

Patterns of Supplement Use in Prostate Cancer Survivors: A Cross-Sectional Survey

C. Shine¹, K.E. Johnston^{1, 2}, S.J. Cushen¹.

1. School of Food and Nutritional Sciences, University College Cork, College Rd., Co. Cork, Ireland.
2. Cancer Research @UCC, College of Medicine and Health, University College Cork, College Rd., Co. Cork, Ireland.

Abstract

Aims

Herbal, vitamin, and mineral supplement use is common among cancer survivors, but little is known about patterns among men with prostate cancer (PCa) in Ireland. This study aimed to examine prevalence, symptom burden, and associations between supplement use and PCa-related symptoms.

Methods

Between May and June 2025, a national cross-sectional online survey was conducted among men with a PCa diagnosis. Information collected included demographics, clinical history, symptoms, supplement use, reasons for use, sources of information, and whether use was discussed with healthcare providers.

Results

Of 74 responses, 46% (n=34) were eligible. Among these, 62% (n=21) were over 60 years and 94% (n=32) were overweight or obese; 47% (n=16) were 3–5 years post-diagnosis. Erectile dysfunction and reduced libido were the most common symptoms 85% (n=29). Supplement use was reported by 85% (n=29): 82% (n=28) used vitamins/minerals and 32% (n=11) used herbal products. Vitamin D was the most frequent vitamin 50% (n=17) and turmeric the leading herbal 18% (n=6). Over half 53% (n=18) had not discussed supplement use with healthcare providers.

Conclusion

Herbal and vitamin and mineral supplement is highly prevalent among Irish men with prostate cancer, particularly vitamin and mineral products, with vitamin D most common. Improved communication and clinical guidance are needed in survivorship care.

Introduction

Prostate cancer (PCa) is the most commonly diagnosed cancer among men in Ireland after non-melanoma skin cancer, with around 4,000 new cases annually¹. Statistics from the National Cancer Strategy 2017-2026 report estimates the 10-year survival rate for PCa to be 89%². Advances in screening and treatment have improved survival, creating a growing population of men living with the long-term consequences of prostate cancer and its therapies. Recent HSE reports by O'Connor et al. highlights substantial unmet survivorship needs among Irish men with PCa, particularly in relation to symptom management, information provision, and supportive care services³. As a result, survivorship care has become central to cancer management, with increasing attention on strategies that alleviate side effects, maintain quality of life, and support overall health.

Dietary supplements (including vitamins, minerals, and herbal preparations) are commonly used during survivorship, often with the aim of boosting immunity, alleviating side effects, or reducing the risk of disease recurrence⁴. International evidence suggests that 30–60% of men with PCa use supplements, though the types of products and reasons for use vary considerably^{5,6}. Surveys in North America, Europe, and Asia consistently show that men with PCa use supplements at higher rates than the general male population of similar age^{6,7}.

Treatments for PCa such as surgery, radiotherapy, chemotherapy and particularly androgen deprivation therapy (ADT) are frequently associated with lasting side effects⁸. ADT, in particular, induces profound reductions in testosterone, leading to symptoms such as erectile dysfunction, fatigue, loss of libido, weight gain, hot flashes, decreased bone density, and reduced muscle mass — symptoms that substantially affect wellbeing⁹. In response, many men turn to complementary and alternative medicine (CAM), including supplements such as vitamin D, calcium, green tea extracts, curcumin, and selenium, aiming to manage symptoms, or even slowing cancer progression^{7,10}.

However, evidence supporting supplement use in PCa remains mixed. Vitamin D has been linked to prostate health in observational studies, but clinical trials show inconsistent benefits^{11,12}. Curcumin and green tea polyphenols demonstrate promising biological effects, yet clinical data are limited¹³. Conversely, large trials such as SELECT found that vitamin E and selenium not only lacked benefit but could increase risks¹⁴. Concerns also exist regarding unregulated herbal products, drug interactions, and the fact that many patients do not disclose supplement use to clinicians¹⁵⁻¹⁷. Importantly, evidence also suggests that patients who heavily engage in CAM are more likely to delay or refuse conventional therapy, a behaviour associated with significantly poorer survival outcomes¹⁸. Reflecting these risks, the European Society for Clinical Nutrition and Metabolism (ESPEN) Guidelines for Nutrition and Cancer explicitly advise against the use of high-dose supplements in the absence of clinically identified deficiencies and recommend limiting supplementation to amounts that

approximate the recommended dietary allowance¹⁹. Similarly, for those in the survivorship phase, the World Cancer Research Fund does not recommend the use of dietary supplements to prevent cancer recurrence, emphasising that micronutrient needs should be met through a balanced diet rather than supplementation²⁰.

Most Irish research has focused on complementary and alternative medicine use in the general population²¹, or in breast cancer cohorts²², with no recent, prostate cancer-specific data available. Given Ireland's high PCa incidence and the importance of survivorship, this knowledge gap is significant. This study therefore aimed to assess the prevalence of herbal, vitamin, and mineral supplement use among men diagnosed with PCa in Ireland, and to explore motivations and sources of information to inform safe and effective survivorship care.

Methods

A national cross-sectional, anonymous online survey was conducted to examine use of herbal, vitamin, and mineral supplements among men diagnosed with PCa in Ireland. The survey, newly developed for this study, included open- and closed-ended questions hosted on Qualtrics. Respondents received a Participant Information Leaflet and electronic consent form before participation. The questionnaire collected demographic and clinical data (age, location, education, marital status, medical history, time of diagnosis, treatment, and symptoms). Within the symptom section, each symptom appeared as a single item followed by a 4-point severity scale (not at all, mild, moderate, severe). Participants selected the option that best reflected their experience over the previous month. Supplement-related items covered product type, reasons for use, sources of information, and disclosure to healthcare professionals. Participants were asked to describe their reasons for using supplements in an open-ended free text box, allowing them to provide personalised explanations rather than selecting from predefined options. Participants were presented with a predefined list of possible sources of supplement information (e.g., General practitioner (GP), other healthcare professionals, family/friends, Internet/social media, other cancer survivors, registered dietitian, health store assistant, nutritional therapist/coach) and were asked to select all that applied. For disclosure of supplement use to healthcare professionals, this was assessed using a single dichotomous item asking participants whether they had discussed their supplement use with any healthcare provider ('Yes'/'No'). Those who selected 'Yes' were then prompted to indicate which provider(s) they had spoken to. Items were informed by existing literature and adapted from validated instruments. Content validity was reviewed by the supervisory team, and a pilot test (n=5) assessed clarity and usability, leading to minor adjustments.

For this study, a dietary supplement was defined as any non-prescription oral product intended to complement the diet, including vitamins, minerals, herbs, botanicals, and other bioactive substances in any formulation (e.g., tablets, capsules, powders, liquids).

Recruitment used a multi-channel strategy through prostate cancer advocacy groups, social media (Facebook, Instagram, LinkedIn), online support forums, hospitals, GP clinics, and community notice boards. Outreach also included public events, with snowball sampling encouraged. To reduce digital access bias, both online and offline approaches were employed, supplemented by targeted Facebook and Instagram advertising. The survey was open from 12 May to 09 June 2025.

Eligible participants were men ≥ 18 years, residing in Ireland, with a self-reported diagnosis of prostate cancer and able to complete the survey in English. No restrictions were placed on time since diagnosis, treatment type, or disease stage. Exclusion criteria included inability to consent or complete the survey. For this survey, a target of 100 completed responses was set, considered feasible within the 29-day recruitment period and consistent with similar studies. No formal power calculation was performed due to the exploratory nature of the study.

Ethical Approval was granted by the Clinical Research Ethics Committee of the Cork Teaching Hospitals (CREC), under reference number ECM 4 (r) 22/04/2025 & ECM 3 (x) 15/05/2025. All participants provided electronic informed consent before taking part.

Analyses were conducted using IBM SPSS Statistics version 30 (September 2024). Descriptive statistics (frequencies, percentages, means, standard deviations) summarised participant characteristics and responses. Normality was tested using Shapiro–Wilk. Categorical variables were compared with Chi-Square or Fisher’s Exact tests; continuous or ordinal variables with Mann–Whitney U tests. A two-sided p-value < 0.05 indicated statistical significance.

Results

Participant Demographics

Of 74 individuals who accessed the survey, 34 fully completed and eligible questionnaires were included in the final analysis. 40 survey responses were not included in the final analysis due to the following reasons; $n=20$ no consent given, $n=20$ incomplete responses. The majority of participants were aged ≥ 50 years (88.3%, $n=30$), and nearly half (47.1%, $n=16$) had been diagnosed 3–5 years prior. The mean body mass index (BMI; all heights and weights were self-reported), was 28.2 kg/m^2 (± 3.40), with most participants classified as overweight (67.6%, $n=23$) or obese (26.5%, $n=9$). Additional demographic characteristics are summarized in Table 1.

Table 1. Participant Demographic and Clinical Characteristics (n=34).

AGE GROUP	N (%)
25-29	1 (2.9)
30-39	1 (2.9)
40-49	2 (5.9)
50-59	9 (26.5)
60-69	11 (32.4)
70+	10 (29.4)
AREA OF RESIDENCE	
Munster	12 (35.3)
Leinster	19 (55.9)
Ulster	2 (5.9)
Connacht	1 (2.9)
MARITAL STATUS	
Married/cohabiting	29 (85.3)
Separated/divorced/widow/single	5 (14.7)
HIGHEST LEVEL OF EDUCATION	
Primary education	2 (5.9)
Second level education (Junior Certificate, Leaving Certification, Technical or Vocational Qualification)	11 (32.4)
Third level education (Bachelor's Degree, Postgraduate Certificate or Diploma)	12 (35.3)
Third level education (Postgraduate Degree)	9 (26.5)
Body Mass Index CATEGORY (kg/m ²) ^a	
Healthy Weight (18.5-24.9)	2 (5.8)
Overweight (25.0-29.9)	23 (67.6)
Obese Class 1 (30.0-34.9)	8 (23.5)

Obese Class 2 (35.0-39.9)	1(2.9)
TIME SINCE DIAGNOSIS	
<1 year	3 (8.8)
1-2 years	10 (29.4)
3-5 years	16 (47.1)
5-10 years	4 (11.8)
>10 years	1 (2.9)

^a World Health Organisation classification

Prostate Cancer-Related Symptoms

The most commonly reported PCa-related symptoms were erectile dysfunction (85.3%, n=29) and lowered libido (85.3%, n=29) with the majority of participants rating these as moderate to severe. Extreme tiredness was reported by 70.6% (n=24), and both night sweats (n=22) and body image changes by 64.7% (n=22), generally at mild to moderate levels.

Supplement Use

In total, 29 of the 34 participants (85.3%) reported using at least one supplement of any kind (herbal or vitamin and mineral). When examined separately, a total of 11 participants (32.4%) reported using at least one herbal supplement. The most commonly reported was turmeric/curcumin, used by 6 participants (17.6%). Less commonly used vitamin and mineral supplements, each reported by fewer than 5% of participants, were grouped as *other*.

A total of 28 participants (82.4%) reported using at least one vitamin and mineral supplement (Table 2). The most common were vitamin D (50%, n=17), calcium (23.5%, n=8), and multivitamins (23.5%, n=8).

Participants reported varying times since diagnosis (<1 year: n = 3, 8.8%; 1–2 years: n = 10, 29.4%; 3–5 years: n = 16, 47.1%; 5–10 years: n = 4, 11.8%; >10 years: n = 1, 2.9%; see Table 1). No significant association was observed between time since diagnosis and supplement use ($p > 0.05$).

Table 2. Combined Supplement Use (n=34).

SUPPLEMENT TYPE	N (%)
Any Herbal Supplement	11(32.4)
Turmeric/Curcumin	6 (17.6)
Ginseng	2 (5.9)
Milk Thistle	2 (5.9)
Evening Primrose Oil	2 (5.9)
Other Herbal Supplements (<5%)	10 (29.3)
Any Vitamin or Mineral Supplement	28 (82.4)
Vitamin D	17 (50)
Multivitamin	8 (23.5)
Calcium	8 (23.5)
Fish Oil	7 (20.6)
Magnesium	4 (11.8)
Zinc	4 (11.8)
Vitamin B	3 (8.8)
Vitamin E	3 (8.8)
Other Vitamin and Mineral Supplements (<5%)^	6 (17.7)

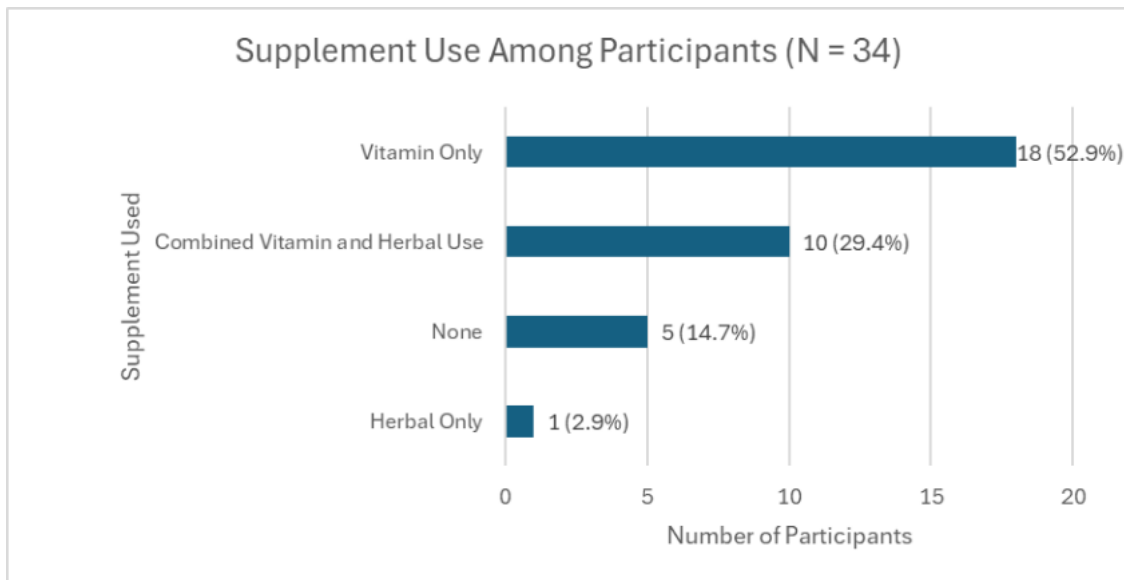
* **Other Herbal Supplements (<5%)** includes: Horny Goat Weed, Ashwagandha, Melatonin, Quercetin, Slippery Elm Bark, Turkey Tail, Stinging Nettle, Sage, Ground Flax Seed, Your Guy, Your-Plyo +, Echinacea

^**Other Vitamin and Mineral Supplements (<5%)** includes: Glucosamine, Vitamin C, Vitamin K, Probiotics, Iron, Vitamin A

Approximately one-third (29.4%) reported using both herbal and vitamin and mineral supplements concurrently, while only 1 participant used herbal supplements exclusively

without vitamin and mineral supplements. A further 5 participants (14.7%) reported using neither supplement type throughout their treatment journey.

Figure 1. Supplement Use Among Participants (n=34)



Herbal supplement use was more common among participants reporting muscle aches than among those without this symptom ($p < 0.05$) and less common among participants reporting erectile dysfunction ($p < 0.05$). No other symptoms were significantly associated with herbal or vitamin and mineral supplement use (all $p > 0.05$). There was no statistically significant association between education level and supplement use although supplement use appeared more frequent among those with second and third-level qualifications.

Supplement use was significantly associated with age ($p < 0.05$): all participants aged 60 years and older reported use, compared with 61.5% of those under 60, where usage was lower and more variable.

Participants were asked to indicate their reasons for using each herbal or vitamin and mineral supplement, as summarised in Table 3. For herbal supplements, the most commonly cited reason was anti-inflammatory/joint health benefits (11.8%, $n = 4$), followed by fighting/killing cancer (5.9%, $n = 2$) and hearing or reading about benefits (5.9%, $n = 2$). For vitamin and mineral supplements, the leading reason for use was general health (41.2%, $n = 14$), followed by recommendations from healthcare professionals (29.4%, $n = 10$).

Table 3. Reasons for Supplement Use (n=34).

REASON – HERBAL USE	N (%)
Anti-Inflammatory/Joint Health	4 (11.8)
Fights/Kills Cancer	2 (5.9)
Heard/Read About Benefits	2 (5.9)
Immune Function	1 (2.9)
Cardiovascular/Brain Function	1 (2.9)
Helps Cholesterol	1 (2.9)
Gut Microbiome Health	1 (2.9)
Recommended by Healthcare Professional	1 (2.9)
Recommended by Family Member/Friend	1 (2.9)
REASON – VITAMIN/ MINERAL USE	N (%)
General Health	14 (41.2)
Recommended by Healthcare Professional	10 (29.4)
Muscle/Bone Health	4 (11.8)
Anti-Inflammatory/Joint Health	2 (5.9)
Gut Microbiome Health	2 (5.9)
Cardiovascular/Brain Function	1 (2.9)
Eye Health	1 (2.9)
Heard/Read About Benefits	1 (2.9)
Recommended by Family Member/Friend	1 (2.9)

Sources of Information and Discussion with Professionals

Most participants cited their general practitioner (GP) (n=15, 44.1%) as an information source, followed by Family/Friends (n=8, 23.5%), Internet/Social Media (n=6, 17.6%), Other Healthcare Professionals (n=5, 14.7%), Other Cancer Survivors (n=5, 14.7%), Registered Dietitian (n=3, 8.8%), Health Store Assistant (n=3, 8.8%), and Nutritional Therapist/Coach (n=2, 5.9%). Regarding discussion with healthcare professionals, 18 (52.9%) had not discussed supplement use, while 16 (47.1%) had.

Discussion

This cross-sectional study examined demographics, prostate cancer-related symptoms, and supplement use among a small sample of 34 prostate cancer survivors. Most were aged 50 or older and overweight or obese, reflecting typical patient characteristics and known associations with prostate cancer risk^{23,24}. Nearly half had been diagnosed 3–5 years prior, suggesting the findings primarily represent experiences during the intermediate survivorship phase. Recruitment fell short of the projected 100 responses, which may reflect the well-documented challenges of engaging older men in health research²⁵ and the typically older age profile of prostate cancer patients, consistent with general methodological issues in CAM research, such as selection bias and representativeness²⁶.

Supplement use was highly prevalent, with over 80% of participants reporting vitamin and mineral supplementation and approximately one-third reporting herbal supplement use. The prevalence of supplement use in our cohort aligns with international literature, where CAM usage among cancer survivors ranges widely from 8% to 90%²⁷. Comparable patterns have also been reported in Irish cancer populations, with prevalence estimates of 69.8%²² and 45%²⁸, although these studies primarily examined breast cancer survivors.

Vitamin D emerged as the most commonly reported supplement (50%), consistent with global trends in prostate cancer populations. For instance, Zuniga et al. reported a 108% increase in vitamin D use among patients in the CaPSURE registry between 2006-2010 and 2011-2016¹⁰. The popularity of vitamin D supplementation may reflect clinical guidelines for men undergoing ADT to mitigate bone density loss²⁹.

Turmeric/curcumin was the most frequently reported herbal supplement (17.6%), likely reflecting interest in natural anti-inflammatory agents despite limited clinical evidence in PCa³⁰. Preclinical studies suggest anti-inflammatory and anti-carcinogenic properties, but human trials are inconclusive³⁰. Participants reporting muscle aches were more likely to use herbal supplements (p<0.05), indicating turmeric may be employed as a self-management strategy for musculoskeletal discomfort related to cancer or ADT. These findings align with broader literature, where cancer survivors commonly use herbal remedies to manage

symptoms, maintain quality of life, and exert personal control over health⁴, with turmeric often chosen specifically for its perceived anti-inflammatory benefits³⁰.

Despite high supplement use in our cohort, over half of participants (53%) reported not discussing it with healthcare providers. This mirrors international patterns, where nondisclosure among cancer patients ranges from 20% to 70%^{16,31}. Common reasons include perceptions that supplements are safe, irrelevant to care, or that providers may be dismissive³¹. Irish studies show similar trends, with nondisclosure linked to patient beliefs and lack of provider inquiry²². Overall, these findings highlight a persistent communication gap: patients often do not disclose supplement use unless specifically asked, underscoring the importance of proactive provider inquiry and open dialogue to ensure safe and informed survivorship care.

The majority of participants in this study reported obtaining information on dietary supplements primarily from their GP's (44.1%), followed by family and friends (23.5%), online and social media sources (17.6%), other healthcare professionals (14.7%), and fellow cancer survivors (14.7%). Despite this reliance on GP's, over half of participants did not discuss their supplement use with providers, reflecting a substantial communication gap. These findings are consistent with McKenna and Kiloury³², who reported that while GP's often serve as the first point of contact for complementary and alternative medicine discussions, many lack consistent training, contributing to nondisclosure rates of up to 42%³². This gap raises patient safety concerns, as some supplements may interact with prescribed medications or affect treatment efficacy.

Registered dietitians were reported as an information source by only 8.8% of participants, reflecting limited access to specialist dietetic input among Irish cancer survivors^{28,33}. Sullivan et al. found that many patients lacked dietetic support and desired more reliable nutrition information, suggesting that supplement use may partly reflect unmet informational and nutritional needs³³. Expanding dietetic services and integrating CAM education into survivorship care could enhance patient safety and informed decision-making. The scarcity of oncology dietitians may drive survivors to rely on GPs, informal networks, or unregulated online sources, increasing the risk of unsupervised supplement use and potential interactions with cancer treatments. Routine, non-judgmental enquiry about supplement use—consistent with European Society for Medical Oncology (ESMO) and American Society of Clinical Oncology (ASCO) guidelines—can improve disclosure, allow clinicians to assess risks, and support safe, informed, and collaborative decision-making within survivorship care³⁴.

This study offers novel insights but is limited by a small sample ($n = 34$), online recruitment bias, and self-reported data subject to recall bias. The cross-sectional design and lack of information on supplement dosage, source, or duration further limit safety assessment. We also did not collect data on cancer stage or treatment type, which may influence supplement

use. Future research should involve larger, more diverse cohorts and longitudinal designs to track supplement use, evaluate treatment interactions, and assess effects on symptom management and survivorship outcomes. Collecting detailed data on type, dosage, duration, source, and disease/treatment characteristics will support safe, evidence-based integration into clinical care.

Herbal and vitamin supplements are widely used among Irish men with prostate cancer, particularly older survivors. Vitamin D aligns with clinical guidance, while herbal use is mostly self-directed for symptom management. Over half of participants did not disclose use to healthcare providers, highlighting potential safety risks. These findings underscore the need for routine inquiry, clinician training, and evidence-based guidance, with future research examining long-term outcomes, motivations, and effectiveness to safely integrate supplements into survivorship care.

Declarations of Conflicts of Interest:

None declared.

Corresponding Author:

Samantha J. Cushen,
School of Food and Nutritional Sciences,
University College Cork,
College Rd.,
Co. Cork,
Ireland.

E-Mail: samantha.cushen@ucc.ie

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