# The prevalence of erectile dysfunction in men attending cardiac rehabilitation: an audit in East London.

**Authors:** P Williams, MSc, School of Health Sciences, City University London, London, UK; S Bandhoo, RGN, Newham Cardiac Rehabilitation Service, East London NHS Foundation Trust, London, UK; H McBain, PhD, CPsychol, School of Health Sciences, City University London, London, UK and Community Health Newham, East London Foundation Trust, London, UK; K Mulligan, PhD, CPsychol, School of Health Sciences, City University London, London, UK and Community Health Newham, East London Foundation Trust, London, UK; M J Steggall, PhD, MSc, BSc (Hons), RN (Adult) FHEA, Faculty of Life Sciences and Education, University of South Wales, Pontypridd, UK

**Address for correspondence:** M Steggall (Dean), Faculty of Life Sciences and Education, University of South Wales, Pontypridd, CF37 4BD,UK

**E-mail:** Martin.steggall@southwales.ac.uk

## ABSTRACT

**Objective:** To ascertain the prevalence of erectile dysfunction (ED), how it is perceived and the percentage seeking treatment for the condition in a population of men with cardiovascular disease (CVD) attending a cardiac rehabilitation programme in East London, United Kingdom (UK).

**Participants:** 100 male participants aged between 30 and 88 years attending a cardiac rehabilitation centre in East London.

**Methods:** An audit of men attending a cardiac rehabilitation programme was conducted. Participants completed the International Index of Erectile Function (IIEF-5) to ascertain the severity of ED; adapted 'bother score' item from the International Prostate Symptom Score (IPSS) to investigate the extent to which participants were bothered by the symptoms of their ED and questions related to both ED treatment-seeking and beliefs about the impact of cardiac medication on ED. Demographic and clinical data were also collected. The audit was carried out between January and September 2014.

**Results:** Out of 117 male participants, 100 were audited (85.5% uptake). Prevalence of ED in this cohort was 80% and 38% were suffering with moderate or severe ED. Older men had significantly higher levels of ED and participants with severe ED were significantly more bothered by their condition. Those of Asian or British Asian descent reported significantly higher levels of ED severity than men from white ethnic backgrounds. 65% of men with ED had never spoken to a healthcare professional (HCP) about the condition and 35% believed that their medication had a deleterious effect on erectile function.

**Conclusion**: High incidences of ED remain undetected in this patient population. The study stresses the importance for HCPs to discuss ED with patients within primary care and cardiac rehabilitation programmes, which in turn could reduce mortality in those at risk of a future cardiac event, as well as facilitate access to ED treatment.

**Key Words:** Audit; cardiac rehabilitation; cardiovascular disease; erectile dysfunction; help seeking behaviour; prevalence.

## INTRODUCTION

The term cardiovascular disease (CVD) refers to all diseases of the heart and circulatory system and costs the NHS and the United Kingdom (UK) economy approximately £30.6 billion per year (Care Quality Commission. 2014) Coronary heart disease (CHD) is one such disease and is the biggest single cause of death in the UK. For men, CHD is the most common cause of premature death (mortality before 75 years of age) and was responsible for over 15% (>17,000) of premature deaths in 2012 (Bhatnagar et al. 2015).

Erectile dysfunction (ED) is defined as a man's consistent or recurrent inability to attain and/or maintain a penile erection sufficient for sexual activity (Montorsi et al. 2010). Prevalence rates of ED for individuals at risk of, or suffering with CVD are reported to be as high as 75% (British Heart Foundation 2014;Dusing 2003). ED and CVD share similar aetiologies and risk factors including; obesity, diabetes mellitus, physical inactivity, hypertension, dyslipidaemia and tobacco usage (Ponholzer et al. 2005). ED is typically experienced before the onset of a cardiac event and can be regarded as an early indication of underlying CVD (Montorsi et al. 2003). Due to arteries in the penis being approximately 1 – 2 mm compared to larger arteries such as coronary arteries (3 – 4 mm), they suffer obstruction by atheromatous plaque earlier (Jackson 2013). Therefore, early diagnosis of ED can be a crucial indication of undetected CVD. The mean time between developing ED and having a cardiovascular event, such as myocardial infarction or cerebrovascular accident, is approximately three years (Montorsi et al. 2003).

Medication prescribed for CVD can cause further deleterious effects in relation to erectile function (Nicolai et al. 2014). Side-effects of antihypertensive medications (particularly beta-blockers and thiazide diuretics) can cause ED (Dusing 2005). As a result, patients who experience ED as a side-effect can become non-adherent to such medication regimes (Doumas and Douma 2006). In a qualitative study involving a cohort of 38 hypertensive patients, ED was reported as a reason for missing doses or for ceasing hypertensive medication to preserve erectile function, however, the authors do not report which hypertensive medications patients were taking (Voils et al. 2008). A recent systematic review provides support for the notion that both thiazide diuretics and a majority of beta-blockers have a negative effect on erectile function, whilst the beta-blocker Nebivolol, may have a positive effect. It is suggested that this is due to nitric oxide-mediated vasodilatory properties, which improve endothelial function and hence erectile function. In addition, it was concluded that there was no evidence to suggest that; angiotensin-converting-enzyme (ACE) inhibitors, angiotensin-receptor-blockers (ARB's) and calcium-channel-blockers have a deleterious effect on erectile function (Baumhakel et al. 2011).

In addition to pharmacological induced ED, patient perceptions are important when considering the effects of CVD medication on ED. Ninety-six men prescribed atenolol for CVD were split up into 3 groups; one group were blinded to the drug given, the second

were informed about the drug but not its side effects and the final group were informed about the drug and its side effects, which included ED (Silvestri et al. 2003). ED was reported in 3.1, 15.6 and 31.2% of the groups respectively. It was suggested that knowledge and beliefs about the potential side effects of CVD medication may create anxiety, which in turn, may have an effect on erectile function (Silvestri et al. 2003). An alternative explanation could be that an awareness of the link between CVD medication and ED may increase the reporting of erectile symptoms.

The International Prostate Symptom Score questionnaire (IPSS) includes an item which is referred to as the 'bother score'. This item has previously been adapted and used in ED research (Steggall and Butler 2012). Steggall and Butler (2012) indicated that regardless of ED severity, men who took part in their study were 'bothered' by their condition and perceived their symptoms negatively. Despite this, help-seeking in relation to ED is problematic. Research indicates that less than 25% of men actively seek treatment for ED (Laumann et al. 2009) and embarrassment is often reported as a major reason for not wanting to discuss sexual health issues with a healthcare professionals (HCP) (Byrne et al. 2013). Hackett recommends that in order to improve detection, patients presenting in primary care with diabetes, obesity, depression or cardiovascular disease should be asked whether they are experiencing ED (Hackett 2009).

This paper details an audit of a cardiac rehabilitation service in East London to ascertain the prevalence of ED and whether it has been detected and/or treated. The audit aimed to:

- investigate the prevalence and severity of ED in a cohort of men attending a community based cardiac rehabilitation service in East London using the International Index for Erectile Function (IIEF-5) (Rosen et al. 1999)
- identify the extent to which patients are bothered by their ED
- identify what proportion of men with ED had sought treatment
- identify whether men considered ED to be a side-effect of medication

# METHODS

## Participants

All men attending the cardiac rehabilitation programme were eligible for inclusion in the audit.

## Procedure

Permission to conduct the audit was obtained from the Assurance Department of East London NHS Foundation Trust (ELFT) and subsequently took place between January and September 2014. ELFT provides a cardiac rehabilitation programme across a variety of locations including both community and hospital based settings in East London. Men who were newly referred to the cardiac rehabilitation programme were given the audit questionnaire to complete when they arrived to participate in one of the cardiac rehabilitation sessions. Participants were informed that all questionnaire

responses would be anonymous. In accordance with the Data Protection Act 1998 (Parliament 1998) all aspects of participants' data were treated with strict confidence. Each participant was assigned a unique identification number to ensure data were anonymised. Hard copies of questionnaires were stored within locked filing cabinets in a locked office on NHS premises, along with digital data which were stored on an NHS password protected network drive.

### Materials

As part of standard care, participants completed a self-report questionnaire. Clinical and demographic data were extracted from participants' medical records. Where participants could not speak English, a member of the Trusts health advocacy service translated the questions and recorded participants' responses. The pack included the IIEF-5; a self-report questionnaire designed to detect the presence and severity of ED (Rosen et al. 1999). It has been utilised successfully across a wide variety of studies, translated into more than 30 languages and used extensively throughout the world (Cappelleri and Rosen 2005). Each item of the IIEF-5 is scored on a five-point Likert scale from; '1' least functional, to; '5' most functional. Possible overall scores range from 1 to 25; 21 and above is considered to indicate normal erectile function. Conversely, lower overall scores represent poorer sexual function (See appendix; table 1) (Rhoden et al. 2002).

The 'bother' question from the IPSS was re-worded for use with ED; 'If you were to spend the rest of your life with your erectile function just the way it is now, how would you feel about that?' Using a Likert scale, a score of 0 indicated being 'delighted', 1 'pleased', 2 'mostly satisfied', 3 'mixed', 4 'mostly dissatisfied', 5 'unhappy' and 6 'terrible.' This item has been used in men with ED (Steggall & Butler 2012) and is considered both valid and reliable (O'Leary 2005).

The audit also included the questions; 'Do you think any of your medications affect your erectile function?' and 'Have you ever told your doctor or nurse about your erectile problems?' where participants answered either 'Yes' or 'No'.

### Statistical Analysis

Data were analysed using IBM SPSS Statistics 21. To investigate the prevalence of ED, descriptive statistics were used for participant demographics and clinical data. Analysis of variance (ANOVA) and analysis of covariance (ANCOVA) were used to investigate differences between the five categories of ED severity on age and the subsequent degree of bother, as well as differences in ED severity in relation to ethnicity.

## RESULTS

### Demographic characteristics

Of the 117 men approached, 100 (85.5%) completed the audit. Participants who refused were widowed (n=2, 1.7%); had a wife who was not living in the country (n=3, 2.6%);

did not complete the questionnaire or did not wish to participate (n=12, 10.25%). Ages ranged between 30 and 88 years with a mean age of 56.82 years (SD=10.48). A majority of the men were married (77%) and were non-smokers (72%). Patients were mainly Asian or British Asian i.e. Indian, Pakistani or Bangladeshi (n= 49, 49%) (See appendix; table 2).

## Clinical characteristics

The majority of participants were attending cardiac rehabilitation as a result of a myocardial infarction (41%) or angina (31%). The most commonly prescribed medications were aspirin (97%) and statins (92%). The most prevalent comorbidities were hypertension (50.5%), hypercholesterolemia (48%) and type 2 diabetes (30%) (See appendix; table 3).

## ED prevalence, severity and age

Of the 100 men who completed the IIEF-5, 80 (80%) suffered some degree of ED. The self-reported mean duration of ED was 2.8 years (SD= 3.32 years) and the mean IIEF-5 score was 14.91 (SD= 6.5) (See appendix; table 4).

Moderate or severe ED was reported by 38 (38%) of men. An ANOVA indicated a significant difference in age between the five categorisations of ED severity; $F$ (4, 95) = 6.59, $p$= 0.0001, partial eta squared = 0.22. The post hoc Tukey HSD test indicated that those with severe ED were significantly older than those with mild to moderate, mild and no ED (See appendix; table 5).

## Bother score

Using the IPSS bother question to ascertain how participants felt about spending the rest of their lives with their current erectile function revealed that; 11 participants (11%) felt 'delighted', 15 participants (15%) were 'pleased', 1 (1%) was 'mostly satisfied', 26 (26%) had 'mixed' feelings, 18 (18%) felt 'mostly dissatisfied' or 'unhappy' (n=18, 18%) and 8 men (8%) reported that they felt 'terrible'.

An ANCOVA was used to explore differences between the 5 categorisations of ED severity and bother whilst controlling for the effects of age (See appendix; table 5). Results revealed a significant difference between groups on levels of bother F (4, 91) = 18.59, $p < 0.01$, partial eta squared = 0.45. Pairwise comparisons indicated that those with severe ED were significantly more bothered by their symptoms than those with all other ED severities including those with no ED. Those with mild, mild to moderate and mild ED were significantly more bothered by their symptoms than those with no ED.

Ethnic background was looked at in relation to ED severity (See appendix; table 6). ED severity was treated as a continuous variable as there were too few observations within some cells to perform a chi-squared test. An ANCOVA was utilized to look for any significant differences between ethnic groups in relation ED, whilst controlling for age. A significant difference existed between groups; F (3, 95) = 4.22, $p$ = .008, partial eta squared = .117. Pairwise comparisons indicated that Asian or British Asian men scored

significantly lower on the IIEF-5 than those from white ethnic backgrounds, therefore, men of Asian or British Asian descent reported significantly higher levels of ED severity than white men.

### ED severity and comorbidities

Of the 100 men who took part in the audit, 50 (50%) had hypertension, 30 (30%) had type II diabetes and 19 (19%) had both conditions (See appendix; table 7). Almost all men with diabetes had ED (29/30, 96.7%) and 80% had moderate or severe ED. In men with hypertension; 86% had ED and 46% had moderate to severe ED. All men with both diabetes and hypertension had at least mild ED and 84% had moderate or severe ED.

### Treatment seeking

Of the 80 men with ED, 52 (65%) had never spoken to a HCP about their condition. Of those with moderate or severe ED, 52.6% had spoken to a HCP, while in those with less severe ED i.e. mild or mild to moderate severity; only 14.3% had done so. Of these men only one individual was receiving treatment for ED. Thirty five percent of men diagnosed with ED believed that medication was having an effect on their erectile function.

## DISCUSSION

The prevalence of ED in this cohort of men attending a cardiac rehabilitation programme was 80%, which is similar to that found in previous research (British Heart Foundation 2014;Dusing 2003). Men with severe ED were significantly older and more bothered by their symptoms. However, even those with mild ED reported feeling either mostly 'dissatisfied' or 'terrible' about their erectile function, echoing the results of Steggall and Butler's (2012) research which found that men with heart failure, regardless of the severity of their ED, were bothered by the condition . The majority of participants were Asian or British Asian, reflecting the composition of the local community and these men were experiencing significantly more severe ED than men from white ethnic backgrounds. The scope of this audit was not broad enough to suggest reasons for this; therefore further research focussing on differences between ethnic groups in relation to ED is needed.

Both ED and CVD share similar aetiologies and risk factors, including diabetes mellitus and hypertension (Ponholzer et al. 2005). The mean duration of ED in this cohort of men was 2.8 years, echoing the findings of Montorsi et al. (2003) who suggest that the mean time between developing ED and experiencing a cardiovascular event is approximately 3 years. In addition, this audit confirmed that men who were living with comorbid hypertension or type II diabetes were likely to report higher levels of ED severity.

A large proportion of men were prescribed beta-blockers, which have been reported as having negative effects on erectile function (Baumhakel et al. 2011;Nicolai et al. 2014). Approximately one third of men believed that their medication impacted on their

erectile function. It is however, unclear whether it is the drugs themselves that may be causing this effect or beliefs and expectations men have about possible side effects, as demonstrated by Silvestri et al. (2003). Future research could address this important question by investigating men's beliefs about their CVD treatment in relation to ED, in order to examine whether such beliefs influence men's adherence to cardiac medication.

Despite 80% of the sample suffering with ED, 65% had not discussed their condition with a HCP, reflecting the findings of Laumann et al. (2009) who suggest that less than 25% of men seek help for ED. Byrne et al 2013 suggests that this is due to embarrassment with regard to discussing sexual health issues with HCPs. A limitation of this audit resides in the potentially embarrassing nature of ED and the format in which participants completed the questionnaire. Cardiac rehabilitation classes are group based. With this in mind, all efforts were made to safeguard participant's privacy when completing the questionnaire; however, it is unlikely that feelings of embarrassment were completely eliminated. This could have been exacerbated in the small number of participants that did not speak English who were read the questions aloud by a health advocate. Although people who do not speak English are likely to have experience of discussing their health with a health advocate, it would be prudent to keep this in mind when considering the results to this audit.

The present audit, in line with previous research, highlights the important link between CVD, diabetes, hypertension and comorbid ED (Ponholzer et al. 2005). Patients presenting with such diseases offer an opportunity to enquire about and screen for ED. Hackett (2009) suggests that HCPs need to assess ED effectively by asking the right questions and demonstrate a willingness to take ED seriously as a medical condition. The results of this audit suggest that this is still a serious obstacle preventing patients obtaining necessary medical help. It highlights the need for ED to be adequately addressed and screened for in order to detect CVD early and facilitate access to ED treatment. This could be achieved in primary care, but is also true of cardiology clinics and cardiac rehabilitation programmes. If the profile of ED can be raised and the topic addressed in various healthcare settings, then the possibility exists to reduce mortality in those at risk of a future cardiac event, as well as increase quality of life in those suffering with ED.

## ACKOWLEDGEMENTS

The authors are grateful to the East London NHS Foundation Trust cardiac rehabilitation staff for their support with this work.

## DISCLOSURES

No competing interests to report.

**What is already known about this subject?**
Cardiovascular disease (CVD) and erectile dysfunction (ED) share similar risk factors and aetiologies. It is estimated that the average time between first experiencing ED and suffering a cardiac event is approximately 3 years. As a result, ED is seen as an important early indication of CVD. Many men do not seek treatment for ED.

**What does this study add?**
Although the link between ED and CVD has been known for several years, this study found that ED is still going undiagnosed. Of those with moderate to severe ED symptoms, over half had not spoken to a HCP about their ED. Over one third of men with ED symptoms believed that their medication affected their erectile function. If HCPs ask men who are known to be at risk of or have CVD about erectile function, it could have important consequences for identifying CVD early as well as facilitating access to ED treatment.

# References


Baumhakel, M., Schlimmer, N., Kratz, M., Hackett, G., Jackson, G., & Bohm, M. 2011. Cardiovascular risk, drugs and erectile function--a systematic analysis. *Int J Clin Pract*, 65, (3) 289-298

Bhatnagar P, Wickramasinghe K, Williams J, et al. Heart Published Online First: [03 June 2015] doi:10.1136/heartjnl-2015-307516

British Heart Foundation. Heart Matters sex survey. 2014. Available from: <https://www.bhf.org.uk/heart-matters-magazine/news/sex-survey>. [ 5-11-2014].

Byrne, M., Doherty, S., Murphy, A.W., McGee, H.M., & Jaarsma, T. 2013. Communicating about sexual concerns within cardiac health services: do service providers and service users agree? *Patient Educ Couns.*, 92, (3) 398-403

Cappelleri, J.C. & Rosen, R.C. 2005. The Sexual Health Inventory for Men (SHIM): a 5-year review of research and clinical experience. *Int.J Impot.Res.*, 17, (4) 307-319

Care Quality Commission. Cloasing the gap: Tackling cardiovasclar disease adn health inequalities by prescribing statins and stop smoking services. Public Health England, 2009. Available from: <http://webarchive.nationalarchives.gov.uk/20100813162719/http:/www.cqc.org.uk/_db/_documents/Closing_the_gap.pdf>. [15-7-2015].

Doumas, M. & Douma, S. 2006. The effect of antihypertensive drugs on erectile function: a proposed management algorithm. *J Clin Hypertens (Greenwich)*, 8, (5) 359-364

Dusing, R. 2003. Effect of the angiotensin II antagonist valsartan on sexual function in hypertensive men. *Blood Press Suppl*, 2, 29-34

Dusing, R. 2005. Sexual dysfunction in male patients with hypertension: influence of antihypertensive drugs. *Drugs*, 65, (6) 773-786

Hackett, G. 2009. The burden and extent of comorbid conditions in patients with erectile dysfunction. *Int J Clin Pract*, 63, (8) 1205-1213

Jackson, G. 2013. Erectile dysfunction and cardiovascular disease. *Arab Journal of Urology*, 11, (3) 212-216

Laumann, E.O., Glasser, D.B., Neves, R.C., & Moreira, E.D., Jr. 2009. A population-based survey of sexual activity, sexual problems and associated help-seeking behavior patterns in mature adults in the United States of America. *Int.J Impot.Res.*, 21, (3) 171-178

Montorsi F, Adaikan G, Becher E, Giuliano F, Khoury S, Lue TF, Sharlip I, Althof SE, Andersson KE, Brock G, Broderick G. 2010. Summary of the recommendations on sexual dysfunctions in men. *J.Sex Med.*, 7, (11) 3572-3588

Montorsi F, Briganti A, Salonia A, Rigatti P, Margonato A, Macchi A, Galli S, Ravagnani PM, Montorsi P 2003. Erectile dysfunction prevalence, time of onset and association with risk factors in 300 consecutive patients with acute chest pain and angiographically documented coronary artery disease. *European urology*, 44, (3) 360-365

411 Nicolai MP, Liem SS, Both S, Pelger RC, Putter H, Schalij MJ, Elzevier HW 2014. A review of the
412 positive and negative effects of cardiovascular drugs on sexual function: a proposed table for use in
413 clinical practice. *Neth.Heart J*, 22, (1) 11-19

414 O'Leary, M.P. 2005. Validity of the "bother score" in the evaluation and treatment of symptomatic
415 benign prostatic hyperplasia. *Rev.Urol*, 7, (1) 1-10

416 Parliament, B. 1998. Data protection act of 1998.
417
418 Ponholzer, A., Temml, C., Mock, K., Marszalek, M., Obermayr, R., & Madersbacher, S. 2005.
419 Prevalence and risk factors for erectile dysfunction in 2869 men using a validated questionnaire. *Eur*
420 *Urol*, 47, (1) 80-85

421 Rhoden, E.L., Teloken, C., Sogari, P.R., & Vargas Souto, C.A. 2002. The use of the simplified
422 International Index of Erectile Function (IIEF-5) as a diagnostic tool to study the prevalence of
423 erectile dysfunction. *Int.J Impot.Res.*, 14, (4) 245-250

424 Rosen, R.C., Cappelleri, J.C., Smith, M.D., Lipsky, J., & Pena, B.M. 1999. Development and evaluation
425 of an abridged, 5-item version of the International Index of Erectile Function (IIEF-5) as a diagnostic
426 tool for erectile dysfunction. *Int J Impot.Res*, 11, (6) 319-326

427 Silvestri A, Galetta P, Cerquetani E, Marazzi G, Patrizi R, Fini M, Rosano GM. 2003. Report of erectile
428 dysfunction after therapy with beta-blockers is related to patient knowledge of side effects and is
429 reversed by placebo. *Eur Heart J*, 24, (21) 1928-1932

430 Steggall, M.J. & Butler, J. 2012. Prevalence of erectile dysfunction in men with Heart Failure:
431 implications for practice. *British Journal of Cardiac Nursing*, 7, (9) 439-445

432 Voils CI, Sandelowski M, Dahm P, Blouin R, Bosworth HB, Oddone EZ, Steinhauser KE. 2008. Selective
433 adherence to antihypertensive medications as a patient-driven means to preserving sexual potency.
434 *Patient.Prefer.Adherence.*, 2, 201-206

435
436
437
438
439
440
441
442
443
444
445
446
447
448
449

# Appendix

**Table 1: IIEF-5 points threshold**

| Threshold | Diagnosis |
|---|---|
| >21 | Normal Erectile Function |
| 17 – 21 | Mild Erectile Dysfunction |
| 12 – 16 | Mild to Moderate Erectile Dysfunction |
| 8 – 11 | Moderate Erectile Dysfunction |
| 1 – 7 | Severe Erectile Dysfunction |

**Table 2: Participant Demographics**

| Characteristic | Respondents N (%) |
|---|---|
| **Age:** | |
| ≤ 30 | 1 (1) |
| 31 - 40 | 7 (7) |
| 41 - 50 | 13 (13) |
| 51 - 60 | 49 (49) |
| > 60 | 30 (30) |
| **Total** | **100 (100)** |
| **Ethnicity:** | |
| White British | 25 (25) |
| White Irish | 5 (5) |
| Any other white background | 4 (4) |
| Asian or Asian British Indian | 16 (16) |
| Asian or Asian British Pakistani | 15 (15) |
| Asian or Asian British Bangladeshi | 18 (18) |
| Any other Asian background | 9 (9) |
| Black or Black British Caribbean | 1 (1) |
| Black or black British | 1 (1) |
| Any other black background | 1 (1) |
| Chinese | 1 (1) |
| Any other ethnic background | 4 (4) |
| **Total** | **100 (100)** |
| **Relationship Status:** | |
| Single | 9 (9) |
| Married | 77 (77) |
| Partner | 6 (6) |
| Divorced | 2 (2) |
| Separated | 1 (1) |
| **Total** | **95 (95)** |
| **Smoking Status:** | |
| Smoker | 13 (13) |
| Non-Smoker | 72 (72) |
| Ex-Smoker | 15 (15) |
| **Total** | **100 (100)** |

**Table 3: Participant Clinical Data**

| Characteristic | Respondents N (%) |
|---|---|
| **History of CVD Diagnoses:** | |
| Myocardial infarction | 41 (41) |
| Coronary artery disease | 24 (24) |
| Angina | 31 (31) |
| Heart failure | 4 (4) |
| Dilated cardiomyopathy | 1 (1) |
| Ischemic heart disease | 7 (7) |
| Heart valve disease | 5 (5) |
| Arterial fibrillation | 4 (4) |
| **CVD Medication:** | |
| Aspirin / Second anti-platelet / Anticoagulants | 97 (97) |
| ACE Inhibitor / Angiotensin II antagonist | 84 (84) |
| Beta Blocker | 81 (81) |
| Statin | 92 (92) |
| Glyceryl Trinitrate (GTN) spray | 65 (65) |
| Calcium Channel Blocker | 18 (18) |
| Potassium channel activator | 5 (5) |
| Diuretics | 24 (24) |
| Anti-arrhythmia drugs | 2 (2) |
| **Comorbidities:** | |
| Hypertension | 50 (50) |
| Type 2 diabetes | 30 (30) |
| Hypercholesterolemia | 48 (48) |

**Table 4: Participant responses by item on the IIEF-5, n(%)**

| | | | | | | |
|---|---|---|---|---|---|---|
| How do you rate your confidence that you could get and keep an erection? | Very Low | Low | Moderate | High | Very High | **Total** |
| | 20(20) | 20(20) | 28(28) | 22(22) | 10(10) | **100 (100)** |
| When you had erections with sexual stimulation, how often were your erections hard enough for penetration? | Almost never/ never | A few times (much less than half the time) | Sometimes (about half the time) | Most times (much more than half the time) | Almost always/ always | |
| | 23(23) | 23(23) | 18 (18) | 17(17) | 19(19) | **100 (100)** |
| During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) your partner? | Almost never/ never | A few times (much less than half the time) | Sometimes (about half the time) | Most times (much more than half the time) | Almost always/ always | |
| | 21(21) | 23(23) | 19(19) | 19(19) | 18(18) | **100 (100)** |
| During sexual intercourse, how difficult was it to maintain your erection to completion of sexual intercourse? | Extremely Difficult | Very difficult | Difficult | Slightly difficult | Not difficult | |
| | 17(17) | 19(19) | 14(14) | 21(21) | 29(29) | **100 (100)** |
| When you attempted sexual intercourse, how often was it satisfactory for you? | Almost never/ never | A few times (much less than half the time) | Sometimes (about half the time) | Most times (much more than half the time) | Almost always/ always | |
| | 21(21) | 17(17) | 19(19) | 20(20) | 23(23) | **100 (100)** |

**Table 5: Participants IIEF scores in relation to the bother score**

| ED and bother score as Indicated by IIEF-5 and IPSS Bother Question | n(%) | Bother score (IPSS item) M(SD) | Age M(SD) |
|---|---|---|---|
| Severe ED | 19 (19) | 4.74 (1.28) | 64.70 (10.86) |
| Moderate ED | 19 (19) | 3.50 (1.42) | 59.63 (7.23) |
| Mild/Moderate ED | 17 (17) | 3.59 (1.18) | 55.47 (8.72) |
| Mild ED | 25 (25) | 2.79 (1.53) | 54.96 (9.69) |
| No ED | 20 (20) | 1.26 (1.76) | 50.10 (10.21) |
| **Total** | **100 (100)** | | |

**Table 6: Ethnic group and ED severity**

| Ethnicity | Severe ED n (%) | Moderate ED n (%) | Mild/Moderate ED n (%) | Mild ED n (%) | No ED n (%) | Total n (%) |
|---|---|---|---|---|---|---|
| White English | 4 (21) | 3 (15.8) | 3 (17.6) | 7 (28) | 8 (40) | 25 (25) |
| White Irish | 1 (5.3) | 1 (5.3) | 0 | 2 (8) | 1 (5) | 5 (5) |
| Other white background | 0 | 0 | 1 (5.9) | 0 | 3 (15) | 4 (4) |
| Black or black British | 0 | 0 | 0 | 0 | 1 (5) | 1 (1) |
| Black or black British Caribbean | 0 | 1 (5.3) | 0 | 0 | 0 | 1 (1) |
| Any other black background | 0 | 0 | 0 | 0 | 1 (5) | 1 (1) |
| Asian or Asian British Indian | 5 (26.3) | 0 | 4 (23.5) | 5 (20) | 2 (10) | 16 (16) |
| Asian or Asian British Pakistani | 4 (21) | 2 (10.5) | 5 (29.4) | 3 (12) | 1 (5) | 15 (15) |
| Asian or Asian British Bangladeshi | 3 (15.7) | 6 (31.6) | 3 (17.6) | 4 (16) | 2 (10) | 18 (18) |
| Any other Asian background | 1 (5.3) | 4 (21.1) | 1 (5.9) | 3 (12) | 0 | 9 (9) |
| Chinese | 1 (5.3) | 0 | 0 | 0 | 0 | 1 (1) |
| Any other ethnic background | 0 | 2 (10.5) | 0 | 1 (4) | 1 (5) | 4 (4) |
| **Total** | **19 (19)** | **19 (19)** | **17 (17)** | **25 (25)** | **20 (20)** | **100 (100)** |

503 **Table 7: ED severity, type II diabetes and hypertension**
504

| | Total number of participants by category n (%) | Participants with type II diabetes mellitus n (%) | Participants with hypertension n (%) | Participants with both hypertension and type II diabetes mellitus n (%) |
|---|---|---|---|---|
| Severe ED | 19 (19) | 13 (43.4) | 14 (28) | 11 (57.9) |
| Moderate ED | 19 (19) | 11 (36.7) | 9 (18) | 5 (26.3) |
| Mild/Moderate ED | 17 (17) | 2 (6.6) | 9 (18) | 1 (5.3) |
| Mild ED | 25 (25) | 3 (10) | 11 (22) | 2 (10.5) |
| No ED | 20 (20) | 1 (3.3) | 7 (14) | 0(0) |
| **Totals** | **100 (100)** | **30 (100)** | **50 (100)** | **19 (100)** |

505
506