UcanACT
Physical Activity for Cancer Prevention

REPORT ON NEEDS ANALYSIS (deliverable D2.3)

Contribution to WP2 – RESEARCH ACTIVITIES

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1. Abbreviations

AIFI	Associazione Italiana di Fisioterapisti
APP	application
EU	European Union
PA	Physical activity
PUGS	Public urban green spaces
US	University of Sevilla
WHO	World Health Organization

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2. Summary

Introduction

UcanACT is an intersectoral initiative, joining together physiotherapists, local authorities, non-profit organizations, higher education and research institutions with the overall objective to engage adult and senior citizens to practice physical activity (PA) as a tool for cancer prevention within public urban green spaces (PUGS). Cancer prevention, treatment and care were recognized by the von der Leyen Commission as a main priority in the area of health.

Methods

In this part of the UcanACT project, the barriers and facilitators to practice physical activity in PUGS for adults and senior citizens were explored through interviews and a quantitative survey in two European communities; an urban community in Italy (Bologna) and a rural community in Ireland (Kilkenny). The two data sources were integrated to establish a matrix of barriers and facilitators.

Due to internal issues, the interviews and the quantitative survey could not be conducted in Munich (Germany), the third pilot territory of the UcanACT project. Therefore, only the data collected in Bologna and Kilkenny are available in this deliverable.

Results

In total 65 citizens (6 Bologna and 59 in Kilkenny) completed the survey and 40 of them (6 in Bologna and 34 in Kilkenny) participated in the focus groups. Multiple barriers and facilitators were identified to practice PA in PUGS for both communities like laziness, fatigue and a lack of specific exercise programmes to follow were identified. Facilitators existed, amongst others, of social contacts, professional supervision, and good accessibility of facilities.

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In the urban area, other barriers such as physical impairments or insects were informed. In the rural area, the weather and a lack of infrastructures, speed of traffic and insufficient personal safety were mentioned as barriers.

Conclusion

This study identified multiple barriers and facilitators for physical activity that are presented in a matrix (Table 1) of general and community specific barriers and facilitators. The matrix will be used in designing physical activity enhancing programs for adults and senior European citizens with and without cancer.

	Barriers	**Facilitators/Motivators**
Kilkenny (Ireland)	Low energy levels Cancer treatments side effects - particularly fatigue and pain Lack of awareness about the proper exercise to do Busy schedule Work and tiredness Childcare Lack of age specific programmes for older people The weather Not enough sitting in the green spaces Personal safety in green spaces Lack of advertising of programmes locally Speed of traffic Nervousness about covid Lack of infrastructures in rural areas	Awareness of PA benefits (physical and mental) Having a routine Social relationships, belong to a group Free bus to older people to get access to PUGS Covered areas in the outdoors Some off-road cycling infrastructure Parking facilities An allocated instructor in green areas A park for dogs Exercise equipment in the green spaces and easy to understand instructions

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Bologna (Italy)	Laziness Fatigue Practice exercise alone Not to know how develop exercises Sick, treatments, afraid, to feel pity from other (cancer patients) Mental limits: “I can´t do it” Physical impairments Insects	Socialization/group exercise Places where to sit Morning time Exercise in pools Outside activities Music when exercising Oriental exercises: yoga, tai-chi, qigong Free activities Free parking near PUGS Accessibility to PUGS Engagement with the other participants and professionals Professional supervision, more safe To state clear goals (tests, repetitions, etc)

Table 1. Matrix of barriers and facilitators to PA in PUGS

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3. Introduction

UcanACT is an intersectoral initiative joining together physiotherapists, local authorities, non-profit, higher education and research institutions with the overall objective: to engage adult and senior citizens to practice physical activity (PA) as a tool for cancer prevention within public urban green spaces (PUGS).

According to the Eurostat data (2018) 3.5 million people in the EU are diagnosed with cancer and 1.3 million die from it every year. The Robert Koch institution and the Society for epidemiological cancer register in Germany, show that everyone is at risk of getting sick with cancer by 50%. World Health Organization (WHO) recognized cancer as the second leading cause of death globally in 2018 only after cardiovascular diseases. Recent scientific researches show that in 2020 cancer was a leading cause of death worldwide, accounting for nearly 10 million deaths per year. Recently published Europe's Beating Cancer Plan (EC, 2021) states that “unless we take decisive action, lives lost to cancer in the EU are set to increase by more than 24% by 2035, making it the leading cause of death in the EU”. Statistics data and numerous researches, presented in the World Cancer Report (WHO, 2020) show that between 30% and 50% of cancer deaths could be prevented by two ways: 1) modifying or avoiding key risk factors (among them: exercise regularly and maintaining healthy weight). 2) implementing evidence-based prevention strategies. PA is recognized by WHO as a possible measure for cancer prevention. “Be physically active” is one of the Cancer Prevention Recommendations developed by the World Cancer Research Fund. PA as a preventive measure for cancer disease is recognized scientifically in a global scope. Moreover, the scientific researches show that practicing physical exercises within open environments increase positive benefits of PA (World cancer Report, WHO, 2020).

Prevention is seen in the European Union Health policies as the touchstone of a redesigned system focused on improving health outcomes. Prevention advocates

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have emphasized that it will save money, arguing that prevention is not only good for health but also a means to control spending. Economic value and cost effectiveness of cancer prevention is an important aspect that should be considered.

The UcanACT project aims to encourage the participation of adult and senior citizens of the EU in PA within public green spaces and seeks to apply this PA as a tool for cancer prevention aimed at adults and the elderly.

This report specifically analyses and informs about the needs that adults and senior citizens showed in both pilot cities for enhancing their participation (facilitators and barriers) in physical activity exercise in PUGS.

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4. Methods

4.1 Quantitative research

The survey for adult and senior people with and without cancer was developed by the University of Seville (US) researchers. The English version was proofread by Kilkenny County Council and the Italian version translated by AIFI. This survey tried to collect information about general data, general health data, cancer history if it is or was present, physical activity behaviours and facilitators and barriers to practice it specially in PUGS (Appendix I, English version).

The survey was distributed by Kilkenny municipality' and AIFI´ staff to participants by email in November 2021 (Kilkenny) and by paper in March 2023 (Bologna).

Results of the survey have been analysed using descriptive statistics. The results of all variables are presented in Appendix II.

4.2 Qualitative research

The qualitative part of this explorative study was conducted through focus group interviews with the aim (a) to identify facilitators and barriers (individual, social, environmental) to practice physical activity, especially in PUGS, (b) to understand how to increase their participation in such activities, (c) and to detect those elements which facilitate and disturb them for the use of an app support during their practice. This interview was designed for citizens with and without cancer by University of Seville researchers and translated to an English and Italian version by a native researcher (Appendix III, English version).

Data was collected in two European communities: Bologna (Italy) and Kilkenny (Ireland), a purposive sampling method was used for the partners to recruit participants in the communities. Recruitment strategies were tailored to the local

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circumstances and included invitations by the two institutions in networks of adult and senior citizens with and without cancer.

In January 2023, four focus groups were performed in Kilkenny with a total number of participants of 34 (15 with cancer and 19 without). In March of the same year one focus group was developed in Bologna (6 participants: 3 with cancer and 3 without).

The focus group interviews were led by a trained moderator from US (Kilkenny) and by a native-speaking (Bologna) moderator. A native collaborator took notes about the information that citizens provided in both cases. There was no pre-existing relationship between the moderator and the participants.

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5. Results

5.1 Survey

This section presents the main results of the quantitative survey implemented in Kilkenny and Bologna. As it has been previously mentioned, the purpose of this survey was to analyse how people, either healthy or currently living with cancer or previously had or in remission from an oncological disease, perceive their environment in relation to physical activity and exercise in public urban green spaces.

This survey consists of 4 parts: general data, health/disease data, physical activity behaviours and enabling factors or barriers for participation in physical activity in green spaces in your environment.

5.1.1 General data

A total of 65 subjects have implemented the quantitative survey. The mean age of the participants was 69 years and 87.7% of the respondents were females. A total of 38.5% of the participants (33.9% Kilkenny, 50% Bologna) were currently living with cancer or were cancer survivors **(table 2)**.

	Total	Kilkenny	Bologna
Participants (n)	65	59	6
Male (n)	8	7	1
Female (n)	57	52	5
Age (mean) Min-max	69 (51-91)	63,5	74
Treatment for diseases (n)	37	35	2
Cancer (n)	25	22	3

Table 2. Participant´s characteristics.

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Household

The respondents were asked about their current household situation **(figure 1).** In both places about 80% (83.3% for Bologna and 86.6% in Kilkenny) indicated that they lived with their partner and/or their descendance. Only 16.7% in Bologna and 21.2% in Kilkenny reported living alone

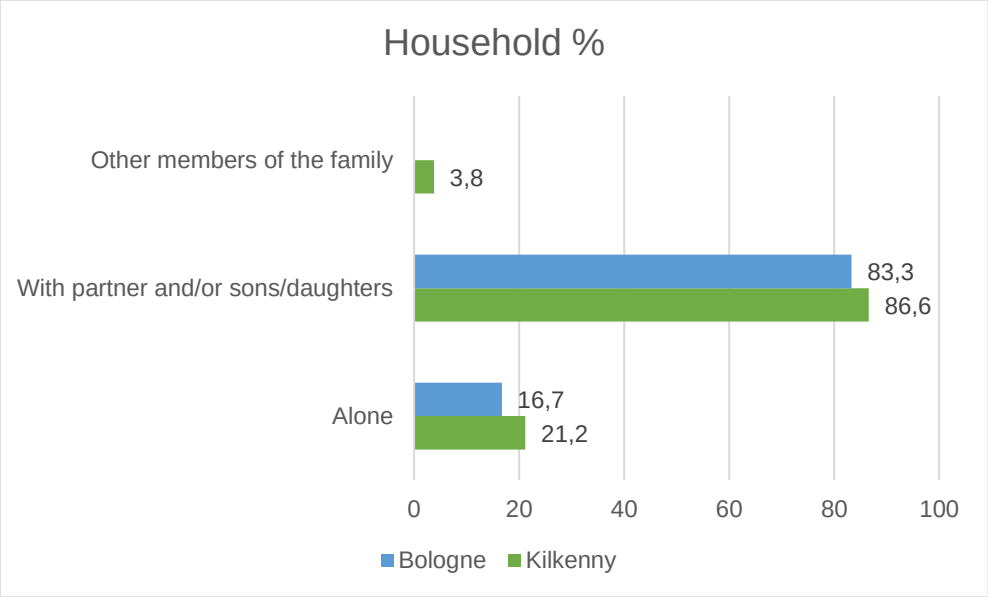

Figure 1. Who do you currently live with?

5.1.2 Health/disease data

General Health

When participants are asked about the perception of their current health status, it can be observed differences between both communities. In Kilkenny, nearly the middle of the respondents perceived their health as good or very good; in contrast, only 16.7% in Bologna referred to their health as good and nobody as very good **(figure 2)**.

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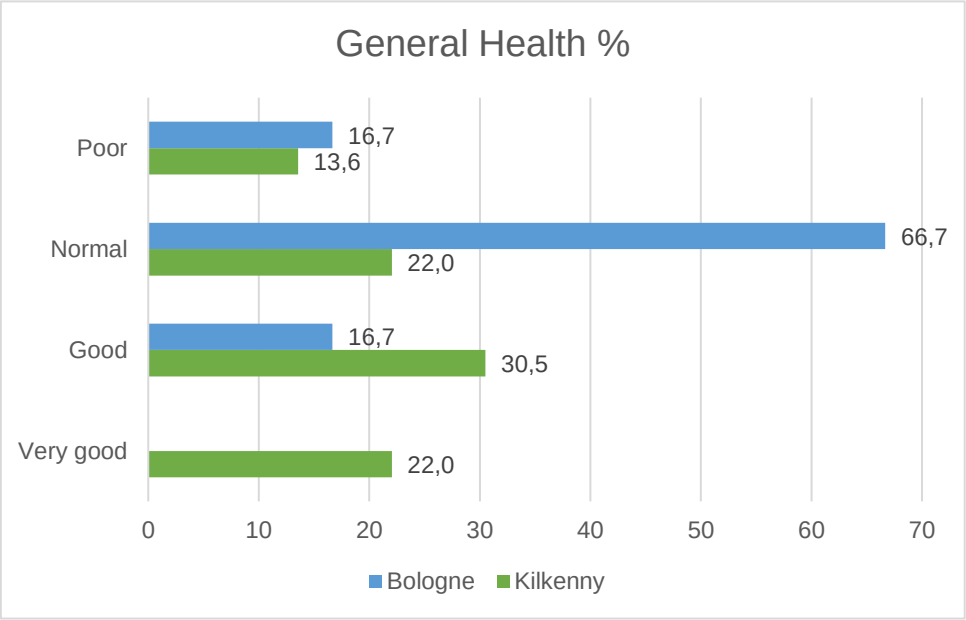

Figure 2. In general, how would you rate your current health status?

Diseases

More than 75% of the respondents (53.9% Kilkenny, 100% Bologna) reported they need of have needed treatment for other diseases. The most frequent medical condition in both communities were musculoskeletal disorders. Hypertension and high cholesterol were also frequent **(figure 3).**

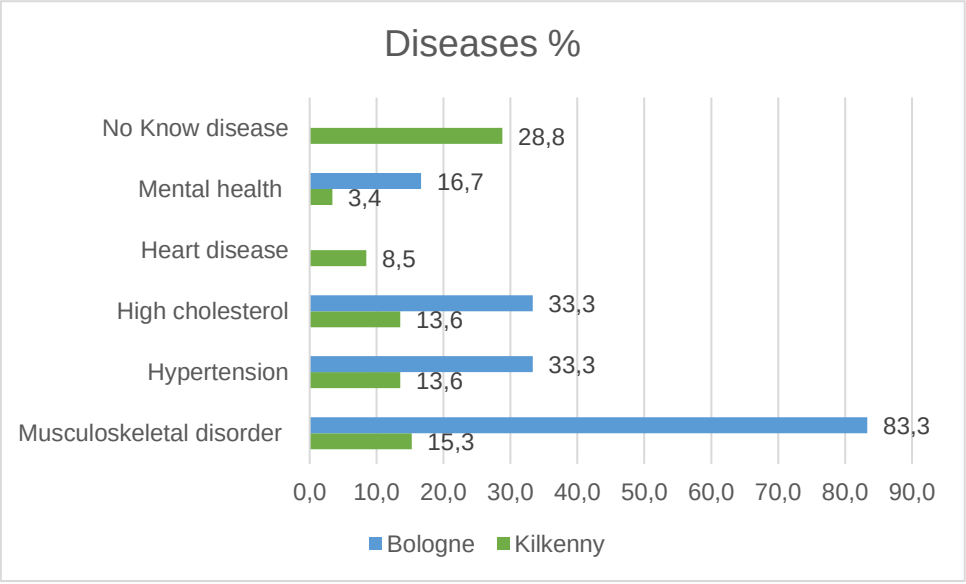

Figure 3. Have you or are you currently being treated for any of the following diseases?

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These previous health problems seem to somewhat limit the movement of around 44% of the participants (50% Bologna, 39% Kilkenny). Moreover, 54.2% of the participants in Kilkenny reported any movement limitation, in contrast with 16.7% in Bologna **(figure 4)**.

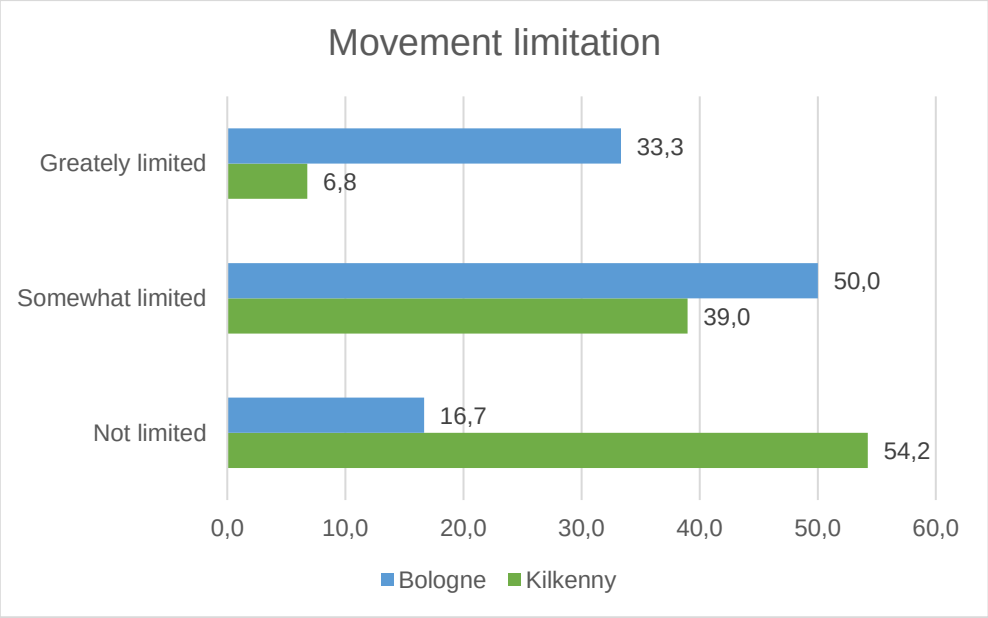

Figure 4. To what extent do previous health problems limit your movement?

Cancer population

The most frequent type of cancer informed by the participants was breast cancer (81%), followed by other types of gynaecological cancers (28,6%) and the majority of the participants were in a survival phase (63.7% Kilkenny,100% Bologna) **(figure 5)**.

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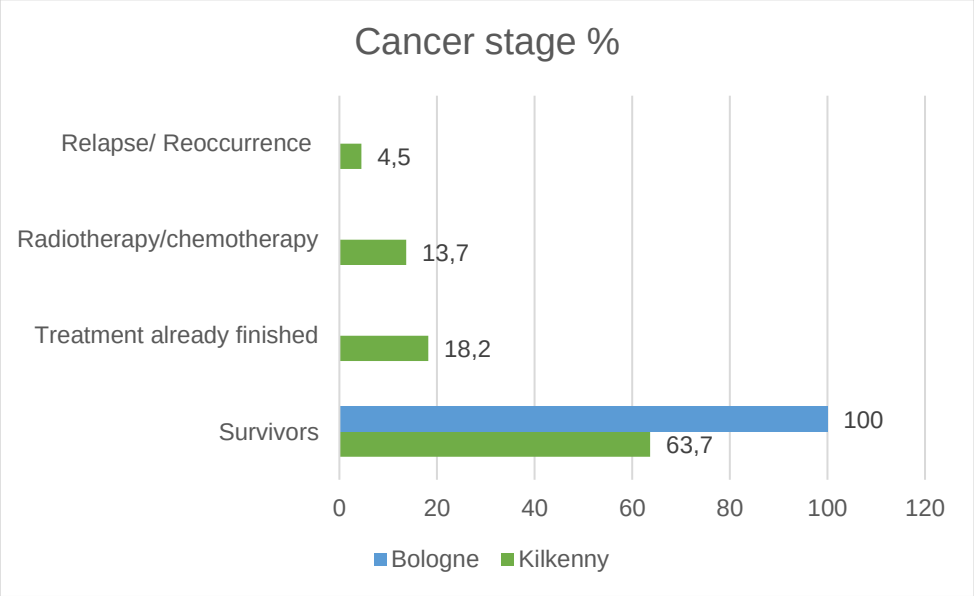

Figure 5. In what phase of the oncological process are you?

The most frequent symptoms as a result of the cancer treatments reported by the participants were fatigue (30%), sleep disturbances (26%) and joint pain (16%) **(figure 6)**. Moreover, a total of 37.5% (41% Kilkenny, 33.3% Bologna) stated that their illness somewhat limited or have limited their movement **(figure 7)**.

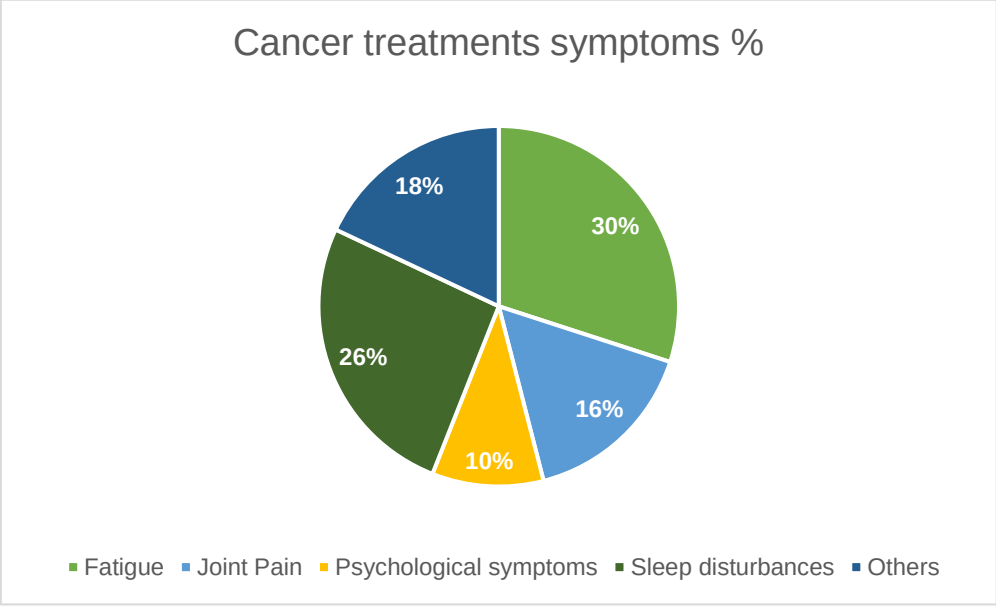

Figure 6. Which of the following symptoms are you currently experiencing or have previously experienced as a result of the cancer treatment?

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Figure 7. To what extent is this cancer limiting or has limited your movement?

5.1.3 Physical activity behaviours

Regarding physical activity practice, most of the participants informed that they rarely or never exercise (35.6% Kilkenny,33.3% Bologna). Only 11.9% of the participants in Kilkenny and 16.7% in Bologna practice exercise at least 2 days/week **(figure 8).**

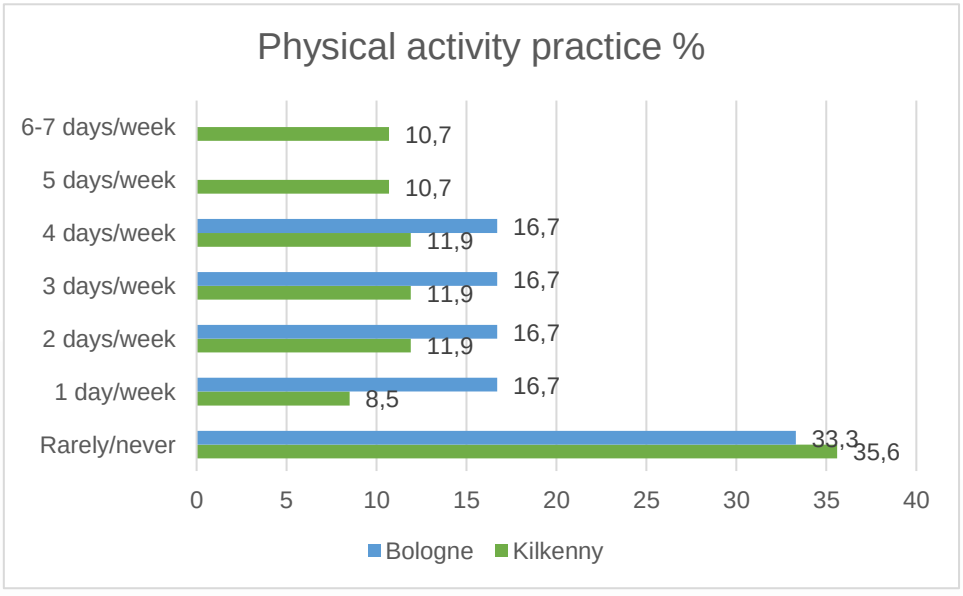

Figure 8. In an average week, how often do you participate in any kind of physical activity?

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Them most frequent physical activity types were walking (81.4% Kilkenny, 50% Bologna), swimming (18.7% Kilkenny, 25% Bologna) and activities as Pilates, dancing or yoga (15.3% Kilkenny, 50% Bologna) **(figure 9).**

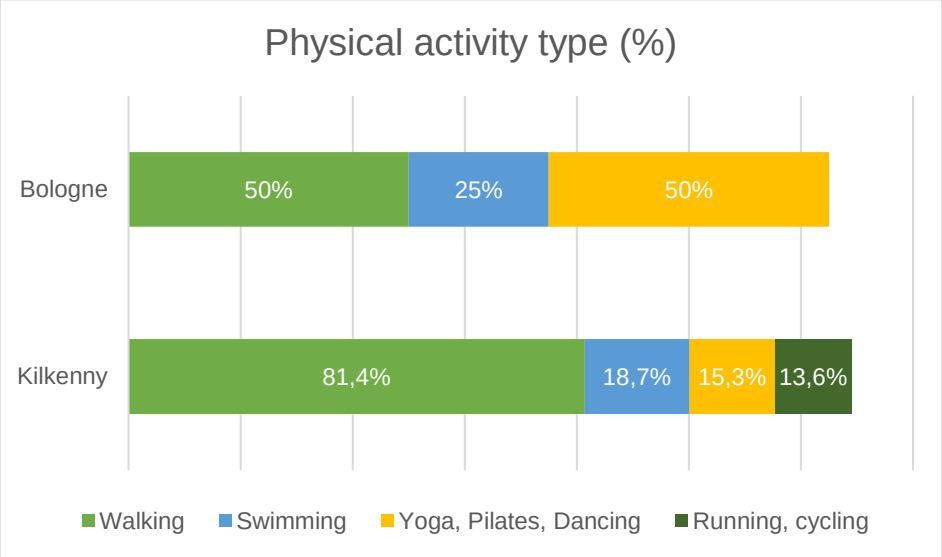

Figure 9. When you exercise, which type of activity do you usually participate in?

The time expending in these activities is in the majority of the cases from 30 minutes to 1 hour (61% Kilkenny, 40% Bologna) and a relative important percentage of the participants informed to spent less than 30 minutes (17% Kilkenny, 40% Bologna) **(figure 10).**

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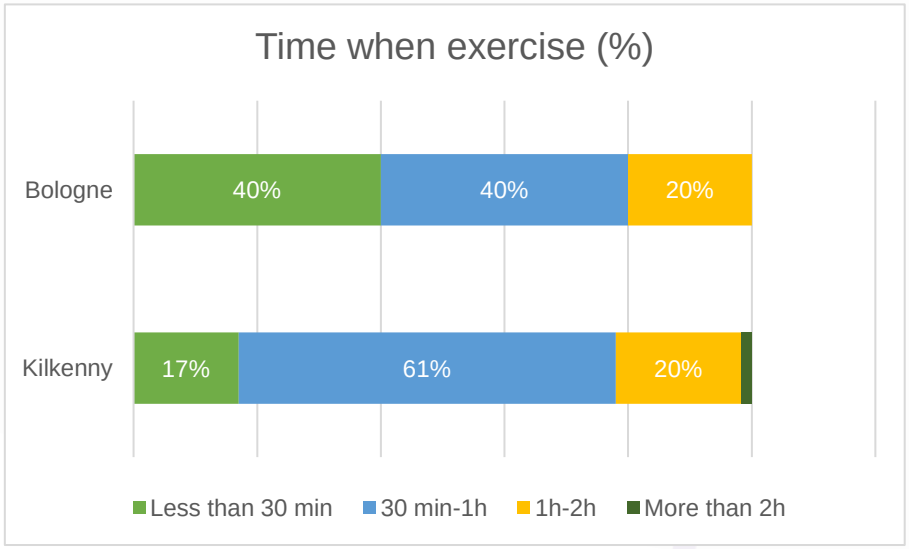

Figure 10. When you exercise, how much time do you dedicate to that activity/s per day?

In Bologna, most of the respondents exercise alone (40%) or with partners/friends (30% respectively). In contrast, in Kilkenny the practice of PA seems to be a stronger component of socialization as around 80% of the participants use to exercise with friends (43.5%) or with different members of their family (37.7%) **(figure 11)**.

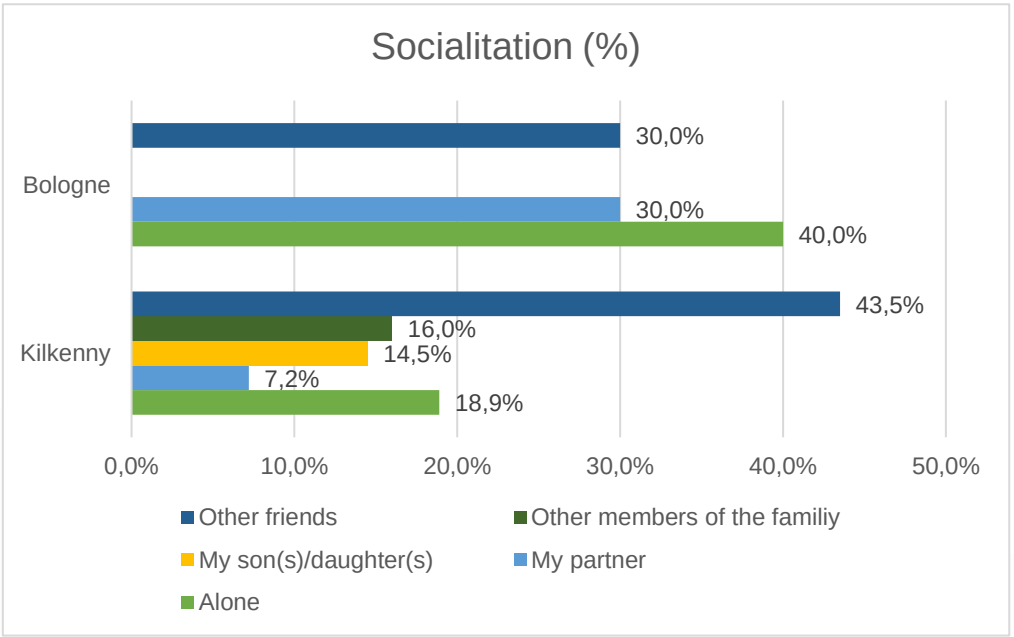

Figure 11. In an average week, how often are you physically active with the following people?

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When the participants are asked about the importance, they give to different reasons to exercise in PUGS, it can be observed that the most important/important factors were health (98.3%), followed by fitness (96.6%), leisure (73%) and self-sufficiency (71.3%) **(figure 12).**

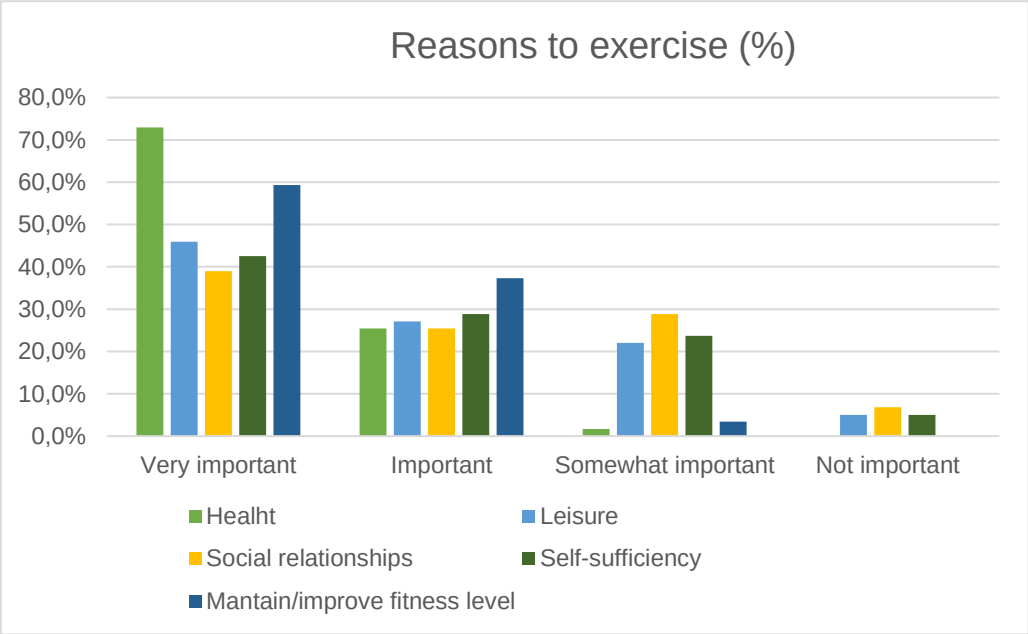

Figure 12. To what extent are the following factors important for you to exercise/physical activity in outdoor green spaces?

5.1.4 Barriers and facilitators for PA in PUGS

For presenting the results of the barriers and facilitators for PA in PUGS identified, the original 7 answer categories were grouped in three categories: Group 1 = Barriers (strongly limits/limits or somewhat limits), group 2= Neutral and group 3= Facilitators (strongly encourages, encourages, somewhat encourages).

As can be seen in **figure 13**, the most important barriers for exercise in green spaces were pain (64.5%), fatigue (59.4%), health status (55.9%) and nausea or cramps (40.8%, respectively).

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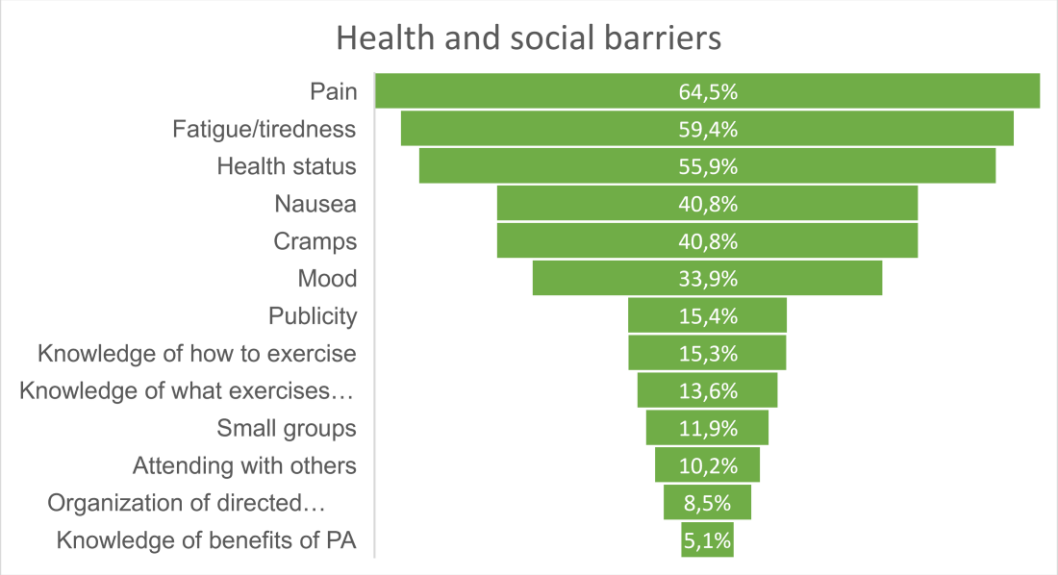

Figure 13. To what extent, do the following health & wellbeing and social factors limit (barriers) participation in physical activity/exercise in green spaces?

On the other hand, the most important facilitators for encouraging physical activity/exercise in PUGS were the knowledge of the benefits of PA (71.2%), the knowledge of what exercises to do and how (57.6% and 54.2%, respectively) and the organization of directed activities and the possibility to attending with others (50.4%, respectively) **(figure 14)**.

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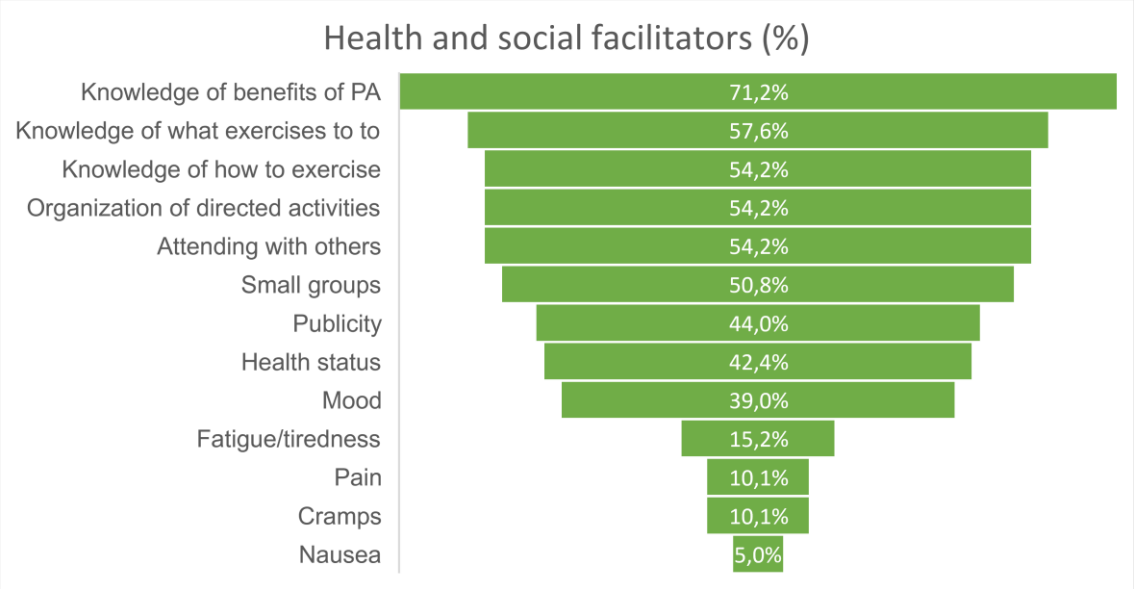

Figure 14. To what extent, do the following health & wellbeing and social factors facilitate/encourage participation in physical activity/exercise in green spaces?

Concerning environmental factors, the most important barriers to PA in PUGS were the distance and noise to green spaces (35.6%), the maintenance of PUGS (32.2%) and the safety (28.9%) **(figure 15)**.

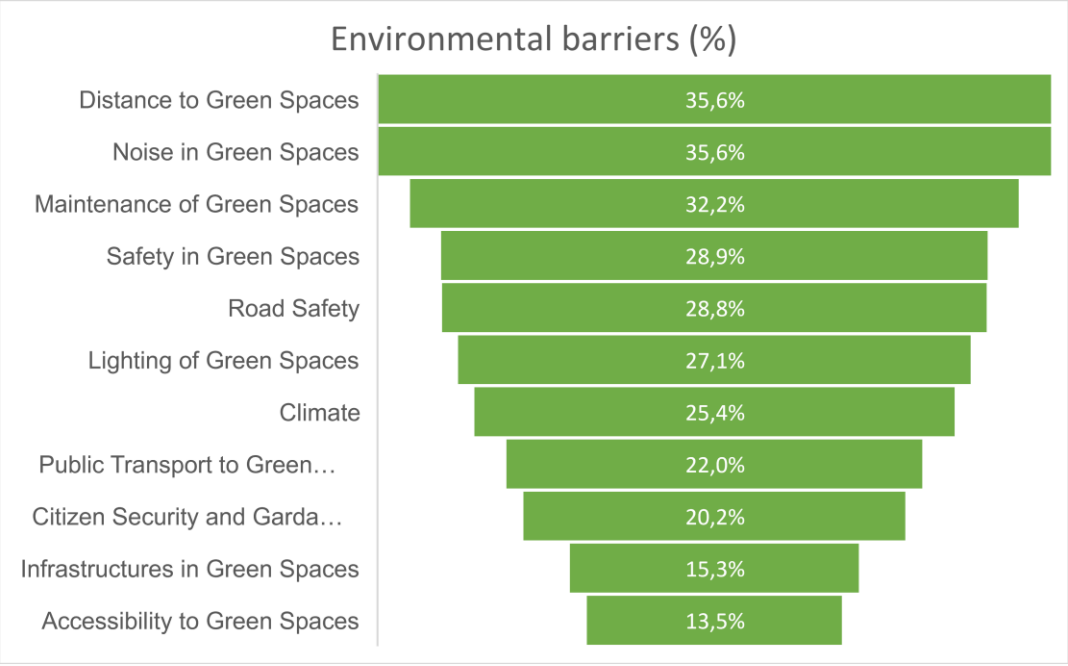

Figure 15. To what extent, do the following Environmental factors limit (barriers) participation in physical activity/exercise in green spaces?

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Among the facilitators to PA in PUGS it must be highlighted the accessibility to PUGS (69.5%), the infrastructures (54.2%) and citizen security (51%) **(figure 16)**.

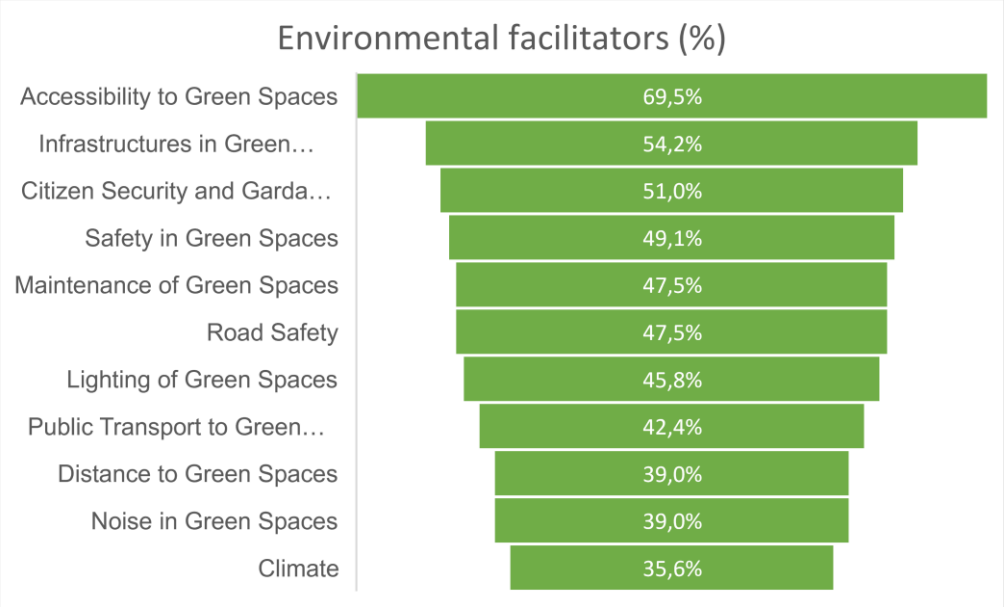

Figure 16. To what extent, do the following Environmental factors facilitate/encourage participation in physical activity/exercise in green spaces?

5.2 Focus groups interviews

A total of 40 people (34 Kilkenny, 6 Bologna) has been interviewed in several focus groups conducted in these two communities. Through the focus group interviews, we have identified multiple barriers and facilitators for their participation in physical activity/exercise in PUGS.

Barriers:

- Fatigue/tiredness
- Cancer treatments side effects - particularly fatigue and pain
- Physical impairments
- Lack of awareness about the proper exercise to do
- Busy schedule/work/childcare

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- The weather/insects
- Not enough sitting in the green spaces
- Personal safety in green spaces
- Lack of advertising of programmes locally

Facilitators:

- Awareness of PA benefits
- Social relationships, exercise in group
- Having a routine
- Free bus to older people to get access to PUGS
- Infrastructures: off-road cycling, covered areas in the outdoors, places where to sit, pools
- Accessibility to PUGS: Parking facilities, free bus
- An allocated instructor in green areas, professional supervision
- Music when exercising
- To state clear goals (tests, repetitions, etc)

The focus groups reported issues concerning the use of a Mobile App for PA in PUGS. The design of the App should:

- Be able to create groups to exercise
- Be able to connect with other people
- Have a mapping of green spaces in each area
- Be user-friendly and easy to navigate
- Incorporate strategies to motivate participants to go out and exercise

During the Pilot CPPA actions (period during which the App will be tested) should be considered:

- Education courses of how to use the apps
- Video tutorials about exercises and use of the app
- Periodical “telesupervision” through the App by a physiotherapist

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PA programmes into the App should:

- Encourage people of all levels of activity – varied options
- Be individualised and include goal setting
- Track progress of activity for cancer patients – ‘ensure you don’t overdo it’.
- Incorporate a voice to explain the execution of exercises and programmes
- Have a physiotherapist to correct exercises
- Voice: Explain what to feel when exercise/move?
- Include rest periods during the exercises and at the end of the training
- Include mind-body exercises and meditation

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6. Conclusions

The results from both the focus group and the survey show different health/social and environmental barriers and facilitators for physical activities in PUGS. The most important health/social barriers for exercise in green spaces were pain, fatigue, health status and nausea. Contrary, the most important health/social facilitators were the knowledge of the benefits of PA (71.2%), the knowledge of what exercises to do and how and the organization of directed activities, and the possibility of attending with others.

The most important environmental factors perceived as barriers were distance and noise to green spaces, the maintenance of PUGS and personal safety. Among the facilitators the accessibility to PUGS, the infrastructures and citizen security were the most relevant for the participants.

The multiple barriers and facilitators for physical activity that have been identified will be used in the design of physical activity engagement strategies in PUGS and in the development of an App for this purpose.

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