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Article

A Feasibility Study of Taste & See: A Church Based Programme to Develop a Healthy Relationship with Food

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Abstract: Holistic approaches which include a religious element are a promising intervention within obesity, but have not been explored in the UK. *Objective:* To conduct a feasibility study of a three-month, Christian-based intuitive-eating programme in a church. *Methods:* A total of 18 adults participated. Ethical approval was granted by Coventry University Ethics Committee. Participant and facilitator experience was investigated qualitatively. Results showed participants accepted the programme and engaged well with its spiritual component. Lay facilitators managed to adequately run the programme, although some difficulties identified training needs. Clinical, psychological and spiritual measures were analysed using intention to treat; baseline observation carried forward to input missing data. Mental well-being, anxiety, depression, quality of life, pain/discomfort uncontrolled-eating, emotional-eating, cognitive-restrained-eating, intuitive-eating and Body Mass Index (BMI) improved significantly post-intervention. There were improvements in spiritual well-being, and reductions in energy, fat and saturated fat intake. Between the end of the intervention and a six-month follow-up, there were no statistically significant changes. However, the extent that weight and BMI returned to baseline levels meant that the reduction from baseline was no longer significant or clinically important. Mean changes in other variables, including uncontrolled eating, emotional eating, mental well-being and anxiety remained statistically improved from baseline. At six-month follow-up, improvements in intuitive eating were fully sustained at this time point and total fat, saturated fat and sugar intake had reduced further even though these values did not reach statistical significance. *Conclusion:* It is feasible to recruit to, deliver and evaluate Taste & See in a UK church, with lay volunteers. Clinical outcomes were positive, but a larger, controlled study is needed.

Keywords: obesity; weight; religion; spirituality; church-based; faith-based; Christian; intervention; feasibility trial

1. Introduction

It is projected that 60% of the world's population will be classified as either overweight or obese by 2030 [1]. This predicts obesity to be the largest chronic health problem globally. Currently, the Cook Islands have the highest prevalence of obesity at 46.6%, the USA is ranked twelfth with prevalence at 32.6% and the UK is ranked with the world's 23rd highest prevalence at 26.9% [2].

The World Health Organisation, in its global strategy on diet, physical activity and health has recommended further exploration into the role of religious communities to tackle obesity through faith-based weight management programmes. Not only do these tap into existing social structures, but also, through mobilising the voluntary workforce and promoting self-management, they are potentially very cost effective [3]. Evidence suggests holistic approaches that include a religious element are

promising [4,5]. A systematic review [4], which included large cluster-randomised controlled trials of faith-based (adding a spiritual dimension by including bible study, prayer, journaling and spiritual themes) and faith-placed (occurring at a place of worship) church interventions found body weight loss occurred in 70% of these interventions. A total of 60% of the interventions reported increased fruit and vegetable intake, and 38% reported increased physical activity [4]. However, more studies with additionally rigorous methods are still needed.

Nearly all the studies looking at spirituality, religion and obesity thus far have been carried out in the USA. The first one in England was a cross-sectional study using Health Survey for England 2012 data. Findings showed that religious affiliation was associated with being more overweight (i.e., 0.91 kg/m² higher Body Mass Index (BMI) in those associated with a religion than those not associated with a religion), and the evidence of this association was strongest among those affiliated with a Christian faith [6]. While this was a cross-sectional study, which cannot provide any suggestion of directionality, it does suggest that those affiliated with the Christian religion might be an important population to target for obesity interventions. The impact of this could be considerable as 64% of the UK population categorises itself as Christian, even if individuals are not regular church attenders [7].

The US church-based interventions to date, although adding a spiritual element, are essentially conventional in their approach to obesity. They focus primarily on achieving weight loss through dietary restriction. However, several systematic reviews have identified that following such weight loss, the majority does not sustain weight loss maintenance [8,9]. Therefore, interventions of a non-diet approach have been developed to focus on the health gains of dietary change, physical activity and psychosocial well-being in those who are overweight or obese, rather than on weight loss alone [10]. One such approach is intuitive eating, which focusses on achieving mental well-being and generating self-efficacy so that people eat healthily in response to physical hunger, rather than unhealthily in response to emotional hunger. Intuitive eating comprises four central facets: unconditional permission to eat; eating for physical rather than emotional reasons; reliance on internal hunger and satiety cues; and body-food choice congruence. Such programmes are positive and affirming, promoting positive body image, building self-esteem and generating feelings of contentment that may lead to a more sustained lifestyle change [10–12].

Pooling together the evidence for health-focussed rather than weight-loss-focussed programmes provides promising results, but high quality studies are lacking [13]. While these approaches go some way to address both physical and psychological needs, they do not specifically address spiritual or religious needs. For example, feelings of guilt, self-loathing and rejection are well-known to those in a cycle of dieting and weight regain, and for many, such feelings have religious meanings and religious answers. Therefore, in light of the need to address obesity more holistically and make use of the potential resources of spiritual and religious coping, of divine comfort and hope, our intervention adds these spiritual and religious elements to the broad principles of intuitive eating. In line with good scientific protocol [14], we conducted a feasibility study, which we report on here, to estimate key parameters to support the design of a full randomised controlled trial.

2. Aim

The aim of this study was to test the feasibility of running and evaluating a UK church-based programme, called Taste & See, which combines psychological principles of intuitive eating with Christian principals of freedom from guilt, love, acceptance and help from God.

3. Objectives

- To determine how feasible it is to evaluate Taste & See within a UK church setting in preparation for developing a randomised controlled trial (RCT).
- To investigate change in physical, psychological and spiritual well-being in participants pre- and post-programme, and at six-month follow-up.

- To assess change in eating behaviour, nutritional intake and physical activity pre- and post-programme, and at six-month follow-up.
- To explore participant acceptability (fully reported elsewhere) and the facilitators' experiences in delivering the intervention.

4. Methods

Methods are summarised here and full details are available in our protocol paper [15].

4.1. Design

This study used a one-group pretest–posttest design. Participants attended a total of 12 weekly 90-min sessions over a three-month period, of which ten sessions contained the main programme content and one session either side of this was solely for data collection. Participants were followed up at the end of the programme and then again at six months post-intervention (nine months from baseline) to investigate change in physical, psychological, and spiritual well-being.

4.2. Setting

This study was run within a UK Baptist church. Participants were recruited through adverts, announcements and word of mouth both within the congregation and the wider community. While this intervention incorporates Christian beliefs, it is not exclusively for Christians. Anyone interested, regardless of their beliefs, may take part. We are particularly interested in the relevance of this programme to those who do not attend church, as many who affiliate themselves to the Christian religion in England do not attend church regularly [16]. We are also interested in the relevance of this to those who are not Christian, as evidence suggests those who are not religious may still be interested in taking part in a programme based on Christian principles [17]. In addition, many people, from other faiths and none, attend churches for community events [18], so we do not want to exclude them from participating should they wish to.

4.3. Participants

A total of 18 participants between March 2015 and April 2015 were recruited and enrolled into the feasibility trial as one cohort. In order to be eligible to take part in the study, participants had to be aged 18 years or over, and have a BMI greater than 25 kg/m². Participants who had a BMI between 18.5 and 25 kg/m² were asked to complete the Three Factor Eating Questionnaire (TFEQ-R21) [19]; only those who had scores above the minimum threshold were eligible to participate. The TFEQ-R21 scale covers three eating domains: uncontrolled eating (UE), cognitive restraint (CR) and emotional eating (EE). The questionnaire is a 21-item validated measure whereby a percentage score (transformed from raw scores above 9 (UE), 6 (CR) and 6 (EE) indicate that some elements of problematic eating are likely) [20]. The TFEQ-R21 is a reliable and established tool to measure these three domains of eating [19]; it is sensitive to change and has therefore been used in many interventions to measure changes in these outcomes [21–23].

Participants were not eligible to participate if they were pregnant, suffering from any medical condition in which weight loss is contradicted, such as receiving chemotherapy, or currently losing weight, intentionally or unintentionally, at a rate of 2 kg or more in the last four weeks.

“Of our 18 participants, 15 participants had a BMI greater than 25 kg/m² with mean (SD) UE, CR, EE scores of 57 (19), 29 (20), and 67 (23) respectively. Three participants had a BMI between 18.5 and 25 kg/m² with mean UE, CR, EE scores of 50 (20), 50 (28) and 43 (19) respectively.”

4.4. Facilitators

Three facilitators volunteered to deliver the intervention. One facilitator was a church minister of pastoral care and two facilitators were school teachers by profession. Each of the facilitators had

good interpersonal and leadership skills. This was evidenced by their own professional training and by previous volunteer work within the church, particularly with respect to facilitating small groups. None of the lay facilitators had a healthcare background and their experience in dealing with people who had significant weight and food issues was limited. The lay facilitators were taught about programme content, the importance of listening and supporting participants' own behaviour change solutions rather than providing advice, and when to signpost individuals to healthcare professionals (further details on training provided is in the protocol paper) [15]. The study dietitian/principal investigator (DL), supported by RP demonstrated initial sessions and facilitators took on more responsibility for delivery as the programme progressed. These researchers were available during the rest of the programme to support facilitators and check fidelity through observation.

4.5. Ethical Approval

Ethical approval was provided by Coventry University Research Ethics Committee.

4.6. Intervention

The Taste & See programme consists of ten 90-min weekly sessions which take participants on a journey from identifying problematic eating behaviours and attitudes to begin making changes (See Table 1). Each week, there is a theme and the following elements are included:

- Scientific content of evidence-based dietetic practice,
- Activities designed for discussion in small groups of 3–4 participants to consider the application of these dietetic principles in their own lives,
- Biblical view on the issues raised,
- Opportunity, without obligation, to respond individually to spiritual content if participants wish to do so,
- Activity for the week to practice making health behaviour changes,
- Daily Bible reading and prayer material for those who want to engage with this.

4.7. Outcomes

Response to adverts and attendance rates were recorded.

Demographic details of the participants were taken at baseline. The following measures were taken at baseline, at the end of the three-month intervention and at six months post-intervention (nine months from baseline):

- Anthropometric measures of height, weight, BMI, percentage body fat and blood pressure,
- Psychological measures of mental well-being as measured by the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) [24], anxiety as measured by Generalised Anxiety Disorder (GAD-7) [25] and depression as measured by the Patient Health Questionnaire (PHQ-9) [26].
- Health-Related Quality of Life was measured by the five dimensions (mobility, self-care, usual activities, pain/discomfort and anxiety/depression) and the Quality of Life-Visual Analogue Scale (QoL-VAS) as measured by the European Quality of Life-5-Dimensions-5-Levels (EQ-5D-5L) [27].
- Eating domains as measured by the TFEQ-R21 [19], and the revised intuitive eating scale (second edition) (IES-2) [12].
- Spiritual well-being as measured by the Spiritual Well-Being Scale (SWBS) [28,29].
- Religious well-being as measured by avoidant and anxious Attachment To God (ATG) [30], and religious love as measured by the Sorkin Multidimensional Inventory of Love Experience (SMILE) [31].
- Physical activity as measured by the Stanford seven-day physical activity recall [32].
- Nutritional intake as measured by a seven-day food diary.

Table 1. Content of the Taste & See Programme.

Session	Scientific Principle	Biblical Principle
Session 1: Your Relationship with Food To develop an awareness of self, of eating habits and of a God who cares about this.	The holistic aspects of eating The evidence for addressing the spiritual in weight management.	We are physical and spiritual beings. God loves us and wants to be involved in our lives
Session 2: What dietary rules do you follow? To introduce intuitive eating versus dietary restriction.	The diet and weight regain cycle The evidence for finding what approach suits you The evidence for intuitive eating	Freedom with responsibility. “Everything permissible but not everything is beneficial.”
Session 3: Are you really hungry? To identify hunger and fullness.	Hormonal regulation of appetite What is a healthy diet?	Created by God. A time for everything.
Session 4: Enjoying food again: To feel free to enjoy food.	Evidence for eating attentively, reducing distractions, mindful eating exercise.	The blessings of God, he loves to give us good gifts
Session 5: Why else do we eat? To understand impulsive responses to feel happier, to feel less bored, to reduce stress.	Dopamine pathway	The reality of life in an imperfect world Why things went wrong.
Session 6: What can we do instead? To identify ways to tackle boredom, stress and low mood.	Evidence-based physical activity and relaxation suggestions	Spiritual coping. Hope in difficult times.
Session 7: Leaving the past behind To identify past hurts or habits that still influence our relationship with food today, to find healing in forgiveness.	Evidence of the impact of adverse child events Evidence for forgiveness	‘Forgive us as we forgive others’
Session 8: You are loved and you are lovely To understand the truth of who you are.	Body congruence Tips to build self-esteem	God’s love and acceptance
Session 9: Moving forward To consolidate new attitudes and behaviours, to identify specific aspects of healthy living to work on.	Goal setting Habit formation Tips and ideas for a healthy lifestyle	New creation, with God’s spirit at work within us
Session 10: Pressing on/The future To equip participants to be able to continue the Taste and See principles without weekly support.	Identifying and planning for lapses Evidence for behaviour change maintenance	Pressing on and managing failure

Data on participant acceptability and engagement was collected using short semi-structured face-to-face interviews; full details are reported here [33]. Facilitator acceptability was measured qualitatively by focus groups and short semi-structured face-to-face interviews. Focus groups and interviews were audio recorded and lasted approximately 30 min.

4.8. Sample Size

As this is a feasibility study, we aimed to recruit at least ten participants to test the practicality of recruiting for and running this trial within a church and to determine effect sizes of outcomes [14]. A sample size of 10 would also provide 80% power at an alpha level of 0.05 in order to detect a large difference in the weight loss outcome (5 kg (SD = 5) at a rate of 0.5 kg per week).

4.9. Data Analysis

Response rates, attrition rates and change in clinical, psychological and spiritual measures were presented descriptively. Data were analysed on an Intention-To-Treat (ITT) basis, missing data was conservatively inputted using Baseline Observation Carried Forward (BOCF). A repeated measures ANOVA was performed to test for significant differences in outcome variables from baseline to three months and nine months (six-month follow-up). There was insufficient data available to do a robust regression analysis on the association between variables.

Interview and focus group data were transcribed verbatim. Transcripts were analysed using thematic analysis as outlined by Braune and Clarke [34]. Each transcript was analysed separately, and coded deductively at a semantic level, the researcher adopted a realist approach, where the facilitators' experiences were taken at face value, as it was assumed that they were reporting the truth about their experiences of facilitating the programme. The coding process progressed by moving back and forth across the data set in an iterative process where comparisons were made between codes and phrases. Those with similar context or concepts were grouped together. Peer review was also performed by two of the co-authors (DL and AT) of the study who agreed with the themes that were developed. RP also had frequent discussions with DL, to ensure that the data interpretation was credible, valid and shared. Nvivo 10 (Qualitative Solutions and Research International, Victoria, Australia) data management software was used to organize and manage the data.

5. Results

5.1. Participant Retention

Participants were recruited between March 2015 and April 2015. The majority of the sample was recruited from the church (15), with one participant responding to the community advert and two participants recruited through word of mouth. A total of 18 participants took part, one participant was lost to follow-up at three months, and so data was collected on 17 participants in July 2015. At the six-month follow-up (February 2016), (nine months from baseline), three participants were lost to follow-up and so data was collected on 15 participants. Intention-To-Treat (ITT) analysis was carried out at both time points; missing data was inputted using Baseline Observation Carried Forward (BOCF) (Figure 1).

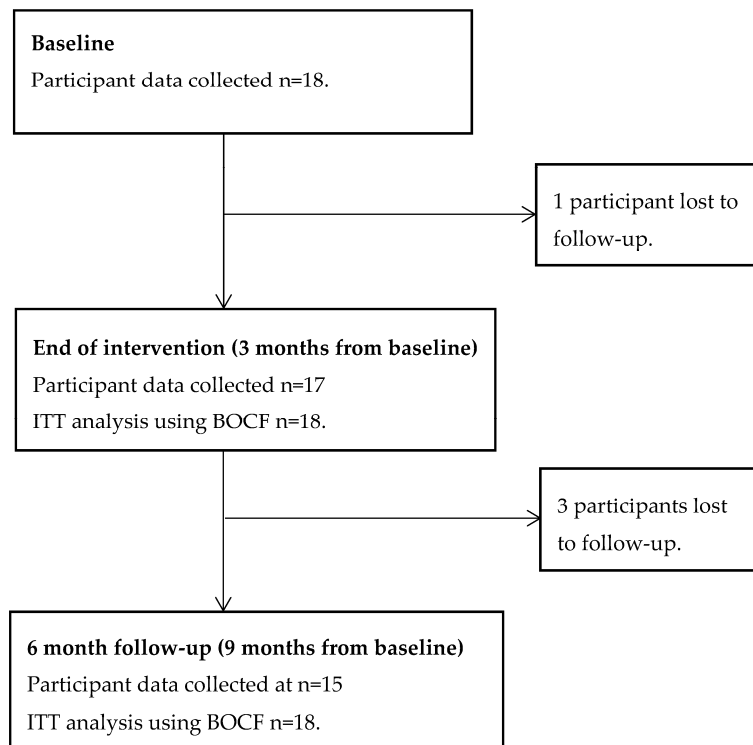


Figure 1. This figure shows the flow of participants through the feasibility trial.

Attendance at individual sessions declined as the intervention progressed; however, missing one session did not mean that people did not return to the programme as attendance peaked and troughed (Figure 2). At follow-up, participants identified that reasons for non-attendance of specific weeks were prior work commitments, caring for a family member and pre-booked holidays.

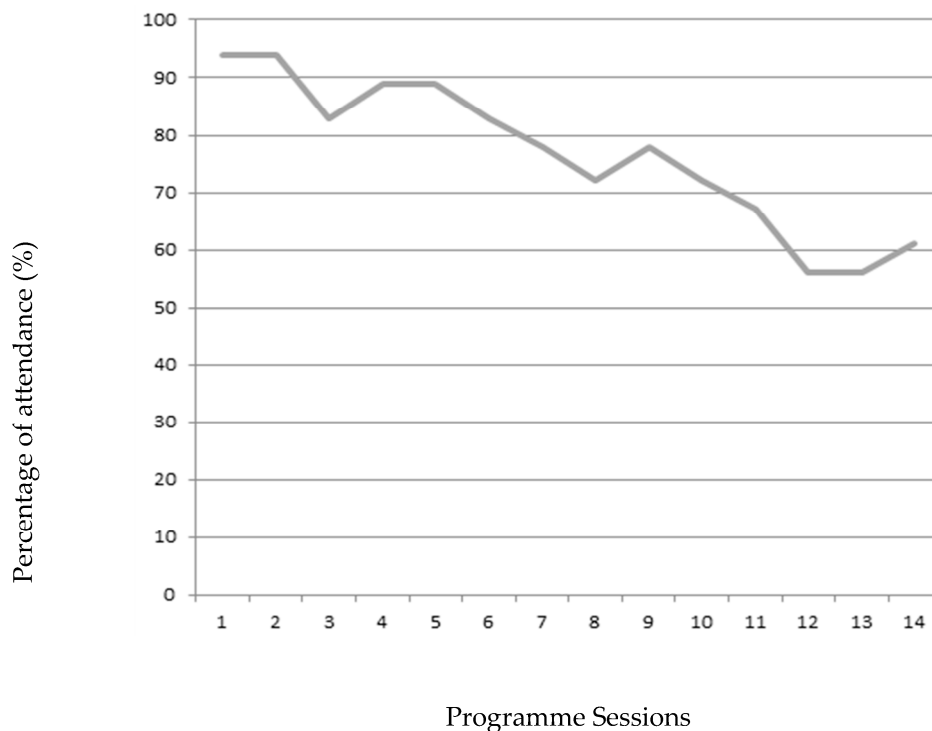


Figure 2. This figure shows a line graph displaying participant attendance during the programme.

5.2. Participant Demographic Details

The participants were predominantly white females, who were Christian, with a BMI in the obese category with a mean age of 47 (Table 2).

Table 2. Descriptive statistics of participants.

		Mean	SD	Min	Max
Age (Years)		47.3	14.8	19	72
BMI		33.10	7.95	22.2	52.8
		N (% Frequency)			
BMI category:	Healthy (BMI: 18.5–24.9 kg/m ²) and high TFEQ			3 (17)	
	Overweight (BMI: 25–29.9 kg/m ²)			4 (22)	
	Obese (BMI: 30–39.9 kg/m ²)			8 (44)	
	Morbidly Obese (BMI>40 kg/m ²)			3 (17)	
Sex:	Male			3 (17)	
	Female			15 (83)	
Ethnicity:	White			16 (88)	
	Black			1 (6)	
	Asian			1(6)	
Religion:	Christian			16 (88)	
	Sikh			1 (6)	
	Spiritual, but not religious			1 (6)	

5.3. Changes in Outcomes from Baseline to End of Intervention

At the end of the intervention there was a significant increase in Quality of Life-Visual Analogue Scale (QoL-VAS), cognitive restrained eating, mental well-being and the intuitive eating dimensions of eating for physical rather than emotional reasons and reliance on hunger cues. There were also significant decreases in EQ-5D-5L pain/discomfort, BMI, uncontrolled eating, emotional eating and anxiety. There was a mean reduction in weight, energy intake, total fat and saturated fat intake. There was a mean increase in spiritual well-being, although these were not statistically significant. There was a negligible mean change in all other variables (Table 3).

5.4. Sustained and Un-Sustained Changes in Outcomes at Follow-Up

From the end of the intervention to nine months from baseline, there were no statistically significant changes in the participants' scores on any variables. However, there was an important amount of weight regain and BMI increase, with a corresponding increase in energy intake to support this. Therefore, change at nine months from baseline showed a negligible reduction in weight and energy intake than at the end of intervention. However, dietary macronutrient composition showed that although total energy intake had returned to baseline levels, this increase in energy came from polysaccharides and protein, while total fat, saturated fat and sugar intake was further reduced during this time period, thereby indicating positive ongoing dietary change after the end of the intervention even though these values did not reach statistical significance.

Between the end of intervention and nine months after baseline, there was a partial reversal in the improvement in mean scores of uncontrolled eating, emotional eating, cognitive restrained eating, anxiety, depression, mental well-being and spiritual well-being. Nonetheless, the figures for uncontrolled eating, emotional eating, mental well-being and anxiety were still significantly improved, at this time point, in comparison to their baseline values.

The significant improvements in intuitive eating behavior seen at the end of the intervention were virtually unchanged during the following six months, such that the same significant improvements as at the end of the intervention were sustained nine months after baseline (Table 3).

Table 3. Repeated-measures ANOVA displaying the main interaction between changes at baseline three months and nine months.

Outcomes:	Baseline		3 Months (End of Intervention)		9 Months (6-Month Follow-Up)		Mean Change Baseline— 3 Months	SE	95% CI for Mean Difference		Mean Change from 3–9 Months	SE	95% CI for Mean Difference		Mean Change Baseline— 9 Months	SE	95% CI for Mean Difference	
	M	SD	M	SD	M	SD			Lower	Upper			Lower	Upper			Lower	Upper
	Weight (kg)	89.2	18.9	87.6	18.9	89.1	19.1	−1.6	0.6	−3.2	0.1	1.5	0.7	−0.3	3.2	−0.10	0.6	−1.7
Body Fat (%)	44.3	9.5	41.4	13.8	43.9	9.5	−2.9	2.2	−8.8	3.1	2.6	2.4	−3.9	9.1	−0.3	0.8	−2.5	1.9
Body Mass Index	33.11	7.90	32.60	8.00	33.10	8.10	−0.60 *	0.20	−1.10	−0.002	0.6	0.2	−0.1	1.2	0.02	0.20	−0.60	0.60
Systolic Blood Pressure	124	16	127	18	123	17	2	3	−5	11	−4	3	−11	4	−1	2	−6	4
Diastolic Blood Pressure	81	10	82	10	81	10	1	3	−6	8	−0.6	2	−6	5	0.4	2	−4	5
EQ-5D5L: Self-Care	1.0	0.0	1.0	0.0	1.0	0.0	0.0				0.0				0.0			
EQ-5D5L: Usual Activities	1.3	0.8	1.3	0.6	1.3	0.7	0.0	0.2	−0.4	0.4	0.0	0.1	−0.2	0.2	0.0	0.1	−0.3	0.3
EQ-5D5L: Pain/Discomfort	1.9	0.8	1.6	0.8	1.7	0.8	−0.3 *	0.1	−0.03	−0.6	0.1	0.1	−0.2	0.4	−0.2	0.1	−0.5	0.1
EQ-5D5L: Anxiety/Depression	1.6	0.7	1.5	0.9	1.4	0.9	−0.1	0.1	−0.3	0.2	−0.1	0.1	−0.3	0.2	−0.1	0.1	−0.4	0.2
EQ-5D5L: Mobility	1.3	0.7	1.4	0.7	1.4	0.7	0.1	0.1	−0.2	0.3	0.001	0.1	−0.2	0.2	0.1	0.1	−0.2	0.3
EQ-5D5L: QoL-VAS	61.0	19.0	72.0	16.2	68.0	13.5	11.7 *	3.7	1.9	21.6	−4.3	3.2	−12.9	4.3	7.4	3.8	−2.5	17.4
TFEQ: Uncontrolled Eating	56.0	18.8	39.5	19.8	42.6	21.5	−16.5 *	3.7	−26.2	−6.7	3.1	3.6	−6.4	12.5	−13.4 *	4.5	−25.3	−1.4
TFEQ: Emotional Eating	62.7	23.5	43.2	23.5	45.9	22.6	−19.4 *	3.8	−29.4	−9.5	2.8	4.1	−8.2	13.8	−16.7 *	3.6	−26.3	−7.1
TFEQ: Cognitive Restrained Eating	32.4	22.7	43.5	22.5	42.6	18.5	11.1 *	3.8	0.9	21.3	−1	5.5	−16	13	10.2	4.9	−2.7	23.1
Intuitive Eating (IE) Total	2.5	0.5	3.1	0.6	2.9	0.6	0.6 *	0.1	0.3	0.9	−0.2	0.1	−0.4	0.2	0.5 *	0.1	0.2	0.8
IE: Unconditional Permission to Eat	3.0	0.9	3.2	0.7	3.1	0.6	0.2	0.2	−0.3	0.7	−0.1	0.1	−0.4	0.3	0.1	0.2	−0.5	0.7
IE: Reliance on Hunger Cues	2.0	0.8	3	0.9	2.8	1.09	1.1 *	0.2	0.6	1.5	−0.2	0.2	−0.8	0.3	0.8 *	0.2	0.2	1.4
IE: Body Food Choice Congruence	3.0	0.9	3.4	0.9	3.4	0.9	0.4	0.2	−0.1	0.9	0.02	0.2	−0.5	0.6	0.4 *	0.1	0.7	0.8
WEMBS: Mental Well-Being	45.6	6.1	52.3	5.5	49.4	7.1	6.7 *	1.3	3.4	10.04	−2.8	1.4	−6.5	0.8	3.9 *	1.5	0.01	7.8
GAD-7: Anxiety	7.5	4.4	3.3	2.8	5.8	5.5	−4.1 *	0.9	−6.5	−1.6	2.4	1.1	−0.4	5.3	−1.6 *	0.6	−3.2	−0.02
PHQ-9: Depression	6.6	5.2	3.6	2.9	5.9	5.1	−3 *	0.9	−5.3	−0.7	2.4	0.9	−0.1	4.8	−0.6	0.9	−2.9	1.8
Spiritual Well-Being Scale Total	93.3	15.1	98.1	13.2	96.2	13.7	4.8	2.8	−2.6	12.1	−1.9	2.8	−9.3	5.5	2.9	2.2	−2.9	8.7

Table 3. Cont.

Outcomes:	Baseline		3 Months (End of Intervention)		9 Months (6-Month Follow-Up)		Mean Change Baseline—3 Months	SE	95% CI for Mean Difference		Mean Change from 3–9 Months	SE	95% CI for Mean Difference		Mean Change Baseline—9 Months	SE	95% CI for Mean Difference	
	M	SD	M	SD	M	SD			Lower	Upper			Lower	Upper			Lower	Upper
	SWBS: Religious Well-Being	48.9	12.1	49.7	8.2	49.2	10.6	0.8	1.8	-4.03	5.6	-0.5	1.9	-5.4	4.4	0.3	1.2	-2.8
SWBS: Existential Well-Being	44.4	5.7	48.4	5.8	47	6.2	4.0	1.7	-0.4	8.4	-1.4	1.6	-5.7	2.9	2.6	1.5	-1.3	6.5
SMILE: Religious Love	17.7	3.6	18.1	2.3	17.9	3.9	0.4	0.5	-0.9	1.7	-0.2	0.6	-1.7	1.3	0.2	0.2	-0.3	0.6
ATG: Avoidant	2.4	1.4	2.0	1.1	2.3	1.4	-0.4	0.2	-0.9	0.1	0.3	0.2	-0.3	0.8	-0.1	0.2	-0.6	0.3
ATG: Anxious	2.9	1.3	2.6	1.3	3.2	1.4	-0.4	0.3	-1.0	0.3	0.6	0.3	-0.1	1.3	0.3	0.3	-0.6	1.1
Energy Expenditure (Kcal)	3173	711	3079	744	3158	642	-93	43	-208	22	78	68	-101	258	-14	59	-172	143
Energy intake (Kcal)	2131	1278	1713	551	2018	1311	-418	370	-1415	580	304.7	383	-728	1337	-112	71	-304	79
Energy (-Alcohol) (Kcal)	2150	1271	1711	546	2056	1301	-439	366	-1426	549	345	378	-674	1365	-93	69	-281	94
Protein (g)	67.0	12.7	66	16.2	69.1	13.5	-1.0	2.4	-7.6	5.5	3.1	2.7	-4.2	10.5	2.1	1.3	-1.4	5.6
Carbohydrate (g)	211	51	202	56	204	47	-9	6	-25	7	1	12	-31	33	-8	10	-35	20
Polysaccharides (g)	101	33	105	31	121	37	4	7	-13	22	16	9	-10	40	20	9	-4	43
Mono and Disaccharides(g)	88	36	81	35	77	26	-7	4	-17	3	-4	7	-23	14	-11	6	-28	5
Fibre (g)	18.0	6.2	15.7	8.1	16.8	7.5	-2.3	1.4	-6.1	1.5	1	2	-4	6	-1.2	1.04	-3.4	1.6
Fat (g)	71.5	26.2	64.2	32.5	61.3	24.3	-7.3	5.9	-23.1	8.5	-3	7	-23	17	-10.2	4.8	-23.1	2.7
Saturated Fatty acids (g)	26.8	10.9	24.4	12.6	21.7	7.9	-2.4	2.2	-8.4	3.6	-3	3	-11	6	-5.1	2.1	-10.6	0.4
Mono-unsaturated fat (g)	23.4	9.3	21.1	11.6	20.2	8.6	-2.3	2	-7.8	3.1	-1	3	-9	7	-3.2	2.04	-8.7	2.3
Poly-unsaturated fat (g)	10.5	3.9	9.6	4.9	10.6	4.2	-0.9	0.8	-3.1	1.3	1	1	-1	4	0.2	0.7	-1.7	2.1
Sodium (mg)	1894	484	1658	761	1851	618	-236	139	-611	138	193	161	-239	625	-43	113	-349	263
Salt Equivalence (g)	4.7	1.2	4.2	1.9	4.6	1.5	-0.6	0.4	-1.5	0.4	0.5	0.4	-0.6	1.5	-0.1	0.3	-0.9	0.7
Calcium (mg)	709	195	631	264.1	675	210	-77	60	-240	86	43	72	-152	238	-34	33	-122	55

Note: * $p < 0.05$.

5.5. Facilitator Feasibility and Acceptability

Following close engagement with the data, two superordinate themes were identified: 'Facilitating the group was not always easy' and 'Developing more thorough training resources.' All superordinate themes encapsulate subthemes which were developed from coding the data (Table 4). Sub-themes are illustrated with extracts from the transcripts as shown below.

5.5.1. Theme 1: Facilitating the Group Was Not Always Easy

All facilitators had previous experience facilitating and felt they had an understanding about what facilitating involved. However, facilitators felt that their ability to transfer this facilitation experience to the Taste & See context was limited and, as a result, struggled at times throughout the programme. Facilitators' struggles were captured through the following two subthemes.

Subtheme 1: The need to define the facilitator role

Most facilitators expressed a level of uncertainty around the facilitator role in the context of Taste & See. Facilitators discussed that whilst they were managing to support group discussion, further clarity was required around what they should be focussing on.

"I think generally it would have been good to have some advice on . . . what the facilitators were supposed to do, what they were supposed to ask."

[Extract 1, Facilitator 1]

"A little bit more clarity [around] the role you wanted us to play. I think that would have been the most helpful. I mean all the stuff is in the book or hand-outs and we have them in advance and we can read through and understand that stuff, but what do we do with it? How do we actually put it into practice?"

[Extract 2, Facilitator 2]

They felt that this came from lack of clarity around the objectives of the individual sessions.

"What were the real objectives in that conversation? Was there a real objective or was it just an open time? If there were objectives, how are we going to get there . . . how much were we to be just somebody chatting within the group or [how much were we] actually pulling people towards an objective?"

[Extract 3, Facilitator 2]

Subtheme 2: Challenges of identity: a facilitator or a participant?

Some of the facilitators on the programme also engaged with the materials as a participant. This created dissonance in the way they fulfilled the role of a facilitator, as balancing the two roles was not always easily achieved and it became hard to remain objective. This particular challenge again may have stemmed from not having a clear definition of the facilitator role.

"Yeah I was unsure what my role was, whether I'm supposed to be just part of it [and] encourage conversation or actually be the example setter or be the teacher."

[Extract 4, Facilitator 2]

"I think on one week I felt in reflection that I probably should have been more encouraging and practicing it than actually bringing my personal opinion."

[Extract 5, Facilitator 2]

Table 4. Thematic map of the analysis process; displaying how codes were translated to themes.

Codes	Sub-themes	Final Theme
Advice on how to facilitate Purpose of facilitation not explained What should facilitators ask? Should I keep conversation open? Should they be encouraging conversation or applying? Intervention tools Not enough clearness on role Am I the teacher?	What does the facilitator role entail?	Theme 1: Facilitating was not always easy.
Should I be living the programme? Example setter or participant? Brought my own opinion Expressing concern Still my opinion It's difficult Which way is right? I took what I wanted	Challenges related to balancing both the roles of facilitator and participant	
How to manage difficult people Dominant people taking over, not letting others speak Help to make sure everyone can talk	Support managing difficult and dominant people	Theme 2: Developing more thorough training resources
Managing unexpected issues Unexpected issues not related to weight Managing the range of different things Unexpected spiritual issues People have real problems Serious problem, not expecting this	More advice on the range of issues that can arise	
Uncertain of role parameters How much detail should be pulled out from participants? Training around group discussion boundaries Should I try answer all questions? Should personal opinions be given? Trying not to judge people Digging something up We might not handle it We're not equipped to address it Staying non-judgemental	More advice about boundaries to ensure beneficence	

5.5.2. Theme 2: Developing More Thorough Training Resources

One of the most dominant discourses that persisted throughout the facilitator interviews were around the need for thorough training resources. This particular theme closely coincides with the first theme, as along with needing to clarify the role of the facilitator, facilitators highlighted different training needs during their interviews. The data for this theme has been presented through three sub-themes.

Subtheme 1: Managing difficult and dominant group members:

One of the key training needs that facilitators identified was around managing difficult and dominant group members. The majority of the facilitators identified that they had individuals in their groups who took over the discussions, leaving little time for others to speak.

“I was just thinking earlier about some difficult people. There was a difficult person in my group who I [found] difficult to manage because they weren’t allowing other people to speak. I really had to put in some more tactics for that group, but perhaps that goes back to the initial facilitators training.”

[Extract 6, Facilitator 1]

Subtheme 2: Being more prepared for the range of issues that arise.

None of the lay facilitators had any clinical experience; as a result, they were surprised and not expecting the range of issues that came up during sessions (i.e., complexity of emotional eating, the extent of negative psychological issues associated with food). Consequently, facilitators felt they needed to be better prepared for the range of issues they could encounter.

“I didn’t think people were going to have such massive issues. I thought it was basically well, just stop eating so much . . . but I’ve discovered it’s more complicated than that.”

[Extract 7, Facilitator 1]

“Another thing I was thinking was having advice or information on the sorts of issues people are going to have . . . I had someone in my group who had eating disorder issues and I didn’t know and I didn’t know what to do about it..”

[Extract 8, Facilitator 1]

Subtheme 3: More advice about boundaries to ensure beneficence.

Facilitators also highlighted the need for advice around boundaries when listening to and supporting others, particularly during sessions like ‘Facing the past’ where issues like adverse childhood experiences were discussed.

“What I’m just wary of is going digging, which is what we were doing really and then digging something up that is a lot bigger. [We need to] make sure that [the] person is in a position where they can handle [it, and] take it to a counsellor.”

[Extract 9, Facilitator 3]

Related to this, facilitators also acknowledged the importance of staying non-judgemental, and being sensitive to participants but at times they found it difficult to achieve.

“I think one of the challenges is staying completely non-judgemental, even if you think you’re [not] judging it’s easy to say something that someone else can then feel they’re being judged.”

[Extract 10, Facilitator 3]

Facilitators identified that they were consistently remaining mindful of what they were saying, but this was still an area they felt they wanted more support with.

5.6. Participants' Experience and Engagement

A full evaluation of participants' experience of the Taste & See programme is reported elsewhere [33] and summarized briefly here. For most of the participants, the idea of bringing God into their eating was not something they had previously considered despite experiencing considerable struggles with their weight. Participants identified that engaging with the spiritual content of the intervention took them on a journey towards accepting God's help, using their faith as a resource and learning to love themselves the way God loves them. The latter part of the journey in particular formed an important foundation for changing motives to manage their weight post-intervention. Participants found exploring other reasons to eat and how to challenge these behaviours, particularly in terms of listening to feelings of hunger and fullness as important. Participants expressed concerns about eating freely mainly relating to fears of weight gain and were surprised with the weight loss they achieved. The freedom element helped participants experience release from guilt associated with food and eating. Participants identified that there were a number of benefits to being in smaller groups which included building rapport and developing solidarity through sharing own experiences with one another. However, for some participants, being in groups with individuals who had deeper emotional issues that dominated discussions was at times unhelpful for their own journeys. This finding is particularly noteworthy as it mirrors some of the aspects facilitators raised. Facilitators identified that there were times when they had to work hard to avoid discussion being centered around a few individuals with deep problems, and ensure everyone in the group had a chance to discuss their own experiences.

6. Discussion

6.1. Summary of Results

The present study found that it was feasible to recruit 18 participants over a period of two weeks. It was also feasible to deliver and evaluate this programme in a church setting. The recruitment process of the study found that face-to-face recruitment through the church was the most effective strategy. Attendance during the programme declined over time, with reasons for non-attendance being reported as previous evening commitments and booked holidays. Only one participant was lost to follow-up at the end of the intervention (three months from baseline); at nine months (six-month follow-up), only three participants were lost to follow-up, thus demonstrating good participant retention. Where follow-up data could not be collected, an Intention-To-Treat analysis (ITT) was performed using Baseline Observation Carried Forward (BOCF) at both time points.

At the end of the intervention (three months from baseline); there were significant increases in mental well-being, cognitive restrained eating, QOL-VAS and the intuitive eating dimensions of eating for physical rather than emotional reasons and reliance on hunger cues. There were also significant decreases in EQ-5D5L pain/discomfort, BMI, uncontrolled eating, emotional eating, anxiety and depression. There was a mean reduction in energy intake, total fat, saturated fat and there was a mean increase in spiritual well-being, although these were not statistically significant. Between the end of the intervention and six-month follow-up, there were no statistically significant changes. However, while mean change in weight and BMI returned to baseline levels, mean change in uncontrolled eating, emotional eating, mental well-being and anxiety remained statistically improved from baseline. Although total energy intake had returned to baseline levels, this increase in energy came from polysaccharides and protein, while total fat, saturated fat and sugar intake was further reduced during this time period, thereby indicating positive ongoing dietary change after the end of the intervention even though these values did not reach statistical significance. The significant improvements in intuitive eating behavior seen at the end of the intervention were virtually unchanged during the following six months, such that the same significant improvements as at the end of the intervention were sustained nine months after baseline.

It was also feasible to recruit and train non-clinical facilitators. Qualitative data around their experiences were captured through two master themes 'Facilitating the group was not always easy' and 'Developing more thorough training resources.' Facilitators were able to facilitate the programme adequately; their experience showed that there were challenges around understanding the role of the facilitator, balancing facilitator/participant identity, managing participants in the group setting and a need for more advice around the discussions they can expect to arise. Facilitators requested the need for more training around these issues; this will be addressed and incorporated into the training resources for the planned randomised controlled trial.

For most of the participants, the idea of bringing God into their eating was not something they had previously considered despite experiencing considerable struggles with their weight. Participants identified that engaging with the spiritual content of the intervention took them on a journey towards accepting God's help, using their faith as a resource and learning to love themselves the way God loves them. These findings begin to illuminate the quantitative findings of decreases in avoidant and anxious attachment style with God and increases in spiritual well-being, and body-food choice congruence. Participants found exploring other reasons to eat and how to challenge these behaviours—particularly in terms of listening to feelings of hunger and fullness—to be important; this may explain the increases in intuitive eating, and decreases in emotional, and uncontrollable eating. Participants' release from guilt associated with food and eating as they began to eat freely may explain increased scores in mental well-being and decreased scores in depression and anxiety. Participants identified that there were a number of benefits to being in smaller groups which included building rapport and developing solidarity through sharing own experiences with one another. However, for some participants, being in groups with individuals who had deeper emotional issues was at times unhelpful as they felt those deeper issues dominated discussions.

6.2. Strengths of the Study

This study is unique in a number of ways; to our knowledge, Taste & See is the first programme to incorporate both Christian Spirituality and intuitive eating principles into a weight management programme, and the first to be trialed within a UK Church setting. This small pre- and post-study was adequate to show the feasibility of evaluating this programme within a church setting and gain information of likely mean change and standard deviation of outcome variables to inform a randomised controlled trial. In addition, because of the effect size of some of these changes, we have been able to run an analysis on our data, which suggests beneficial effects which are worth further exploration. To detect change in all our variables, we used standardised and validated measures which have been previously validated for this purpose.

6.3. Limitations of the Study

Although adequate to test feasibility, the nature of the study design and the small sample size means that only limited conclusions can be drawn from our data analysis. There was no control group to allow for testing of comparative effectiveness. We only observed improvement over time while participants underwent the intervention; without a randomised control group we cannot prove our results were due to the intervention and not due to a 'placebo effect' or, more specifically in this situation, the effect of time and raised awareness or other confounding factors. Our sample size was also too small to provide precise estimates of outcomes as shown by the wide confidence intervals.

Despite using tried and tested methods, some participants reported difficulty completing some questions which may have led to a degree of inaccuracy. Not all data was available at follow-up, although we conservatively used BOCF to replace missing values. Improvements in the mean scores of outcomes were still seen.

Additionally, underreporting of energy intake is well known in populations who struggle with weight control [35]. However our values did not fall below the cut-off for implausibility as determined by the validated Goldberg cut-offs [36]. Underreporting is a consistent phenomenon and so is unlikely

to be responsible for the changes in dietary intake that we observed over time. Indeed, the change we observed in energy intake over time was in line with expected values for the degree of weight change observed.

Our results so far would be poorly generalisable, not only in light of our small sample size but because our sample demographics were relatively homogeneous in that most of the sample participants were Christian, had degree-level education status, female, and White in ethnicity. Taste & See—was also only tested in one church, and so whether this type of intervention would be acceptable across all Christian denomination churches needs to be investigated. In addition, there was high clinical variability among the sample in relation to eating behavior and BMI. As such, individuals' aims for the programme may have been different, and have led to a diluted effect in some of the outcomes. For example, not all individuals were seeking to lose weight, and so a lower mean weight loss across this sample, compared to that in weight-loss-focussed programmes, should not be taken as a lack of efficacy.

6.4. Consistency of Findings

The feasibility of conducting this type of programme within a church is consistent with findings from the US where pre- and post-studies of faith-based interventions [37–39], as well as RCTs [40,41] have been successfully conducted. We reported on many outcome variables, though the most consistently reported outcome in other faith-based weight management programmes is weight.

In our study, participants lost a mean of 1.6 kg at three months, and returned to baseline levels of weight at nine months after baseline. In comparison to other intuitive eating programmes, our findings at three months are consistent with previous systematic review findings that have shown that participants who learn to eat intuitively achieve significant decreases in weight and body mass index [10,42].

More specifically, the magnitude of the weight loss we observed at three months is consistent with 1.4 kg weight loss seen for intuitive eaters previously at the end of a 14-week intervention in comparison to the social support group and waiting list control group who lost 0.6 kg and 0.4 kg respectively post-intervention [43]. However, other studies have reported greater weight loss; 7.9 kg [44]; 3.1 kg, [45]; 4.9 kg [46]; or no weight loss at all [47–49] at this time point. While some studies have shown that this weight loss is maintained at one year in intuitive eating interventions [50,51], we did not find weight loss maintenance at nine months from baseline; however, we do not know whether weight loss would have followed and been evident one year after baseline in our study, particularly because our six-month follow-up period fell during the winter months, and so seasonal variations in weight change may have accounted for some weight regain. Longitudinal prospective study evidence found a small statistically significant increase of 0.48 kg in body weight during the winter amongst a sample of 593 predominantly overweight participants, which was attributed to an increased caloric intake of 86 kcal a day across the sample during the winter season [52].

When our results of weight change at three months are compared to other weight management faith-based interventions, the magnitude of weight loss was less; Yeary et al. [38] reported an average weight loss of 2.3 kg from baseline to four months, and another study demonstrated an average weight loss of 3.3 kg at six months [53].

However, all of the faith-based weight management interventions tested so far have been focussed on weight loss targets using conventional principals of dieting [37,54,55], and not on an intuitive eating approach like ours. When dieting and intuitive eating programmes are compared, greater short-term weight loss is seen with dieting, although the sustainability of this is questionable [43,56].

In addition, we may have observed lower rates of weight loss as a result of not everyone being able to attend the entire programme. Yeary et al. [38] identified a dose effect relationship of their faith-based intervention, where participants who engaged with the programme more experienced greater weight loss average (4.4 kg) than those who were less engaged (0.29 kg).

An unexpected result from our study was the significant increase in cognitive restrained eating as measured by the TFEQ-21 which was maintained at nine months from baseline. A central premise of intuitive eating is to encourage unconditional permission to eat, and so a reduction in this variable is expected [11,12] and has previously been found [57]. Although we taught intuitive eating in our programme, we also discussed freedom within the context of responsibility and encouraged participants to adjust to behaviours which were most helpful to them individually; in this way, we did not prohibit dietary restriction. We know from interviewing participants that some people became less restrained in their eating but others identified specific areas in which they chose to exercise more restraint than they had done previously and this may have explained the increase we found. Also, in more mindfulness-based programmes, both for weight loss [58] and binge-eating disorder [59], an increase in cognitive restrained eating associated with successful outcomes has been seen.

As expected, we saw improvements in various measures of mental health and well-being associated with improvements in other areas of mental health, such as anxiety and depression. Improvements in mental health and quality of life measures, like those seen in our study, is consistent with improvements in other intuitive eating programmes [41], but few faith-based studies have reported on these outcomes.

We also saw an improvement in relationship with God, as measured by less avoidant attachment and anxious attachment to God. Cross-sectional evidence has suggested that a secure attachment style with God is associated with reduced psychological symptoms [60]. Less well studied is the association between a relationship with God and eating behaviours, a previous cross-sectional study found intuitive eating negatively correlates with anxious attachment to God in college women [61]. Prospective longitudinal study evidence further suggests that a secure relationship with God serves as a protective role against thin ideals, and that women who have a secure attachment with God are suggested to be more satisfied with their bodies and diet less frequently [62].

7. Conclusions and Implications

Our findings suggest that a complex intervention designed to address spiritual and religious needs as well as physical and psychological health needs in those who are overweight or have an unhealthy relationship with food is feasible to deliver and evaluate in a UK church setting. It suggests improvements in weight and psychological variables. The feasibility study begins to give some insights into what can be achieved from a 10- to 12-week Christian, church-based, healthy intuitive-eating programme. Addressing spiritual and religious needs within weight management is a promising approach that requires further investigation. This feasibility trial has provided a rich level of evaluation which has been used to improve the intervention design and evaluation process. The implication of an intervention of this nature is that the holistic nature begins to address issues that conventional weight management programmes do not tackle. Addressing the underlying issues with problematic and overeating behaviours is an important factor that is often overlooked. A larger randomised controlled trial is thus required to assess the efficacy of this intervention.

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