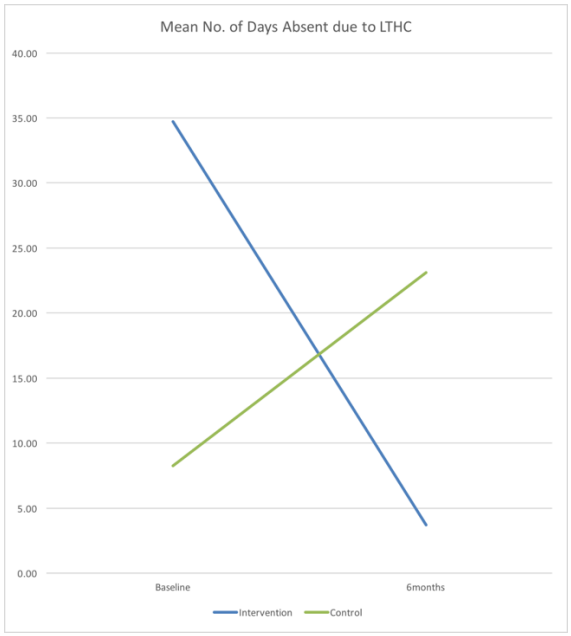

Fig 16: Mean Absenteeism at baseline to 6-months by intervention group

7.4 Feedback received from Participants Post-intervention

At the end of the last session, participants were asked to provide feedback in four key areas:

- What were their initial thoughts about the intervention?
- How did they feel following the intervention?
- What aspects of the intervention would they take away with them?
- What aspects of the intervention would they throw away?

All participants were asked to write feedback on four different coloured post-it notes and stick them on a board. The feedback was anonymised and neither the Researcher or the lay-tutor were near the flip-chart when participants placed their comments. No qualitative analysis was undertaken on this feedback. The responses only are reported in the following table (See table 7 & 8 below), for discussion later.

Table 7: Feedback from Combined Intervention Group

Think:	Feel:
• "I need to act on what I have seen or learned" • "I think the handouts and information provided are excellent. It is clear that of lot of work has been put into the course." • "Lots to plan, but not to take on too much. Making sure plans are achievable and taking small steps." • "Meeting other colleagues with similar long-term conditions was good." • "Some of the slides were hard to read. Small print and inappropriate colour content (Harder for those at the back)." • Think I will be able to improve the areas needed on Wellness Wheel. Very useful for all types of health conditions." • "Would recommend the course. It was good. Well worth doing. I have learned a lot." • "Confirmation or permission to behave in some ways in some circumstances." • "I can do!!!" • "How Can I??" • "Worthwhile and Educational." • "I think the course was well presented. I fully understood it. Great people were running it. Wonderful we could share our experience." • "How to apply what I have learned." • "That I have some strategies to use in the future when it gets tougher." • "This has been a great benefit to me and I glad I attended." • "How beneficial the course has been to me!" • "Very glad I joined." • "Not sure about the mindfulness and breathing. The exercises give me chest paints and struggle to breathe. Sleep, stress, depression and pacing very useful."	• "Confident that I will cope better. Pleased I came on the course. In control of emotions. Enthusiastic to change. Positive for the future." • "It feels good to be part of a group. We all have different conditions but lots in common. It is nice not to feel alone. Still working on motivation, but hope this will improve. Re-assured help is out there. You can help yourself." • "Positive and Happy." • "Happy to be part of it and with other people who understood long-term health conditions. Supported." • "Relieved and not alone." • "Very Positive. I am glad I stuck with it. Dubious at the start. Greater acceptance." • "Very informative and helpful." • "Educational." • "Love the goal setting exercise. Definitely makes a difference to my sleep." • "Reassured that I have some coping strategies. Confident in setting realistic goals." • "Helpful and happy – Calmer." • "Comfortable and supported – Happy." • "The course has helped me cope with my condition and learn about myself and how I can overcome it. Not alone."

Feedback from participants was provided, by asking them to complete four post-it notes, each with the following headings: Think (i.e. what were their initial thoughts); Feel (i.e. how did they feel); Throw-away (i.e. what aspects of the intervention did they feel did not work for them as an individual); and Take-home (i.e. what aspect of the intervention did they feel they gained the most by?).

The qualitative analysis of what participants generally thought immediately following the intervention, suggested that individuals were consolidating what they had learned over the course of the 4-weeks, but also mindful of the goals they had set themselves and the steps they would have to take to realise them. For example, *"Lots to plan, but not to take on too much. Making sure plans are achievable and taking small steps".* There were also several comments relating to the benefit they thought they had received from taking part in the intervention. For example, *"Would recommend the course. It was good. Well worth doing. I have learned a lot". (please see Table 7)*

The qualitative analysis of what participants generally felt immediately following the intervention, supported the findings above relating to happiness. Many individuals felt confident in their ability to cope and positive and happy about the future, for example *"Confident that I will cope better. Pleased I came on the course. In control of emotions. Enthusiastic to change. Positive for the future".* The comments received also indicated a strong support of the significant findings for self-efficacy and competence (Please see Table 7).

The qualitative analysis of what aspects of the course participants found particularly beneficial (i.e. take away with them), were Qi-Gong, Breathing, Mindfulness, and Pacing. For example, *"Prioritisation, Pacing, Qi-Gong, and Mindfulness"* and *"Coping skills: breathing and visualisation. Wellness/Symptom Wheel – Breaking the loop/triangle. Meditation and exercises. Everything!! Course content was awesome. Thoroughly enjoyed. Provided me with tools needed to improve and maintain mental health condition".* The comments demonstrate that the skills developed throughout the intervention, were extremely important to participants,

providing them with a clear and practical means of coping with their LTHC within the workplace. (Please see table 8).

Table 8: Feedback from Combined Intervention Group

Take Away:	Throw Away:
• "Activities to complete. The nutrients table to improve my health." • "Coping skills: breathing and visualisation. Wellness/Symptom Wheel – Breaking the loop/triangle. Meditation and exercises. Everything!! Course content was awesome. Thoroughly enjoyed. Provided me with tools needed to improve and maintain mental health condition." • "Notes to read to refresh my memory." • "Positivity." • "Qi-Gong and me time." • "Prioritisation, Pacing, Qi-Gong, and Mindfulness." • "Qi-Gong, Breathing, Nutrition and Depression". • "Knowledge!!" • "More exercise. Time for me. Stick at my long-term plan." • "Qi-Gong and breathing exercises." • "Goal setting. Logging activities. Setting priority time for friends." • Qi-Gong. Sense of positivity. Determination to be more active. To keep up healthy eating. To recommence meditation." • "Info on sleep, exercise and healthy eating. Dealing with stress and practicing pacing." • "Mindfulness. Exercising. Qi-Gong. Pacing."	• "Maybe have shorter session or a longer break? I feel exhausted after the sessions because they are interesting but also intense." • "Nothing" • "Nothing but negative thoughts! Unable to knock the course content." • "The first week was a bit disconcerting – I didn't know what to expect. The feeling that I was attend Group Therapy was a shock. More information before the start re: structure and course and what to expect would be better." • "Meditation." • "Nothing!!" • "Meditation and breathing." • "Nothing, I will try the suggestions and see if one or other is better for me." • "Don't know yet!" • "Don't believe Qi-Gong will help because I have no sense of coordination with my limbs moving in different directions." • "Some of the longer sessions of listening after a relaxation technique were harder to concentrate on. However, mindfulness and breathing at the end of session was lovely."

The qualitative analysis of what aspects of the intervention participants found least beneficial (i.e. throw away), tended to focus mainly on the length of the sessions. For example, *"Maybe have shorter session or a longer break? I feel exhausted after the sessions because they are interesting but also intense"*. However, there were also several comments relating to participants, who would not change any content, as they appeared to find it all beneficial. For example, *"Nothing"* was a comment received from 5 of the participants (Please see table 8).

Overall the feedback from the combined groups was positive. The comments were reflective of the results achieved from the questionnaires and demonstrated a positive affect for the intervention.

8.0 DISCUSSION

The comprehensive, coherent, and evidenced-based WISH intervention demonstrated considerable promise as a workplace self-management approach to empowering employees with LTHC's, enabling them to remain in continued employment. It was successful in achieving the individual outcomes hypothesised, with respect to increasing perceived self-efficacy, increasing competency, and generally improving individual well-being over the 6-months period, for employees involved in the study. Regarding the organisational outcomes, the employer-sponsored self-management intervention was successful in achieving a reduction in absenteeism for employees with LTHC's over the 6-month period. Although individual reports regarding absences were not obtained from the organisation for confidentiality reasons, collective group data was obtained for both the intervention and control groups, which supported the self-reported findings. The intervention also demonstrated a significant increase in perceived happiness of participants, compared to the control. These improvements, demonstrated the positive impact the intervention had on a working population with LTHC's, not only in relation to the individual employee, but also the organisational outcomes. The qualitative analysis, although not a primary methodological objective of the study, supported the quantitative findings and provided further evidence as to the feasibility of the WISH intervention. The intervention, also demonstrated little difference between those with physical, compared to those with emotional LTHC's, suggesting that the intervention is equally as beneficial to either group of employees. Thus, demonstrating the generalisability of the intervention to all employees with LTHC's, regardless of diagnoses.

The results that reflected the most promise for the WISH intervention, were the significant increase in competence and self-efficacy. The individual results demonstrated a definite increase in competency, over the 6-months period, supporting the embodiment of a self-management intervention, which is to change behaviour (Bourbeau, Nault, & Dang-Tan, 2004). Similar results were also demonstrated for the overall improvement in self-efficacy over the 6-month-period,

supporting previous research around self-management and self-efficacy (Lorig, Sobel, Ritter, Laurent, & Hobbs, 2001; Du & Yuan, 2010; Shaw, et al., 2012; Tvelto, Shaw, Huang, Nicholas, & Wagner, 2010). The results relating to self-efficacy and perceived competence, provide further evidence that self-management interventions have the potential for longer-term benefit, particularly in the workplace, than previously suggested by Bury and colleagues (Bury, Newbould, & Taylor, 2005).

The results also demonstrated similar promise, for well-being, with improvements in the current and future life evaluations, purpose, and physical dimensions. However, these promising results were not reflected in the Well-being Social, Financial and Community dimensions of the Well-being Index. The reasons for this anomaly, may be due to inadequate numbers of participants to adequately measure all the dimensions of well-being appropriately. However, other alternative reasons for this anomaly may exist, such as participant misunderstanding of the question wording, possible inappropriateness of the measure for the population being studied, or external factors (e.g. change management) which were occurring within the organisation at the time of the study. The impact of such external factors was difficult to control for with the longitudinal nature of the study and may be viewed as a possible limitation to the current study. Although the lack of significant results in aspects of well-being may not be as clear as one would have hoped, the general direction of improvements in the various dimensions of the Well-being Index, do reflect a positive contribution from attending the WISH intervention, which remained consistently improved over the 6-month period. An example of this, can be reflected in the verbal feedback, regarding positive changes in eating habits, provided by one of the participants, who stated "*I have lost 2 stone in weight, this has increased my mobility*". The same participant stated that they felt their health had improved with every time-period assessed throughout the study.

The qualitative analysis of the feedback received from participants immediately post-intervention, was very positive, supporting the quantitative findings in a number of key areas, such as self-efficacy, confidence and happiness. The responses were

also positive in relation to behaviour change, with several phrases, which were highly suggestive of 'change talk' from participants. For example, *"Lots to plan, but not to take on too much. Making sure plans are achievable and taking small steps"* and *"Confident that I will cope better. Pleased I came on the course. In control of emotions. Enthusiastic to change. Positive for the future".* The practical, skill related approach of this work-related self-management intervention, also seemed to be justified in the feedback received, in relation to what participants felt they 'took away' from the sessions. The 'take away' elements were primarily skill based tools and techniques, which participants felt they could adapt to their work-life to improve their health and well-being for the future. Very little negative feedback was received, however much of this related mainly to the length of the sessions, which is discussed later in more detail.

8.1 Limitations

The results of the intervention appeared to be less clear for the organisational outcomes, where the responses were more fluctuating, for Presenteeism. Possible reasons for this lack of positive change, may have been due to the inappropriateness of the measures utilised, with respect to this group of participants, i.e. those with LTHC. Although, Presenteeism was shown to have good internal consistency, it may have provided an inadequate measure in respect to employees with LTHC's. Presenteeism has been mainly utilised in the measurement of employees who are affected by acute illnesses in the workplace such as flu, and the resulting reduction in motivation and productivity during this time. However, Presenteeism for employees suffering from LTHC's can fluctuate from one day to the next, with the ups and downs commonly associated with many health conditions. However, according to Johns (2010), Presenteeism has demonstrated good internal consistency, for both acute (e.g. flu), episodic (e.g. migraine), and chronic (e.g. the onset of a diabetes). On balance, therefore, the nature of the LTHC's which the participants reported, and the daily fluctuations experienced, may have impacted on the effectiveness of the SPS6 to identify whether the intervention would be successful in minimising the effect of Presenteeism. However, it is worth noting that the mean average for Presenteeism did increase from baseline to post-intervention

unilaterally for both physical and emotional LTHC's. But, at 3-months there was a divergence, of the physical and emotional health conditions, where it was noted on the questionnaires that several participants experienced a difficult period emotionally due to external causes, affecting the subjective responses received. At 6-months, both the emotional and physical LTHC's, started to come back together, with a slight dip in Presenteeism the physical group, and an increase for those with emotional LTHC's. This may have been due to the stabilisation of an organisational change, or potentially it could suggest that the intervention effect may have settled for each group of employees. Although these results were non-significant, the evidence suggests that the WISH intervention, did have an impact on reducing Presenteeism for those with LTHC's i.e. the higher the Presenteeism score the more present and productive the employee is, suggesting that further research is required to determine its effect.

In a survey undertaken by the Author, of employee well-being within the current Organisation, where 1500 responses were received from across the all Departments. Presenteeism was measured using the SPS6, where it was found that those employees with LTHC's were significantly more present compared to healthy employees. The results suggested that employees with LTHC's tended to feel that they needed to prove their motivation and productivity, to counteract their periods of prolonged absence. The average mean for employees with LTHC's was 19, compared to 17 for healthy employees. The present study did not reflect this, which is potentially due to the lack of participant numbers in the current study, therefore making it impossible to gain a significant result. The implication of this limited analysis is that more testing might well lead to additional information: with greater power, inherent in a more wide-ranging study (and greater number of participants), such results could be expected to at least replicate and quite likely increase.

The organisational data for both Presenteeism and work engagement is self-reported. Survey answers are limited to participants' perceptions of their ability to 'handle' stress or distraction and maintain performance at work. As with all studies

around Presenteeism, work engagement and workplace wellness, it is impossible to obtain objective data. The most common example of objective data, is with absenteeism, where data are readily available and quantitative. Workers simply *are* at work, or not, and such data are readily compiled and manipulated. Conversely, Presenteeism and work engagement deals with individuals' understanding of their ability to perform, having made the choice to show up for work, and the information can be obtained only by asking for participants' perceptions on the matter. So, the issue of whether an individual's perception of ability or capacity is accurate remains purely subjective and cannot be measured or proven by external, objective standards, at least until enough data have been collected and compiled in future research.

Regarding work engagement, Vigour (i.e. physical energy) was the only dimension of the UWES (Schaufeli, Bakker, & Salanova, 2003) measure, which demonstrated any significant increase over the 6-months. This is consistent with the results obtained in the individual outcomes for well-being, where physical health was shown to improve over the 6-month period. However, the changes demonstrated in the other two dimensions, i.e. dedication (emotional) and absorption (cognitive) were not significant, but did demonstrate slight increase over the 6-months period. Effects from organisational change, which were occurring across various divisions at the time of the study may also have impacted on the lack of significant change in these results. Organisational change can be extremely unsettling for all employees, but particularly so for those with a LTHC. This can enhance feelings of vulnerability due to work hours lost caused by their LTHC, thus increasing individual feelings of helplessness due to fear of job cuts, etc. The potential impact of the Organisational changes on an employee's dedication or absorption within their job may have a significant effect. However, unless the effect on participants had been accounted for at the time, the impact on the results of this study remains unknown.

A further issue with the appropriateness of the UWES measure was, which although internal consistency was good, the lack of studies showing the effectiveness of the measure for employees with LTHC's, remains an issue, especially as

disengagement from work is a concern to employees with health problems (Shaw, et al., 2012). However, although the overall result for work engagement is not a conclusive one, it does demonstrate that the self-management intervention for employees with LTHC's does show a potential for improvement, albeit less significantly. Thus, considering work engagement will provide complimentary evidence as to the benefits of a workplace self-management intervention within an Organisation on aspects such as well-being, motivation, as well as self-efficacy and a sense of control. However, it is acknowledged that internal organisational changes may affect the intended outcomes at the time of undertaking this study.

A further limitation, may have occurred due to the lack of randomisation of participants, which reduces the effect of selection bias. However, randomly allocating participants to either the intervention or control groups, may not completely protect against selection bias. The logistics of randomisation, due to the multi-site nature of the organisation, made it challenging to manage a valid randomisation method. However, future studies could strengthen the results obtained in the current study by implementing an appropriate randomisation method.

A further potential limitation, is the how much the statistical analysis can actually tell us in relation to the effectiveness of the intervention in improving self-efficacy, increased competence, etc. Quantitative data does study the factors outside the scope of the statistics. For example, the differences in an individual's behaviour following the interventions, which may be positive or negative. Although the original design of the study did not include the collection of qualitative data, the Author felt that the feedback collected during and at the end of the intervention, and also subsequent follow-up sessions, was substantially valuable to add weight to the quantitative findings. When an intervention is delivered, the effects of the intervention on the participants, may be due to many different causes. However, all of these cannot be expressed in terms of data. Thus, although the feedback added colour to the picture of this intervention, it is recommended that future research also

include qualitative data, perhaps in the form of a focus group or one-to-one interviews.

In discussing the limitations of the study, it is advisable to consider the Hawthorne effect, which is a change in behaviour as a motivational response to the interest or attention received through observation or assessment. However, when delivering a therapeutic intervention, such as WISH, it is important to recognise the importance of developing the therapeutic relationship, as outlined by Carl Rogers (Rogers C. , 1971). Rogers concept of “congruence” has been used to describe the ethical relationship between the researcher and field-based research participants, which is similar to that of the ideal therapeutic environment for developing qualitative trust through the process of initiating “unconditional positive regard”. Although it is recognised, that developing such congruence with participants may risk potentially bringing about the Hawthorne effect, it is argued that the development of such a trusting ‘unconditional positive regard” with one’s participants was an essential component in the behaviour change process for each of the participants.

8.2 Recruitment and Retention:

Interest in taking part in the feasibility study was extremely high amongst the workforce, but the practicalities of recruiting and retaining employees was more challenging. Although the numbers recruited for the feasibility study remained constant, at all stages, work requests from managers, particularly during the intervention, were relatively high. This put additional pressure on participants, who felt strongly that they wanted to attend, but also an obligation and due diligence to their employer to return to work when requested. For the purposes of the study, the Author obtained written permission from each participant’s line manager to reduce the impact of this issue. This solution did minimise the impact of work pressure when attending the intervention, but did not eradicate it altogether. However, retention could remain a problem in the future. Therefore, solutions such as off-worksite location for the intervention, may have to be explored within the context of

further expanded research of the intervention (see section 6.5 for more detailed discussion about potential future research).

8.3 Reflective Account of Delivering the Intervention:

As the intervention contained aspects of CBT and Mindfulness, the beginning of each session of the WISH intervention commenced with a Mindful Acceptance exercise, which was included to ideally instil a sense of clarity and openness into participants. This simple short exercise at the beginning of each session proved to be extremely beneficial, and provided a clear intention to commence the session, which appeared to facilitate the integrated therapeutic/learning process. A 3-minute breathing exercise was given at the end of each session to draw it to a conclusion and enable participants some time to relax and wind down following each week. However, although it was determined that the principal of the relaxation activity at the end of the session was an essential component of the intervention, it was too short to enable participants to fully relax following the intensity of the session. This may have resulted in participants returning to work feeling more stressed (please see paragraph later in the discussion relating to timings for further detail). A possible solution to this may be to adjust the timings of the session slightly to allow for additional time at the end of the session, or to increase the length of the session to ensure that sufficient time is provided to enable participants to fully relax post-session.

The goal of week one of the WISH intervention, was specifically designed to enable participants to feel connected and not alone with their long-term health condition. Activities enabled individuals to share their experiences and discuss the issues regarding their health condition within the workplace, which they saw as being either a facilitator or barrier to successfully self-managing their long-term health condition and general well-being. The psychosocial determinants of TPB, were found to be particularly important in achieving the favourable individual outcomes obtained in the study. One of the activities in the first session, asked individuals to write down their personal objectives for the course, as well as their motivations for enrolling on the intervention in the first place. This provided a key insight into the attitudes and

motivations of the participants towards making the desired self-management behaviour changes. An example of the statements is in Appendix 7. The themes for the objectives seemed primarily to focus around a desire to regain control, and the desire to develop new skills and ways of coping, which would help them do that. The objectives mirrored this in a desire to learn new and better skills and techniques to help them cope better both at work and at home. The responses demonstrated a definite belief that gaining such skills would enhance their lives and give them the control over their health that they all felt they needed.

Participants were also asked, through the medium of 'Thought Clouds', "What do you think the benefits of learning to manage your long-term health condition?" and "What support do you have in work and outside work for developing self-management strategies to manage your health?". Both simple activities worked well in providing a means to gaining insight into the individuals' normative (i.e. individual's beliefs that her or she should not perform such behaviour) and behavioural belief (i.e. belief that behaviour will produce a given outcome). The behavioural beliefs tended to focus on issues of acceptance, happiness and self-awareness; the normative beliefs were positive about personal support, whereas work support tended to be more negative phrased with comments such as "l*ack of managerial support*" and "*managers judgemental*". However, one comment that seemed to link both personal and work related support was "*I don't know how much support I want*". All these comments suggested that work was an area where lack of managerial support was a concern, in relation to having the support to continue the new self-management behaviours once they were back in their respective departments. Both the shared experiences and the thought cloud activities, mentioned above, were beneficial in creating a unique social support bond between participants, which provided a supportive foundation, on which to build and develop the self-management skills in later weeks of the intervention.

In week one, the three main topics covered was to introduce the concept of self-management to participants, building self-esteem and self-confidence, and learning breathing techniques. The three topics integrated together to enable participants to

understand why and how self-management techniques could be utilised to help them with the LTHC's, feel more aware and confident to enable them to develop new skills, and provide a simple technique (i.e. breathing) to enhance their self-esteem and confidence in learning to develop an essential strategy which would assist them in many of the key self-management areas, such as stress or pain management. The three activities worked as expected, and enabled desired sessional outcomes to be achieved.

The last activity of session one was goal setting, which also worked extremely well, introducing one of the key behaviour change components, as laid out by Michie and colleagues (Michie, Atkins, & West, The behaviour change wheel: A Guide to Designing Interventions, 2014). The goal setting was guided by the Wellness Wheel, discussed above, ensuring that the goal set was important to them, with the desired outcome to maintain motivation throughout the intervention. Although goal setting enabled participants to set their individual goal for the intervention, they could break it down into separate doable tasks each session. This combination of the two components (i.e. the wellness wheel and the goal setting activity) seemed to provide participants with a clear focus for what they wanted to achieve and how they were going to achieve it, which was specifically helpful to successful and motivated behaviour change. On each subsequent week, the goals were reviewed, and any barriers that arose were discussed in the group. This was particularly helpful, and individual participants felt able to share their experiences easily. This activity also acted as a motivator, as group participants could share work experiences relating to their goals, and offer solutions to barriers that they may have experienced, as well as provide encouragement to those who were struggling.

Prior to delivery of the Healthy Eating activity in week four, there was some concern from the facilitators, that the topic provided no basic skills knowledge about the subject. However, upon delivery of the session, this was found not to be an issue, as participants appeared to feel competent with the basic skills knowledge, due to the myriad of information being offered by bodies such as Public Health England and the National Health Service. Therefore, providing participants with the

intention-based strategy (O'Connor, Armitage, & Ferguson, 2015) to empower them to make healthier food choices, was beneficial in increasing their sense of self-efficacy, especially within a work context, where stress is common-place, particularly for those with LTHC's. The activity also provided a different slant on a 'well-worn' topic, which helped to maintain interest and motivation amongst participants.

Exercise was included in the last session of the intervention. However, as with healthy eating, the activity considered various forms of easy exercise, which are suitable to those with LTHC's, as well as motivational aspects of exercise, utilising a variation of the intention-based strategy by O'Connor and Colleagues (2015) mentioned above. The two forms of exercise that were covered in more detail, were walking and Qigong. Increasing walking within work, was discussed, with various strategies on how individuals could to do this and remain motivated to do so. For example, simple ideas like using the stairs instead of the lifts was discussed, also walking a longer route to a meeting or the use of a lunch time walk. Qigong was given as an example of an alternative exercise which is useful for improving well-being, balance, strengthening and reducing stress. Although Qigong was relatively unknown within the group, the feedback (Table 8) from participants demonstrated that its inclusion within the intervention was viewed extremely positively.

The introduction of a prescribed homework element, in addition to the goal setting, was extremely beneficial and well received by participants. This element, which was scattered throughout the intervention, provided key elements of self-management, which were individual to each participant. So, for example, each participant was asked to search key sources of information (i.e. NHS website, and condition specific support groups) to ensure that they learned relevant information about the individual conditions, which would guide their behaviour change goals, whilst ensuring that they were able to gain greater knowledge about their health to enable them to make realistic choices and decisions in the future. This activity was particularly helpful, and feedback from participants was extremely encouraging at

alleviating some of the initial concerns regarding the non-condition generalised nature of the intervention design.

At the end of each weekly session, a pack of information regarding the topics covered, and the activities undertaken was provided to participants. This worked extremely well, as participants could enhance what they had learned during the session, by undertaking further reading on the topic. This not only supported the goals of self-management, but provided individuals with reliable and trustworthy sources of further information in which they could assimilate the skills they had learned during the intervention. A further aspect of the pack of information, was the inclusion of group activities, which enabled individuals to keep a record of the responses being provided by the group. Although this was optional, in a sense that individuals did not have to record any information from a specific activity if they chose not to do so, it was found that a majority of individuals found this helpful as a reference guide to refer back to, particularly when they were developing the Wellness Plan, at the end of the last session.

The timings for delivery of each activity within the four weekly sessions, were relatively accurate. However, on reflection, additional time should be allowed for each session, to enable individuals the opportunity to assimilate the information they are receiving and ask further questions if required. This was particularly relevant to the timings for the relaxation at the end of each session, which were designed to be brief to enable participants to return to work following the four-hour allotted time for the session. In post-intervention feedback, it was commented that "*For the past four weeks, I've felt increasingly anxious and I've been attributing each instance to whatever I thought the cause might be – be it my workload, my working relationships or my home/life balance. However, yesterday, following the end of the final session, the stress just lifted. Suddenly, nothing seemed that bad*…" This may have been due to an issue of compartmentalisation, where we don't have the time or resources to deal with everyday stresses, thus we put them away into mental storage boxes. However, sometimes something comes along that is too big or too traumatic to be put away, causing it and other stresses to overspill. The participant went on to say,

"*I'm not saying that the course was too traumatic – far from it! – but there were several occasions where I mentally prized open boxes to look at stuff and then didn't necessarily have time to put the box lids back on properly. So figuratively, it felt like I was dragging random stresses around behind me…".*

On reflection, more dedicated time than that allotted, at the end of each weekly session, would provide participants with an opportunity to reflect on their experience and relax fully. This would enable them to return to their roles with increased vigour, feeling that any issues which they may have found stressful during the session, had been neatly put back into its mental storage box, and confident in the knowledge that on returning to work they would feel significantly less stressed. However, it must be noted that not all participants found the course stressful, as a significant number of the groups utilised the time following the session to go to lunch, which also acted as a time to de-stress. This could be argued that those individuals who went to lunch following the session were utilising a form of self-managed relaxation time, rather than forced intervention led relaxation, which could be described as an aim of the course, i.e. to implement self-management strategies which would provide a greater sense of control and mastery over their own LTHC.

The mix of professional and lay-led facilitation appeared to work very smoothly. The combination of professional knowledge and real-life experience provided participants with the appropriate level of interventional input. The topics were shared out appropriately, so that the subject matter was adequately covered by the professional to provide a clear understanding and knowledge for participants, whilst the lay tutor provided depth of experience which added "meat to the bones" so to speak. The professional was also able to provide support, as required, if a topic became too stressful or emotionally challenging for a participant to deal with. This did not occur during either intervention groups, but was available, as required. Feedback from one participant stated: *"…the stand out aspect of the course was your (and Nicks) insight and experiences within the subject matter, coupled with your qualifications, that made you the ideal person to deliver this type of training."* Although this potentially makes the course more expensive to run for an

organisation, it is believed that the benefits outweigh the costs in relation to longitudinal effect of the course. However, this has not been tested in this feasibility study, and would need further research to provide evidence that the profession and lay-led facilitation, indeed had a significant impact.

The differences between Intervention Group 1 (IG1) and Intervention Group 2 (IG2), were minimal in relation to demographics. However, the author noted that the differences in response from the groups were unique to site of delivery. IG2 were more fully engaged in the intervention process from the commencement of the intervention, appearing particularly motivated and enthusiastic about taking part in each activity. However, IG1 took longer to engage in the intervention process, being more hesitant about making responses. Their motivation and enthusiasm increased by Week 2, and showed signs of being fully engaged in the intervention process. The individual difference between the two groups could potentially be due to job roles, with IG1 being much more individual working and research based, whereas IG2 included several staff who had direct links with the public on a regular basis, undertaking social surveys, etc. However, as the results were similar for both groups, it is unclear whether this made any difference in outcome. It must also be noted that all groups in the study were white collar civil servants.

8.4 Implications for Health Psychology

This study has demonstrated, that the skills in designing and implementing evidence-based behaviour change interventions developed throughout the training to be a Health Psychologists, providing excellent opportunities to work collaboratively with colleagues from Occupational Psychology, in developing workplace interventions, particularly for employees with LTHC's, to improve well-being and reduce absenteeism. The Health Psychologist's knowledge base, particularly in relation to health, provides an added dimension to the process of workplace intervention design, and potentially opening-up further employment opportunities for Health Psychologists.

The theoretical self-management base used for the design of the intervention, although not completely ground-breaking, suggests that there is potential for existing evidenced-based health psychology models, can be applied to alternative fields, other than in traditional health care provision (e.g. diabetes management), such as the workplace. This feasibility study provided evidence of an alternative practical approach to supporting employees with LTHC to help themselves to continue working, and to tackling organisational issues such as absenteeism, Presenteeism and work-engagement. The positive benefits to the Organisation and the individual employee, potentially improving the well-being of both. Many large organisations and civil service departments are in the process of recruiting individuals to manage and implement their well-being services. Therefore, it is suggested that Health Psychologists would be an extremely valuable addition in leading these roles, potentially providing new behaviour change skills and techniques, strategic planning of policy design for Well-being strategies, as well as an evidence-based critical voice to a growing problem within our workplaces.

8.5 Future Research

It is recommended that a larger scale study, utilising employees from different employment sectors, be undertaken to determine the interventions effectiveness in relation to health benefits and organisational costs. This would provide sufficient data to determine whether the intervention remains effective across employment sectors (banking, civil service, manufacturing, etc.), and for different employment roles (e.g. blue collar/white collar, private/public sectors, etc.). It would also be advisable to apply a randomisation methodology, which was discussed earlier in limitations, to minimise the effects of selection bias within any future research.

It is also suggested that the longitudinal nature of the study be extended to 12-months, to determine whether the interventions remains effective for longer than the 6-months period undertaken in this feasibility study. This will also determine the need for possible future follow-on refresher sessions, to ensure that these individuals continue to feel supported, whilst maintaining the level of motivation and use of tools from the time they took part in their original WISH intervention.

As mentioned previously, there was a small reduction in the effects of Presenteeism (i.e. employees being more present and productive), although this result was non-significant. A larger-scale study, may minimise the effect of the low participant numbers and possible sample issues (i.e. gender), therefore determining whether the WISH intervention has a positive effect on reducing Presenteeism.

A further point to consider is the location of the intervention. In the current study, potential issues relating to non-attendance at sessions due to work commitments, were addressed with a letter signed by the employee's manager, allowing them to attend all sessions. However, further research could investigate other possible alternatives to this issue, such as holding the intervention off worksite, making returning to work part way through a session more difficult, and limiting the potential for employees to feel obligated to fulfil work requests made by their managers. This difficulty, however, may only be a factor with large employers, where the intervention could potentially be delivered on the worksite.

As discussed in limitations of the study, it is proposed that any future research should contain a qualitative perspective, in the form of either a focus group or one-to-one interviews with participants following the intervention. This would reduce the statistical limitations and enhance the findings by providing a much richer depth of data into the effects of the intervention and provide clarity into the causation of the behaviour changes that have occurred, particularly in the post-intervention component of the research.

Further issues which could be addressed through a larger-scale study, is the suitability of the WISH intervention for small-to-medium size enterprises (SME). It can be difficult to modify and implement well-being interventions utilised within large organisations, making them suitable for delivery for SME's (Cocker, Martin, Scott, Venn, & Sanderson, 2013), which was highlighted as a concern in Black's review on improving health at work (Black, 2008). Therefore, further research into the

suitability of the WISH intervention across a variety of employment settings, i.e. large-scale organisation to SME's, would be extremely desirable.

8.6 Recommendations:

It is recommended that a group activity at end of each topic asking, "how could you apply what you've just learned in this activity to self-managing your condition within the work-place?" This would provide an improved marker to determine the effectiveness of each activity. It would also provide Facilitators with a guide to what was working well with a group, and what may require further clarification. The activity also provides individuals with a chance to summarise what they have learned and how they may put it into practice. It will also provide a quick reference for individuals when they are compiling their Wellness Plan at the end of Session 4.

It is also recommended that instead of Mindfulness, being delivered as a stand-alone topic in Week 3, that it may be more appropriate to integrate it throughout the intervention to enable individuals to understand how mindfulness skill can be implemented within self-management for many of the topics covered, such as pain management, managing depression, etc. Although, this does not replace the benefits of undertaking an 8-week mindfulness course, it gives individuals a chance to see how mindfulness can work for them within their employment utilising a self-management framework.

A further recommendation is to ensure that a 30-minute relaxation/wind-down activity be incorporated at the end of each session to enable individuals to return to work refreshed and de-stressed. The benefits of undertaking this as a planned relaxation activity, or incorporated within the initial planning of the sessions, for example finishing the session with a coffee and an informal chat, could be determined as part of the overall planning for each individual intervention, or evaluated within the scope of future larger-scale research.

8.7 Conclusions:

This feasibility study has shown great promise, in the development of a comprehensive, coherent, evidenced-based self-management intervention for individual employees with LTHC's, within an organisation. The study has provided evidence to support the longitudinal effects of the positive behaviour changes, demonstrating improvement for at least six months. This feasibility study also provided clear evidence to suggest a potential means of supporting employees with LTHC's within the workplace to continue working. The WISH intervention demonstrates positive outcomes for both the Organisation in significantly reducing absenteeism, as well as for the individual employee by increasing self-efficacy, well-being and competency in managing their own health and well-being within the workplace. Thus, demonstrating the effectiveness and importance of the utilisation of self-management interventions to deliver not just health and well-being benefits for the individual employee with LTHC, but also the potential for delivering significant cost-saving benefits for the Employer.

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APPENDICES

Appendix 1: Study Consent Form

University of the West of England BRISTOL

Office for National Statistics
Swyddfa Ystadegau Gwladol

CONSENT FORM

Please answer the following questions to the best of your knowledge.

I fully and freely consent to participate in a study entitled:	**Please Initial**
WISH (Well-being Intervention for Self-managing Health): A pilot work-based self-management intervention for employees with long-term health conditions.	

	Please Initial
I confirm that I have been provided with information about this research. I have had the opportunity to ask questions and have had them answered to my satisfaction.	

	Please Initial
I understand I am free to withdraw from the study and free to withdraw my data from any future analysis and/or publication. However, if a participant does not withdraw until after the final set of questionnaires has been completed, anonymised data will be retained in the study. • At Any Time • Without having to give a reason for withdrawing	
I understand the nature and purpose of the study, which has been communicated to me on a separate information sheet.	
I understand and acknowledge that the study is designed to promote scientific knowledge and that the University will use my data for no purpose other than research.	
I understand that a numerical code will replace my name so that my data can remain confidential and that I will not be identified in any way when the research is published.	
I agree to the researcher processing the data I provide during the course of this study unless I state otherwise. I understand that this information will be used only for the purpose set out in the information sheet, and my consent is conditional upon the University complying with its duties and obligations under the Data Protection Act.	

Signature Participant: _____ Date: _____

Name in BLOCK letters: _____

Signature of the Researcher: _____
Name of the Researcher

PARTICIPANT NO: _____

Appendix 2: Study Information Sheet

University of the West of England
BRISTOL

Office for National Statistics
Swyddfa Ystadegau Gwladol

Information sheet

Study title: **WISH (Well-being Intervention for Self-managing Health): A pilot work-based self-management intervention for employees with long-term health conditions**.

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us, at the contact details below, if there is anything that is not clear or if you would like more information.

Who is asking you to take part?
I am Leonie Jones, a Professional Doctoral student at the University of the West of England. Additionally, I am the voluntary Project Lead for the Employee Well-being Project (2013) at the Office for National Statistics, which also forms part of my Doctoral studies. This research study is an integral part of my studies, which will form my Professional Doctorate in Health Psychology.

What is the purpose of the study?
We would like to investigate the effects of an intervention designed to provide, health and well-being self-management training and support, for employees who have a long-term health condition. The study will investigate the effects of the programme on various aspects of well-being and self-management, over a 6-months period to determine whether providing continued self-management skills training and support improves overall sense of well-being.

Why have I been chosen?
Further to a notice in the Daily, you are being invited to take part, as you have expressed interest via email in attending and taking part in the study. The University of the West of England, Bristol (UWE) are involved in this study in conjunction with the Health & Wellbeing Steering Group at the Office for National Statistics.

Do I have to take part?
No, taking part is voluntary. It is up to you whether or not to take part. If you do decide to take part, you are still free to withdraw from the study at any time without giving a reason. Nobody will be upset if you decide not to take part. If you decide to withdraw before the last set of questionnaires have been completed, your data will be removed from the study. However, if you withdraw after the final set of questionnaires has been completed, your anonymised data will remain in the study for analysis purposes.

What will happen to me if I take part?
If you decide to take part, you will be asked to sign a consent form, which you will need to initial the box if you agree to participate. You will then be asked to attend a 4-week intervention and complete a series of questionnaires.

The intervention will be held over four weekly 4-hour sessions at both of the main sites of the organisation. All participants will receive a manual of information, which will be given in the form of handouts at each session, which they will be able to add to at each session as a permanent source of information. The manual will also include all the activities that are undertaken at each session, enabling participants to complete them as a record, providing them with an individual plan of the tools they find the most beneficial.

Appendix 3: Ethical Approval

University of the West of England
BRISTOL

Faculty of Health & Applied Sciences
Glenside Campus
Blackberry Hill
Stapleton
Bristol BS16 1DD

Tel: 0117 328 1170

UWE REC REF No: HAS/15/03/139

5th May 2015

Leonie Jones
135 Gifford Close
Two Locks
Cwmbran
NP44 7NZ

Dear Leonie

Application title: WISH (Well-being Intervention for Self-managing Health): A pilot work-based self-management intervention for employees with long-term health conditions

Thank you for resubmitting your ethics application, this was considered by the Committee and based on the information provided was given ethical approval to proceed.

You must notify the committee in advance if you wish to make any significant amendments to the original application using the amendment form at

http://www1.uwe.ac.uk/hls/research/researchethicsandgovernance.aspx

Please note that any information sheets and consent forms should have the UWE logo. Further guidance is available on the web:
http://www1.uwe.ac.uk/aboutus/departmentsandservices/professionalservices/marketingandcommunications/resources.aspx

The following standards conditions also apply to all research given ethical approval by a UWE Research Ethics Committee:

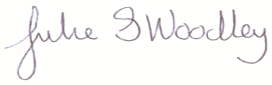
1. You must notify the relevant UWE Research Ethics Committee in advance if you wish to make significant amendments to the original application: these include any changes to the study protocol which have an ethical dimension. Please note that any changes approved by an external research ethics committee must also be communicated to the relevant UWE committee.

2. You must notify the University Research Ethics Committee if you terminate your research before completion;
3. You must notify the University Research Ethics Committee if there are any serious events or developments in the research that have an ethical dimension.

Please note: The UREC is required to monitor and audit the ethical conduct of research involving human participants, data and tissue conducted by academic staff, students and researchers. Your project may be selected for audit from the research projects submitted to and approved by the UREC and its committees.

We wish you well with your research.

Yours sincerely



Dr Julie Woodley
Chair
Faculty Research Ethics Committee

c.c Rachel Gillibrand

Appendix 4: Letter from the Office for National Statistics

Office for National Statistics

Government Buildings
Cardiff Road
Newport
NP10 8XG

Name: Pam Blackhurst
Tel: 01633 455918
Fax:
Email: pam.blackhurst@ons.gsi.gov.uk
www.ons.gov.uk

Date: 6 April 2015

Leonie Jones
University of the West of England
Frenchay Campus
Coldharbour Lane
Bristol, BS16 1QY

Dear Leonie,

Subject: Approval to undertake research at ONS

I confirm that the organisation will support you in your Doctoral research, as agreed in the Health and Wellbeing Project Terms of Reference dated 28th November 2013. This will involve you designing, presenting and evaluating workplace interventions for employees with long-term health conditions.

We understand that this will require those participating to attend interventions, and will involve completing follow-up questionnaires. This evaluation process involves recording information from staff at the Office for National Statistics to ascertain the efficacy of the interventions, and will be used to support your research.

We look forward to receiving a copy of your finished thesis.

Yours sincerely,

Pam Blackhurst

Pam Blackhurst

Head of Equality, Inclusion, and Well-being

Appendix 5: Baseline Questionnaire

WISH (Well-being Intervention for Self-managing Health): A pilot work-based self-management intervention for employees with long-term health conditions.

Please complete the following research questions as accurately and honestly as possible. Please be aware that all responses provided are kept completely confidential, by the researcher. None of the responses you have provided will be made accessible to your employer.

Participant No:	
Please tell me your age, by circling the correct response	Under 30 / 30-39 / 40-49 / 50-59 / 60+
Please tell me, are you?	Male / Female / Other
Please tell me, what diagnosed long-term condition/s you currently have?	
Do you have to follow a particular treatment regime, prescribed by your GP or Consultant?	Yes / No
If so, what does your treatment regime include? (E.g. Prescribed medication, regular physiotherapy, counselling, blood transfusions, etc.)	
Do you Smoke?	Yes / No
If so, how many cigarettes do you smoke per day?	…….. per day
Do you drink alcohol?	Yes / No
If so, how many units per week do your drink (a small glass of wine is one unit)	…….. units per week
How would you describe your drinking habits?	Anytime / Weekends Only / Socially
Do you exercise regularly? (at least 3 times per week)	Yes / No
What type of exercise do you usually do on a regular basis?	Gym / Running / Walking / Aerobic Classes / Swimming / Other
If other, please tell me what exercise you regularly take part in	
How many days off sick have you had to take in the last 12 months (Inc. annual leave days which you used to reduce your sick absence)?	…….. days
How many of those days, were due to your long-term health condition?	…….. days
Are you happy today?	Yes / No / Indifferent

Part No:…….. Group: Newport / Titchfield / Control Date:……..

WISH (Well-being Intervention for Self-managing Health): A pilot work-based self-management intervention for employees with long-term health conditions.

Please respond, to each of the following items in terms of how true it is for you with respect to dealing with your long-term health condition, by ticking the appropriate response on the scale below each question.

1. I feel confident in my ability to manage my long-term health condition.

1 Not at all true	**2**	**3**	**4 Somewhat true**	**5**	**6**	**7 Very true**

2. I am capable of handling my long-term health condition now.

1 Not at all true	**2**	**3**	**4 Somewhat true**	**5**	**6**	**7 Very true**

3. I am able to achieve my goals now?

1 Not at all true	**2**	**3**	**4 Somewhat true**	**5**	**6**	**7 Very true**

4. I feel able to meet the challenge of controlling my long-term health condition.

1 Not at all true	**2**	**3**	**4 Somewhat true**	**5**	**6**	**7 Very true**

Part No:…….. Group: Newport / Titchfield / Control Date:……..

WISH (Well-being Intervention for Self-managing Health): A pilot work-based self-management intervention for employees with long-term health conditions.

I would like to know how confident you are in doing certain activities. For each of the following questions, please choose the number that corresponds to your confidence that you can do the tasks regularly at the present time. Please tick as appropriate.

1. How confident are you that you can keep the fatigue, caused by your long-term health condition, from interfering with the job that you do?

Not at all confident	1	2	3	4	5	6	7	8	9	10	Totally confident

2. How confident are you that you can keep the physical discomfort or pain, of your long-term health condition, from interfering with the job you do?

Not at all confident	1	2	3	4	5	6	7	8	9	10	Totally confident

3. How confident are you that you can keep emotional distress, caused by your long-term health condition, from interfering with the job you do?

Not at all confident	1	2	3	4	5	6	7	8	9	10	Totally confident

4. How confident are you that you can keep any other symptoms or health problems you have from interfering with the job you do?

Not at all confident	1	2	3	4	5	6	7	8	9	10	Totally confident

5. How confident are you that you can do the different tasks and activities needed to manage your health condition, so as to reduce your need to see a Doctor?

Not at all confident	1	2	3	4	5	6	7	8	9	10	Totally confident

6. How confident are you that you can manage your long-term health condition, reducing how much it affects your everyday life?

Not at all confident	1	2	3	4	5	6	7	8	9	10	Totally confident

Part No:…….. Group: Newport / Titchfield / Control Date:……..

WISH (Well-being Intervention for Self-managing Health): A pilot work-based self-management intervention for employees with long-term health conditions.

Directions: Please describe your work experiences **in the past month**. These experiences may be affected by many environmental as well as personal factors, and may change from time to time. For each of the following statements, please check one of the following responses to show your agreement or disagreement with this statement in describing your work experiences **in the past month**.

Please use the following scale:

… I strongly disagree with the statement
… I somewhat disagree with the statement
… I am uncertain about my agreement with the statement
… I somewhat agree with the statement
… I strongly agree with the statement

	Strongly disagree	Somewhat disagree	Uncertain	Somewhat agree	Strongly agree
1. Because of my health condition, the stresses of my job were much harder to handle.					
2. Despite having my health condition, I was able to finish hard task in my work.					
3. My health condition distracted me from taking pleasure in my work.					
4. I felt hopeless about finishing certain work tasks, due to my health condition.					
5. At work, I was able to focus on achieving my goals despite my health condition.					
6. Despite having my health condition, I felt energetic enough to complete all my work.					

Part No:…….. Group: Newport / Titchfield / Control Date:……..

WISH (Well-being Intervention for Self-managing Health): A pilot work-based self-management intervention for employees with long-term health conditions.

The following 17 statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. Please respond by placing a tick in the appropriate column that most accurately describes if you have had this feeling and how often you feel it. The responses are as follows: -

0 = Never
1 = Almost Never (i.e. A few times a year or less)
2 = Rarely (i.e. Once a month or less)
3 = Sometimes (i.e. A few times a month)
4 = Often (i.e. Once a week)
5 = Very Often (i.e. A few times a week)
6 = Always (i.e. Every day)

No.	Statement	0 = Never	1 = Almost Never (i.e. a few times a year or less)	2 = Rarely (i.e. Once a month or less)	3 = Sometimes (i.e. A few times a month)	4 = Often (i.e. Once a week)	5 = Very Often (i.e. A few times a week)	6 = Always (i.e. Every day)
1	At my work, I feel bursting with energy.							
2	I find the work that I do full of meaning and purpose.							
3	Time flies when I working.							
4	At my job, I feel strong and vigorous.							
5	I am enthusiastic about my job.							
6	When I am working, I forget everything else around me.							
7	My job inspires me.							
8	When I get up in the morning, I feel like going to work.							
9	I feel happy when I am working intensely.							
10	I am proud on the work that I do.							
11	I am immersed in my work.							
12	I can continue working for very long periods at a time.							
13	To me, my job is challenging.							
14	I get carried away when I am working.							
15	At my job, I am very resilient, mentally.							
16	It is difficult to detach myself from my job.							
17	At my work I always persevere, even when things do not go well.							

Part No:…….. Group: Newport / Titchfield / Control Date:……..

WISH (Well-being Intervention for Self-managing Health): A pilot work-based self-management intervention for employees with long-term health conditions.

Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder (10) represents the best possible life for you and the bottom of the ladder (0) represents the worst possible life for you.

1. Please circle the number on which step of the ladder would you say you personally feel you stand at this time?

0	1	2	3	4	5	6	7	8	9	10

2. Please circle the number on which step you think you will stand about 5 years from now?

0	1	2	3	4	5	6	7	8	9	10

3. Please circle the number on which step you feel you like what you do every day

0	1	2	3	4	5	6	7	8	9	10

4. Please circle the number on which step you feel you learn or do something interesting every day

0	1	2	3	4	5	6	7	8	9	10

5. Please circle the number on which step you feel someone in life always encourages you to be healthy

0	1	2	3	4	5	6	7	8	9	10

6. Please circle the number on which step you feel your friends and co-workers give you positive energy every day

0	1	2	3	4	5	6	7	8	9	10

7. Please circle the number on which step you feel you have enough money to do the things you normally enjoy

0	1	2	3	4	5	6	7	8	9	10

8. Please circle the number on which step you feel in the last seven days, you have worried about money

0	1	2	3	4	5	6	7	8	9	10

9. Please circle the number on which step you feel the place where you work is perfect for you

0	1	2	3	4	5	6	7	8	9	10

Part No:…….. Group: Newport / Titchfield / Control Date:……..

WISH (Well-being Intervention for Self-managing Health): A pilot work-based self-management intervention for employees with long-term health conditions.

10. Please circle the number on which step you feel, in the last 12 months, you have given sufficient time to improve services for staff working at ONS.

0	1	2	3	4	5	6	7	8	9	10

11. Please circle the number on which step over the last seven days, you have felt active and productive every day

0	1	2	3	4	5	6	7	8	9	10

12. Please circle the number on which step, you feel you would you rate your physical health

0	1	2	3	4	5	6	7	8	9	10

Part No:…….. Group: Newport / Titchfield / Control Date:……..

Appendix 6: Manager Approval Form

WISH - Health and Well-being Course

Please complete the following pre-information form prior to attending the course

I would like to attend the WISH course and have sought approval for my attendance for the 4 weekly sessions.

Name:.....

Age:.....

My long-term health condition/s are: .....

.....

.....

I currently smoke: YES/NO (Please delete as appropriate)

I currently exercise on a regular basis: YES/NO (Please delete as appropriate)

Signed:..... Dated:.....

Line Managers Approval:

As the line manager of the above individual, I approve their attendance on the WISH health and well-being course for individuals with long-term physical or emotional health conditions. I guarantee that they will be permitted the time to attend all of the four-weekly sessions of the course, as well as the one-hour follow-ups sessions after 3-months and 6-months.

Signed:..... Dated:.....

Print name:.....

Designation:.....

Appendix 7: Session 1 (Activity 1)

Motivations:	Objectives:
• "Been off sick for several weeks due to condition therefore want to learn ways of managing my condition"	• "To control my illness and learn skills and techniques to improve my everyday life."
• "Help to cope with life at work and at home"	• "Would like to get better at managing conditions, plus getting management on board."
• "New condition diagnosed in June 2014 – had impact on me mentally and now want to move forward positively."	• "To cope better at work and away from work."
• "I want to re-gain control of my life and not be so limited by my condition."	• To learn coping and relaxing techniques to deal with unpleasant emotions e.g. anxiety, stress and fear."
• "I want to be happy and feel like me again and I am willing to do anything to get there."	• "To help me change my outlook on my life-long condition and to take better actions and decisions."
• "To stop fighting it and learn to cope with it."	• "To handle my anxiety and emotions better than before. To feel more comfortable in my own skin."
• "To feel better. To feel more organised. To feel in control. To help me achieve my goals."	• "At the end of the course I would like to feel in control and able to achieve my goals."
• "Condition is getting worse, interested to find out about how to manage it."	• "Some practical advice on how to manage my condition."
• "I intend to take positive steps to improve the quality of my life. Any help and guidance I get from this course will be very helpful."	• "Ways to manage my outlook and condition."
• "Just returned from a long period of sick and would like to learn techniques to prevent this happening again."	• "Increased confidence. Better management of tiredness."
• "A need to address my own anxieties about my condition."	• "Be less ashamed of my own conditions. Be strong and cope with whatever comes."
• "Help me learn how to deal with pain, lower anxiety about losing my job due to lots of sickness days."	• "Learn coping mechanisms."
• "My condition was controlling me. I wanted strategies to allow me to control it."	• "I am hoping to find a way to feel less pain and be more positive and confident."
• "My line manager thought it would be good for me, and also I would like to know more about how to manage my condition."	• "Tools to help manage my condition for the longer term. Help with accepting my condition and this new way of life."
• "Recent diagnosis and desire to keep work central to my life. Lack of other resources (NHS) available at the time."	• "I want to feel better about myself and continue the way I am going and never self-harm again."
• "The chance to help myself in managing my stress, which would help manage my eczema."	• "Better ways to cope with life."
• "I was motivated because I wanted to understand more about the condition and be with others suffering whatever they have."	• "To be confident in managing stress levels."
• "Wanted to find ways to cope with my condition and accept my condition. To be able to help myself more."	• "How to be able to be positive about managing my illness."
• "My motivation was to find out more about help that's available."	• "Maintain physical health. Maintain mental health. Improve my current situation."
• "Wanting to have a life again."	• "Ways to cope with fatigue. More confidence with my condition."
• To help me feel better. The self-management appealed to me."	• I would like to achieve a wider understanding of symptoms and conditions affecting day to day life."
• "To get better understanding of condition."	• "I hope to be given some advice on how to feel positive in the future with on-going illness."

Table 9: ***Comments received relating to motivation and objectives for undertaking the course***

9.0 PERSONAL REFLECTIVE

The concept of conducting research into developing an intervention for employees with long-term health conditions in the workplace started when I negotiated my placement at the Office for National Statistics, as part of the Professional Doctorate in Health Psychology. At the start of the process, I was very keen to pursue the project as a full-blown study, but following discussion with my supervisor, we agreed to scale the project back to a more realistic feasibility study, due to the requirements of the course. Although I had identified the area of study, it was through undertaking the Systematic Review that the project came together more fully. This was my first attempt at a Systematic Review, which was a steep learning curve. However, I found the completion of the Systematic Review, really helped me to consider the project in greater detail, and identify clearer aims and objectives I wanted achieved from the research. Presenting the ideas to my cohort in my second year of the Doctorate, was extremely helpful part of the process, because their feedback showed me how the project could be potentially utilised within other areas of health psychology. It also helped me to clearly identify the evidence based theories and models which were most relevant to the field of study. However, I would possibly say that the most informative support came from a seminar I attended on Behaviour Change Interventions, where I met several key researchers, including Rona Moss-Morris, in the field of intervention design. Their advice and support in guiding me in the right direction in ensuring that I was able to use the right approach to select the evidence base for my intervention was invaluable.

The support I received from the Office for National Statistics (ONS), with their experience in conducting research, provided me with much helpful advice when considering the methodological issues, I would have to consider during my research, such as identifying appropriate, valid and reliable measures I could access and utilise within the study. Their ongoing advice gave me confidence with the process of setting up and conducting research within a large Organisation like ONS. Also, the experience I was gaining at ONS in designing and delivering short workshops for employees with long-term health conditions, proved extremely

beneficial in not only boosting my confidence in developing and designing interventions, but also the breadth of the subject matter I was covering significantly enhanced my knowledge and experience in determining what behaviour change techniques would be the most effective and what tools would prove less so. This experience guided me, throughout the process of developing the evidence-based intervention within the project.

My supervisory team were extremely helpful in asking thought provoking questions when initially determining the appropriateness of my study, enabling me to fine tune the project into its final form. I also found the process of obtaining ethical approval from the university most helpful in ensuring that I had considered all ethical aspects of my project, as I did not have to obtain ethical approval from ONS, only permission to undertake the study within their organisation. The process of obtaining ethical approval from the university, was stringent but also proved useful in identifying issues which I had not initially considered within my project, such as ensuring my processes for data collection and storage, as well as maintaining security and confidentiality of the data integrity throughout the research process. All these steps in preparation for undertaking the final study, really helped me feel confident about the research process, and the direction my study was taking.

Once the dates were set for delivery of the intervention, respondents were invited to take part in either the intervention groups or the control groups. Baseline data was collected from every participant, and entered into a spreadsheet for analysis later. I found my supervisors extremely useful in discussing potential challenges with the data collection and analysis, as well as research colleagues at ONS, who also were able to offer advice and wisdom on use of appropriate techniques for my quantitative analyses. Following collection of all data sets from each of the participants, including follow-up data, I was able to confidently progress with my analyses and interpretation of the results. I particularly enjoyed the data analysis and interpretation process, but found the technical aspects of using SPSS, difficult as it had been a number of years since I had first learned to use the software. My progression VIVA, was also very helpful in making me consider anything I had not

previously considered, and pointed me in the right direction, particularly when it came to the write-up of my thesis. Although I had been very nervous prior to the Progression VIVA, it also increased my confidence in discussing my own research, which in a way, provided me with a opportunity for a deeper more objective review of what I had done, and what I still had left to do.

The write-up, although difficult at times, was a very useful process. Having to detail every aspect of my study, and ensure that a lay person could read and understand what I had done, was cathartic for me. It provided me with additional thought processes around the work I had completed, and challenged me think more critically about my own work and how I could have improved on it. I unfortunately had to take a 6-month sabbatical from the thesis, due to health reasons, but returning to my work, allowed me to reassess my thought processes, and proved extremely valuable ensuring my further interpretation of the results, deeper consideration of the practice implications for the study and its overall impact on the field of applied health psychology. My supervisory team were also helpful in challenging me to think outside the box and reconsider further the implications of the research I had undertaken. This was extremely useful to me, deepening my insights into the research process, and providing me with invaluable feedback on my efforts, enabling me to move forward and redress the aspects of my thesis that required more thought. For example, I had taken qualitative feedback from participants on the intervention, but had not utilised it within the study, as it was originally not part of the original project. However, on consideration and after in-depth discussion with my supervisory team, it was agreed that I should include some of the feedback within the write-up, to add additional value to the thesis. This proved to be extremely valuable in re-gaining the participant perceptions of how the intervention had been received.

The write-up process also enabled me to consider the importance of the theoretical framework, on which my project was based, allowing me to deepen my understanding of the mechanisms and constructs behind the intervention I had developed in more detail. It allowed me to consolidate everything I had learned

about conducting research throughout the process of the doctorate, and gave it a form by which I could clearly see what I had achieved, what I could have done better, and what still could be achieved with future research into the topic. Although I had completed research projects at both undergraduate and masters' levels, the impact of undertaking this project as part of the Professional Doctorate, not just took my skills to a new level but significantly increased my own self-confidence in my abilities as a Health Psychologist.