

When Physical Activity Is Valued but Participation Feels Out of Reach: Barriers, Perceived Behavioural Control and Physical Activity Intentions among People Experiencing Homelessness

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Abstract

Physical activity may provide important health and social benefits for people experiencing homelessness, yet participation is often constrained by material, social, and organisational conditions. This cross-sectional study examined associations between perceived barriers, COM-B Capability and Opportunity, perceived behavioural control (PBC), and intention to participate in physical activity among 102 adults experiencing homelessness or housing instability recruited through community-based services in Greece and Italy. Hierarchical regression assessed the incremental contribution of these constructs to behavioural intention, while parallel indirect-effects analysis examined pathways linking perceived barriers to intention. Greater barriers were associated with lower intention, Capability, Opportunity, and PBC. Although Capability, Opportunity, and PBC were positively associated with intention at the bivariate level, PBC was the only behavioural construct independently associated with intention in the fully adjusted model. Similarly, only the specific indirect association through PBC was statistically supported. These findings suggest that behavioural readiness may depend less on motivation alone than on whether participation is perceived as feasible within existing circumstances. PBC may represent a proximal appraisal of feasibility at the person–environment interface, although measurement overlap with Capability warrants caution. Physical activity initiatives should therefore address practical, social, and organisational barriers alongside individual support.

Introduction

Homelessness represents an extreme form of social exclusion and a major public health challenge arising from interactions between individual circumstances and structural conditions, including poverty, housing affordability, labour-market exclusion, and the availability and reach of welfare systems (O’Sullivan et al., 2023). Across Europe, homelessness is embedded within a wider housing crisis characterised by rising rents, unaffordable housing, shortages of affordable accommodation, and persistent housing exclusion (Fondation Abbé Pierre & FEANTSA, 2024). People experiencing homelessness also face disproportionate levels of physical illness, mental health problems, substance use disorders, social exclusion, and premature mortality (Fazel et al., 2014; Aldridge et al., 2018). These inequalities reflect wider social determinants of health and conditions that can substantially restrict control over health and everyday life (Marmot et al., 2020).

The relationship between homelessness and health is reciprocal. Poor health may increase vulnerability to housing instability, while homelessness can exacerbate health difficulties through material deprivation, unsafe environments, disrupted healthcare, social isolation, and psychosocial stress (Fazel et al., 2014; Haeffner et al., 2023). Such conditions also shape opportunities for health-promoting behaviour. Immediate needs for accommodation, food, healthcare, transportation, and safety may reasonably take precedence over preventive activities. Health behaviours among people experiencing homelessness are strongly embedded within environmental context and available resources, with food and shelter potentially taking priority over medication adherence (Paudyal et al., 2017). Similarly, self-care, including physical activity, is shaped by environmental resources, social influences, health difficulties, and perceived capability (Paudyal et al., 2020). Health behaviour therefore cannot be understood solely through individual motivation or responsibility.

Physical activity may nevertheless provide meaningful physical, psychological, and social benefits. In the general population, regular physical activity is associated with substantial health benefits (Warburton & Bredin, 2017; World Health Organization [WHO], 2022), while sport can provide opportunities for social interaction, belonging,

and psychological wellbeing (Eime et al., 2013). Evidence in people experiencing homelessness remains more limited. A scoping review of 15 studies identified substantial physical functional limitations and generally low physical activity, alongside considerable heterogeneity in physical abilities (Kiernan et al., 2021). A more recent mixed-methods systematic review of 17 studies suggested benefits for physical and mental health and wider wellbeing, although quantitative evidence remained limited and frequently inconclusive (Dawes et al., 2024).

These potential benefits should not imply that physical activity represents an individual-level solution to homelessness or associated inequalities. Sport and physical activity interventions do not automatically generate social outcomes; effects depend substantially on programme design and social context (Haudenhuyse et al., 2012; Schulenkorf et al., 2016). Ethnographic evidence suggests that physical activity may offer temporary security, recognition, distraction, and relief while leaving underlying isolation and precarity largely unchanged (Duflos & Nuytens, 2025). Therefore, physical activity is better understood as a potentially valuable health and social resource whose benefits depend on accessible, appropriate, and sustainable opportunities.

Nevertheless, participation remains difficult. Financial constraints, unstable accommodation, transportation difficulties, functional limitations, poor health, fatigue, safety concerns, competing priorities, stigma, and reduced belonging may restrict access. Dawes et al. (2024) identified both benefits and substantial participation challenges, while Sofija et al. (2018) highlighted on-site delivery, positive trainer relationships, and supportive environments as central to programme implementation. Comparable barriers are evident in healthcare and service engagement, including affordability, transportation, accessibility, service organisation, trust, and provider relationships (Armstrong et al., 2021; Ramsay et al., 2019).

Thus, willingness to participate may coexist with circumstances that make participation difficult or unrealistic. The key behavioural question is not whether individuals value physical activity or are motivated, but whether participation is perceived as realistically achievable. Service engagement among people experiencing homelessness is shaped by attitudes, social identification, and perceived norms (Christian & Abrams, 2003), while Theory of Planned Behaviour (TPB)-based research has distinguished intentions from actual programme participation and identified perceived behavioural control (PBC) as an important correlate of participation (Christian et al., 2007). Thus, behavioural readiness may reflect the interplay between personal resources, participation conditions, and perceived feasibility rather than motivation alone. Consequently, the present study focuses on behavioural readiness, operationalised as the intention to participate in physical activity, rather than actual physical activity behaviour.

From contextual constraints to behavioural readiness

The Risk Environment framework provides a broader contextual lens for understanding the participation gap. Originally developed to move beyond individualised explanations of drug-related harm, it directs attention to the physical, social, economic, and policy environments in which behaviour occurs (Rhodes, 2002). The present study extends this logic to physical activity participation, using the framework to contextualise participation conditions rather than testing it directly as a behavioural model. From this perspective, non-participation should not be interpreted simply as low motivation, because material and social conditions may constrain whether participation is realistically achievable.

This interpretation is consistent with homelessness research, which shows that service engagement depends on individual, interpersonal, and system-level conditions, including cost, transportation, location, service arrangements, safety, social support, and staff relationships (Armstrong et al., 2021; Ramsay et al., 2019). Psychological empowerment research likewise conceptualises control, competence, and opportunities for action through interactions between individuals and their environments (O'Shaughnessy & Greenwood, 2020). Within physical activity, accessible delivery, facilitator relationships, social support, and programme characteristics also influence engagement (Sofija et al., 2018; Dawes et al., 2024).

Perceived barriers can therefore be understood as participants' appraisals of constraints encountered when considering physical activity. Their behavioural significance lies in whether these constraints make participation appear realistically achievable. Accordingly:

H1. Greater perceived barriers to physical activity will be associated with lower behavioural intention.

The COM-B model provides a complementary behavioural framework, proposing that behaviour depends on Capability, Opportunity, and Motivation (Michie et al., 2011). Capability refers to physical and psychological capacity to perform the behaviour, whereas Opportunity encompasses external physical and social conditions that enable or prompt it. These distinctions are particularly relevant to homelessness, where participation may be constrained by personal resources as well as affordability, transportation, facilities, scheduling, safety, social support, and inclusion. Thus, the existence of an activity opportunity does not necessarily make it practically accessible. This interpretation is supported by evidence of functional limitations among people experiencing homelessness (Kiernan et al., 2021), environmental and resource-related barriers to self-care (Paudyal et al., 2020), and programme-level influences on physical activity engagement (Sofija et al., 2018; Dawes et al., 2024). Accordingly:

H2. Greater perceived barriers to physical activity will be associated with lower Capability and Opportunity.

Capability and Opportunity, however, are conceptually distinct from an individual's overall judgement that participation can be accomplished. This more proximal appraisal is captured by perceived behavioural control (PBC) within the TPB (Ajzen, 1991). PBC reflects perceived ease or difficulty and the extent to which performing a behaviour is considered under one's control. Ajzen (2002) further distinguished self-efficacy and controllability as related but non-identical aspects of behavioural control. Meta-analytic evidence on physical activity supports the contribution of PBC to intentions and behaviour (Hagger et al., 2002).

PBC may be especially relevant under unstable or constrained conditions. Among people experiencing homelessness, Christian et al. (2007) found that PBC explained additional variance in behavioural intention beyond attitudes and subjective norms in the more representative of two samples and was also associated with subsequent programme participation. This is consistent with evidence that opportunities to act may be shaped by circumstances partly outside personal preference or motivation.

The distinction between Capability, Opportunity, and PBC is therefore central. Capability and Opportunity describe personal and environmental conditions relevant to action, whereas PBC captures the more proximal appraisal of control over participation. Individuals may value physical activity and possess relevant capabilities yet still perceive participation as difficult when practical, health-related, or social conditions restrict control. This

distinction is not absolute, as perceptions of capability may contribute to broader judgements of behavioural control (Ajzen, 2002); some association between Capability and PBC was therefore expected. Accordingly:

H3. Greater perceived barriers to physical activity were associated with lower PBC.

H4. Capability, Opportunity, and PBC will each be positively associated with behavioural intention at the bivariate level.

Motivation remains an important COM-B component but was not included as a mediator in the primary explanatory model because behavioural intention already represents a proximal motivational construct. Including broad Motivation as a parallel mechanism would therefore create substantial conceptual overlap between mediator and outcome.

The three perspectives are treated as complementary rather than components of a single causal model: the Risk Environment framework provides the contextual lens, COM-B identifies conditions relevant to action, and PBC captures perceived control over participation. Therefore, this study examined whether Capability, Opportunity, and PBC statistically accounted for the association between perceived barriers and behavioural intention. Accordingly:

H5. Perceived barriers will show an indirect statistical association with behavioural intention through one or more of Capability, Opportunity, and PBC when considered simultaneously.

Although previous research has documented barriers to health behaviour, service engagement, and physical activity among people experiencing homelessness and has identified both potential benefits and implementation challenges of physical activity interventions (Kiernan et al., 2021; Dawes et al., 2024), identifying barriers alone provides limited insight into how contextual constraints become behaviourally relevant.

The present study addresses this gap by examining associations between perceived barriers, Capability, Opportunity, PBC, and intention to participate in physical activity among adults experiencing homelessness or housing instability. Its central theoretical distinction is that valuing physical activity is not equivalent to perceiving participation as feasible. Hierarchical regression examines the incremental explanatory contribution of Capability, Opportunity, and PBC beyond perceived barriers, while parallel indirect-effects analysis examines whether the barrier–intention association is statistically accounted for through these constructs when considered simultaneously

Methodology

This cross-sectional study examined whether contextual barriers, COM-B conditions for action, and PBC provide distinguishable explanatory information about readiness to participate in physical activity among people experiencing homelessness or housing instability, with particular attention to the perceived feasibility of participation within their everyday circumstances.

Study Context

The study was conducted within the research phase of an EU-funded sport project focused on promoting participation, empowerment, and life-skill development among people experiencing homelessness through sport

and physical activity. The research component was designed to examine barriers, behavioural readiness, and conditions that may enable meaningful participation in physical activity, providing an empirical basis for the subsequent co-design and development of context-responsive sport-based interventions. The present article reports the participant-level quantitative component conducted in Greece and Italy and addresses a distinct research question concerning the associations between perceived barriers, behavioural conditions, PBC, and intention to participate in physical activity.

Sample

A total of 102 adults experiencing homelessness or housing exclusion participated in the study, recruited through an NGO day center in Greece and a community shelter in Italy. Eligibility was defined broadly according to the European Typology of Homelessness and Housing Exclusion (ETHOS), encompassing rooflessness, temporary or transitional accommodation, and severe housing exclusion, including inadequate or insecure housing. Participants in owner-occupied or rental accommodation remained eligible where living conditions were severely inadequate, lacked basic facilities, or involved substantial insecurity threatening continued occupancy; therefore, housing tenure alone was not considered evidence of adequate or secure housing.

Housing circumstances were heterogeneous, with transitional housing (37.3%) and temporary accommodation (18.6%) most common, alongside street homelessness, shelter residence, risk of homelessness, and other forms of housing exclusion. The mean age was 53.99 years, and 78.4% were men. Fair or poor physical and mental health were reported by 54.9% and 44.1%, respectively, while 53.9% reported at least one chronic condition. Limited or absent family and peer support were reported by 72.6% and 68.7%, respectively, and 73.5% reported frequent or occasional engagement with formal social services (Table 1).

Recruitment sites were fully confounded with country; therefore, subsample differences cannot be interpreted as national differences and may reflect service populations, recruitment settings, housing circumstances, or other contextual factors. Greece and Italy were treated as recruitment contexts and included as adjustment variables in the multivariate analyses. Descriptive analyses used the full sample (N = 102); one incomplete case yielded N = 101 for regression and indirect effects analyses.

Table 1
Demographic Characteristics of Participants

Variable	Category	<i>n</i>	%
Age, years	<i>M (SD)</i>	53.99 (14.28)	—
Gender	Men	80	78.4
	Women	22	21.6
Education level	No formal education	8	8.0
	Primary education	19	19.0
	Secondary education	40	40.0
	Post-secondary education	8	8.0
	Vocational education	14	14.0
	Bachelor's degree	6	6.0
	Other	5	5.0
Housing situation	Street	8	7.8
	Shelter	6	5.9
	Temporary accommodation	19	18.6
	Transitional housing	38	37.3
	At risk of homelessness	13	12.7
	Rental accommodation	1	1.0
	Vehicle-based accommodation	1	1.0
	Owner-occupied housing	16	15.7
Physical health status	Excellent	16	15.7
	Good	30	29.4
	Fair	34	33.3
	Poor	22	21.6
Mental health status	Excellent	20	19.6
	Good	37	36.3
	Fair	30	29.4
	Poor	15	14.7
Chronic health condition	Yes	55	53.9
	No	47	46.1
Family support	Yes	28	27.5

Variable	Category	<i>n</i>	%
	Limited	26	25.5
	No	48	47.1
Peer support	Yes	32	31.4
	Limited	22	21.6
	No	48	47.1
Engagement with social services	Frequent	50	49.0
	Occasional	25	24.5
	Rare	20	19.6
	None	7	6.9

Ethical Considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki and received approval through the institutional ethics procedures of Equal Society. Before participation, individuals were informed about the purpose and procedures of the study, the voluntary nature of participation, and their right to withdraw at any time without consequences for their access to services or support. Written informed consent was obtained before data collection. No personally identifiable information was collected, and participant anonymity and confidentiality were maintained throughout the data collection, management, and analysis.

Data Collection Procedure

Data were collected using structured self-administered questionnaires within community-based services supporting adults experiencing homelessness or housing instability. Procedures were designed to minimise participant burden and facilitate accessible and meaningful participation within the service context. Participants completed the questionnaire independently after receiving standardised instructions.

The questionnaire was originally developed in English and translated into Greek and Italian for administration in the two study settings. To support linguistic and conceptual equivalence, each translated version was independently back translated into English and compared with the original questionnaires. Any discrepancies identified through this process were reviewed and resolved before the final versions were used for data collection.

The questionnaire collected information on demographic and housing characteristics, self-reported physical and mental health, social support, and physical activity participation, followed by measures of perceived barriers and behavioural constructs informed by the TPB and COM-B framework. Behavioural constructs were assessed using seven-point response scales, with higher scores indicating higher levels of the corresponding construct unless otherwise specified.

Measures

Participant Characteristics

The questionnaire collected demographic and housing information, including age, sex, educational level, and current housing situation, as well as self-reported physical and mental health, chronic health conditions, and family and peer support. Previous and current participation in physical activity was also recorded to provide contextual information on participants' experience with exercise and sports. These variables were used primarily to characterise the sample rather than as components of the primary explanatory model.

Perceived Barriers to Physical Activity

Perceived barriers were assessed using a 14-item context-adapted measure informed by the barrier component of the Exercise Benefits/Barriers Scale (EBBS). The items reflect constraints particularly relevant to people experiencing homelessness or housing instability, including transportation and financial difficulties, conflicts with service schedules and immediate priorities, physical demands and fatigue, safety, access to appropriate clothing or equipment, scheduling difficulties, social encouragement, and sense of belonging.

Items were rated on a seven-point scale and averaged to produce an overall Perceived Barriers score, with higher scores indicating greater perceived constraints on participation. Because the content was contextually adapted, the measure was treated as EBBS-informed rather than as administration of the original validated EBBS.

Theory of Planned Behaviour Constructs

Attitude, Subjective Norm, PBC, and Behavioural Intention were assessed in accordance with the Theory of Planned Behaviour (Ajzen, 1991), with all items referring consistently to physical activity participation.

Attitude was assessed using seven bipolar semantic-differential items capturing participants' overall evaluation of physical activity participation. Subjective Norm assessed perceived social expectations and support, incorporating both injunctive and descriptive normative components. PBC was assessed using five items addressing perceived capacity to participate and the extent to which participation was considered manageable and under personal control, thereby capturing participants' overall appraisal of whether participation was realistically achievable.

Behavioural Intention was assessed using three items that examined intention and willingness to make an effort to participate in physical activity. In the present study, intention was conceptualised as an indicator of behavioural readiness rather than actual physical activity behaviour. Items for each TPB construct were combined into composite scores, with higher scores indicating higher levels of the corresponding construct.

COM-B Constructs

Capability, Opportunity, and Motivation were assessed using a 19-item context-adapted questionnaire based on the COM-B model (Michie et al., 2011). Although brief COM-B measures have demonstrated promising psychometric properties (Keyworth et al., 2020), the present items were adapted to the circumstances of people experiencing homelessness or housing instability and were therefore treated as COM-B-informed rather than as an established validated measure.

Capability comprised eight items assessing physical and psychological resources relevant to participation, including perceived ability, knowledge, skills, confidence, and capacity. Opportunity comprised six items addressing external conditions that could enable or constrain participation, including access to appropriate opportunities and resources, practical accessibility, social support, and environmental conditions. Motivation comprised five items assessing motivational processes relevant to physical activity participation.

Motivation was retained for descriptive and psychometric purposes but was not included as a mediator in the primary explanatory model because of its conceptual proximity to behavioural intention. Some content overlap between Capability and PBC was also recognised, as the Capability measure included perceptions of ability, confidence, and capacity. Higher composite scores represented greater Capability, Opportunity, or Motivation.

Scale Scoring and Preliminary Psychometric Assessment

Composite scores were calculated by averaging the relevant items, retaining the original 1–7 response metric and facilitating comparison across measures. Higher scores represented greater levels of each construct, except for Perceived Barriers, where higher scores indicated greater perceived constraints.

Because the Perceived Barriers and COM-B measures were context-adapted for the present population, their measurement properties were examined before the primary analyses. Internal consistency was assessed using reliability coefficients, and exploratory factor analysis was used to examine the preliminary structural properties. These analyses were intended to provide preliminary psychometric support for use of the measures in the present sample rather than formal validation of the instruments

Results

All measures demonstrated acceptable to excellent internal consistency (Cronbach's $\alpha = .76-.95$; McDonald's $\omega = .77-.95$; Table 3). The context-adapted Perceived Barriers measure showed good reliability ($\alpha = .88$, $\omega = .88$), with preliminary EFA indicating adequate sampling suitability ($KMO = .872$; Bartlett's $\chi^2(91) = 507.08$, $p < .001$) and a strong general barriers dimension. Regression diagnostics indicated no serious violations of model assumptions.

The COM-B-informed measures also showed good to excellent reliability (Capability: $\alpha = .93$, $\omega = .93$; Opportunity: $\alpha = .83$, $\omega = .82$; Motivation: $\alpha = .86$, $\omega = .86$). Principal axis factoring with oblimin rotation supported a broadly interpretable three-factor structure ($KMO = .867$; Bartlett's $\chi^2(171) = 1397.75$, $p < .001$), accounting for 62.08% of variance. Factors broadly reflected Capability, Opportunity, and Motivation, although two Motivation items cross-loaded with Capability-related content. Given the modest sample and context-adapted measures, these findings represent preliminary measurement support rather than formal validation.

Participants recruited in Italy reported higher behavioural intention, Capability, and Motivation than those recruited in Greece, with no significant differences in Attitudes, Subjective Norms, PBC, Perceived Barriers, or Opportunity (Table 2). As recruitment sites and countries were inseparable, these findings reflect recruitment contexts rather than national differences.

Table 2
Recruitment-context differences

Variable	Greece M (SD)	Italy M (SD)	t(df)	p	d
Attitudes	5.87 (1.13)	5.95 (1.40)	-.31 (100)	.758	-.06
Subjective norms	4.69 (1.46)	4.89 (1.91)	-.62 (100)	.539	-.12
PBC	5.22 (1.38)	5.16 (1.70)	.19 (100)	.847	.04
Intention	4.08 (2.01)	4.89 (2.10)	-2.00 (100)	.048	-.40
Barriers	3.33 (1.40)	3.24 (1.46)	.31 (100)	.76	.06
Capability	4.30 (1.79)	5.37 (1.45)	-3.27 (99)	.001	-.65
Opportunity	3.17 (1.91)	3.41 (1.43)	-.71 (92.74)	.47	-.14
Motivation	4.82 (1.68)	5.44 (1.41)	-2.01 (99)	.048	-.40

Behavioural intention was positively correlated with PBC, Subjective Norms, Capability, Motivation, Attitudes, and Opportunity. Perceived Barriers were negatively associated with intention, PBC, Opportunity, and Capability. Overall, PBC exhibited the strongest bivariate association with behavioural intention, while greater perceived barriers were associated with lower perceived control, Capability, and Opportunity. These findings provide preliminary support for the hypothesised associations, although the independent contributions of these constructs require examination in the multivariate analyses.

Table 3
Internal consistency and bivariate associations

Variable	items	α	ω	1	2	3	4	5	6	7
1 Attitudes	7	.89	.89							
2 Subjective Norms	3	.76	.77	.367**						
3 Perceived Behavioral Control	5	.83	.83	.438**	.540**					
4 Behavioral Intentions	3	.95	.95	.380**	.580**	.670**				
5 Perceived Barriers	14	.88	.88	-.162	-.177	-.476**	-.296**			
6 Capability	8	.93	.93	.423**	.383**	.579**	.462**	-.407**		
7 Opportunity	6	.83	.82	.365**	.293**	.365**	.228*	-.443**	.581**	
8 Motivation	5	.86	.86	.523**	.429**	.562**	.451**	-.302**	.721**	.558**
** $p < .01$ level. * $p < .05$										

Given the modest sample size, analyses were designed as an initial explanatory test, with limited precision expected for smaller effects. A four-step hierarchical multiple regression examined the incremental contribution of perceived barriers, Capability, Opportunity, and PBC to behavioural intention. Recruitment context was entered at Step 1, followed by Perceived Barriers at Step 2, Capability and Opportunity at Step 3, and PBC at Step 4 (Table 4).

Recruitment context explained a small but significant proportion of variance. Adding Perceived Barriers significantly improved the model, with greater barriers associated with lower intention. Capability and Opportunity produced a further significant increase in explained variance; Capability was independently associated with intention, whereas Opportunity was not, and Perceived Barriers became non-significant. Adding PBC produced the largest incremental improvement. In the fully adjusted model, PBC was the only behavioural construct independently associated with intention, while Perceived Barriers, Capability, and Opportunity were no longer significant; recruitment context remained significant. The final model explained approximately half of the variance in behavioural intention.

Overall, Perceived Barriers and Capability contributed explanatory information at earlier stages, but their associations were substantially attenuated after PBC was introduced, supporting the incremental explanatory relevance of PBC beyond contextual barriers and COM-B Capability and Opportunity.

Table 4
Hierarchical Multiple Regression Predicting Behavioural Intention

Predictor	Model 1 <i>B</i> (SE)	β	Model 2 <i>B</i> (SE)	β	Model 3 <i>B</i> (SE)	β	Model 4 <i>B</i> (SE)	β
Recruitment context	0.835 (0.411)	.200	0.791 (0.395)	.190	0.274 (0.396)	.066	0.811 (0.333)	.194
Perceived Barriers	—	—	-0.423 (0.139)	-.288	-0.234 (0.149)	-.159	0.048 (0.129)	.033
Capability	—	—	—	—	0.533 (0.146)	.435	0.061 (0.137)	.050
Opportunity	—	—	—	—	-0.123 (0.143)	-.099	-0.059 (0.117)	-.048
PBC	—	—	—	—	—	—	0.926 (0.132)	.678
R^2	.040		.123		.238		.497	
Adjusted R^2	.030		.105		.207		.470	
ΔR^2	.040		.083		.116		.259	
ΔF	4.12		9.25		7.28		48.85	
p for ΔF	.045		.003		.001		< .001	

A parallel indirect-effects analysis (PROCESS Model 4) examined whether PBC, Opportunity, and Capability statistically accounted for the association between perceived barriers and behavioural intention, controlling for recruitment context. Indirect effects were evaluated using bootstrap confidence intervals (Table 5).

Perceived barriers were negatively associated with PBC, Opportunity, and Capability. When considered simultaneously, however, only PBC showed an independent positive association with behavioural intention; Opportunity and Capability did not. Recruitment context remained associated with intention, and the overall model accounted for a substantial proportion of variance.

The total association between perceived barriers and intention was negative and statistically significant, whereas the direct association became non-significant after inclusion of the three proposed pathways. The total indirect effect was statistically supported and was attributable specifically to PBC; indirect effects through Opportunity and Capability were not supported. Thus, although greater barriers were associated with less favourable scores across all three pathways, only PBC uniquely accounted for the barrier–intention association.

H1–H3 were supported, H4 was supported at the bivariate level, and H5 was partially supported through PBC only.

Table 5

Parallel Indirect Effects of Perceived Barriers on Behavioural Intention Through PBC, Opportunity, and Capability

Effect/path	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI
Paths from barriers to proposed mediators					
Barriers → PBC (a_1)	-0.51	0.10	-5.34	< .001	[- 0.70, - 0.32]
Barriers → Opportunity (a_2)	-0.52	0.11	-4.88	< .001	[- 0.73, - 0.31]
Barriers → Capability (a_3)	-0.47	0.10	-4.54	< .001	[- 0.68, - 0.27]
Paths to behavioural intention					
PBC → Intention (b_1)	0.93	0.13	6.99	< .001	[0.66, 1.19]
Opportunity → Intention (b_2)	-0.06	0.12	-0.51	.614	[- 0.29, 0.17]
Capability → Intention (b_3)	0.06	0.14	0.45	.655	[- 0.21, 0.33]
Total and direct effects					
Total effect, Barriers → Intention (c)	-0.42	0.14	-3.04	.003	[- 0.70, - 0.15]
Direct effect, Barriers → Intention (c')	0.05	0.13	0.37	.710	[- 0.21, 0.30]
Recruitment context → Intention	0.81	0.33	2.44	.017	[0.15, 1.47]
Bootstrap indirect effects					
Total indirect effect	-0.47	0.13	—	—	[- 0.73, - 0.24]
Via PBC (a_1b_1)	-0.47	0.11	—	—	[- 0.71, - 0.26]
Via Opportunity (a_2b_2)	0.03	0.07	—	—	[- 0.10, 0.18]
Via Capability (a_3b_3)	-0.03	0.08	—	—	[- 0.21, 0.12]

Note. $N = 101$. Unstandardized coefficients are reported. Recruitment context was included as a covariate in all mediator and outcome models. The outcome model explained 49.7% of the variance in behavioural intention, $R^2 = .497$, $F(5, 95) = 18.77$, $p < .001$. Indirect effects were estimated using 5,000 bootstrap samples and 95% percentile bootstrap confidence intervals.

Discussion

The present study examined behavioural readiness for physical activity among adults experiencing homelessness or housing instability by integrating contextual constraints with constructs derived from COM-B and the TPB. The findings support the central proposition that the participation gap may depend not only on whether physical activity is valued, but on whether participation is perceived as realistically feasible within everyday circumstances.

Perceived barriers were negatively associated with behavioural intention, Capability, Opportunity, and PBC, while Capability, Opportunity, and PBC were positively associated with intention at the bivariate level. However, their relative contributions changed when considered simultaneously. In the hierarchical regression, Capability contributed independently to intention before PBC was introduced, whereas Opportunity did not. Once PBC was added, it provided substantial additional explanatory information, while the independent associations of perceived barriers, Capability, and Opportunity were attenuated. Similarly, although greater barriers were associated with lower scores across all three pathways in the parallel indirect-effects analysis, only the specific indirect association through PBC was statistically supported. These findings provide partial support for the proposed framework while identifying perceived feasibility and control as particularly relevant to behavioural readiness.

The prominent role of PBC does not imply that participation is primarily determined by individual psychological characteristics. Perceived control reflects an appraisal of whether behaviour can be performed under existing conditions. For people experiencing homelessness, these conditions include affordability, transportation, service accessibility, available resources, and interpersonal relationships (Ramsay et al., 2019; Paudyal et al., 2020; Armstrong et al., 2021). Lower PBC may therefore reflect constraints embedded in the participation environment as well as individual perceptions of control.

This interpretation is consistent with earlier TPB research among people experiencing homelessness. Christian et al. (2007) found that PBC contributed to the explanation of behavioural intention and subsequent participation in outreach programmes, although its association with intention varied across samples. The present findings extend this evidence to physical activity, where PBC explained additional variance beyond perceived barriers, Capability, and Opportunity. Evidence from physical activity interventions similarly highlights the relevance of accessible delivery, supportive facilitator relationships, social connection, and programme design to engagement among people experiencing or transitioning from homelessness (Sofija et al., 2018; Dawes et al., 2024).

These findings do not imply that increasing perceived control alone is sufficient to increase participation. Physical activity opportunities operate within wider conditions of housing instability and social exclusion, and their benefits may coexist with persistent isolation and precarity (Duflos & Nuytens, 2025). Perceived feasibility is therefore likely to depend on whether material, social, and organisational conditions support participation.

Theoretical Contribution

The findings suggest that contextual and behavioural perspectives are most informative when treated as complementary. The Risk Environment perspective locates behaviour within broader structural and social conditions, while COM-B Capability and Opportunity describe personal and environmental conditions relevant to

action. PBC adds a more proximal level by capturing how individuals appraise their control over participation within those conditions.

The results provide preliminary empirical support for this distinction. Although perceived barriers were associated with lower Capability, Opportunity, and PBC, only PBC showed a supported specific indirect association with behavioural intention when the three pathways were considered simultaneously. Capability contributed explanatory information before PBC was introduced, but its association was substantially attenuated after adjustment for PBC. This may reflect conceptual proximity and partly shared measurement content, as both constructs included perceptions of ability or capacity to participate. The stronger independent association of PBC should therefore not be interpreted as demonstrating that Capability is redundant or that PBC subsumes it. Rather, PBC accounted for unique variance in behavioural intention within the present operationalisation of the constructs.

Within the proposed framework, PBC can therefore be conceptualised as a proximal appraisal formed at the person–environment interface: psychologically experienced but grounded in material and social conditions. Although measurement overlap with Capability prevents definitive empirical separation in the present study, this interpretation extends previous TPB research by situating PBC within a broader contextual account of participation among people experiencing homelessness (Christian et al., 2007).

Practical Implications

The findings have implications for the design of physical activity opportunities for people experiencing homelessness or housing instability. If PBC reflects an appraisal of whether participation is realistically feasible, interventions should not focus exclusively on increasing motivation, confidence, or awareness of physical activity benefits, but should also address the conditions on which perceived feasibility depends. The practical objective therefore shifts from persuading individuals to participate towards creating circumstances in which participation is manageable.

Physical activity programmes should be low-threshold, flexible, and context-responsive. Constraints related to cost, transportation, location, scheduling, clothing or equipment, health limitations, and competing service or everyday demands should be reduced wherever possible. Homelessness research demonstrates that affordability, transportation, accessibility, and service organisation influence engagement (Ramsay et al., 2019; Paudyal et al., 2020; Armstrong et al., 2021), while physical activity research similarly highlights accessible programme design and adaptation to participants' circumstances (Sofija et al., 2018; Dawes et al., 2024).

Accessibility should also be understood as relational rather than solely logistical. Supportive and non-judgmental environments, positive facilitator relationships, social connection, and meaningful choice may influence whether participation feels safe and achievable. Trainer rapport and supportive environments have been identified as central implementation features (Sofija et al., 2018), while empowering interventions for people experiencing homelessness have been associated with flexible, individualised, collaborative, and competency-building practices (O'Shaughnessy & Greenwood, 2020). An opportunity may therefore be technically available without being experienced as practically or socially accessible.

Environmental adaptation and individual support should consequently be complementary. Capability may be supported through graded activities, personalised adaptations, and achievable participation, while Opportunity may be strengthened by reducing practical and social barriers. Such changes may also strengthen perceptions

that participation is manageable and controllable, although this relationship requires prospective testing rather than causal inference from the present findings.

Physical activity interventions should nevertheless remain proportionate in their aims. They may support wellbeing, social connection, competence, and participation, but cannot substitute for secure housing, healthcare, welfare provision, or broader structural responses to homelessness. The practical challenge is therefore to ensure access to meaningful physical activity without requiring individuals first to overcome the structural constraints that restrict participation.

Limitations and Future Research

Several limitations should be considered. First, the modest sample and recruitment through two community-based services constrain statistical precision and generalisability, particularly for smaller associations and indirect effects. The findings should therefore be regarded as an initial explanatory test of the proposed framework. Recruitment site was also fully confounded with country; differences between the Greek and Italian subsamples may reflect participating services, populations, or local contexts and cannot be interpreted as national differences.

Second, the Perceived Barriers and COM-B-informed measures were context-adapted and have not undergone formal psychometric validation. Measurement overlap between Capability and PBC should also be acknowledged, as both included perceptions of ability or capacity to participate. Their moderately strong correlation ($r = .579$) suggests related but distinguishable constructs, although shared item content may partly explain the attenuation of Capability after PBC was introduced. Larger independent samples and more clearly differentiated measures are needed to examine construct and discriminant validity and measurement invariance across populations and contexts.

Third, the cross-sectional, self-report design limits causal interpretation and temporal ordering. Because mediation theoretically unfolds over time, cross-sectional indirect effects may provide biased representations of longitudinal processes (Maxwell & Cole, 2007). The PROCESS analysis should therefore be interpreted as a decomposition of associations consistent with the proposed model rather than evidence of causal mediation. The supported indirect association through PBC indicates that the barrier–intention relationship was statistically accounted for primarily by differences in PBC within the present data; it does not establish that barriers temporally reduce PBC and thereby intention. Alternative or reciprocal relationships remain plausible.

Finally, behavioural intention represents readiness rather than physical activity behaviour. Within the TPB, intention is proximal to behaviour, but its translation into action depends partly on sufficient actual behavioural control (Ajzen, 1991). This distinction is particularly important in homelessness and housing instability, where favourable intentions may coexist with unstable access to resources, services, transportation, health support, and predictable routines.

Future research should therefore employ prospective designs following participants from behavioural readiness to programme uptake, attendance, retention, and sustained physical activity. Multi-site studies involving several services within each country could distinguish service-level from broader contextual influences, while larger samples would permit stronger examination of measurement properties and structural relationships. Intervention studies should also test whether modifying practical, social, and organisational participation conditions is followed by changes in Capability, Opportunity, PBC, and ultimately behaviour. Such designs would

provide a stronger test of PBC as a proximal appraisal of feasibility at the person–environment interface and clarify how participation environments translate into actual physical activity.

Conclusion

The central implication of this study is that behavioural readiness for physical activity among people experiencing homelessness or housing instability should be understood not simply as a question of willingness, but also in relation to whether participation is perceived as feasible within context. Behavioural readiness emerges at the interface between the individual and the practical, social, and organisational conditions that determine whether participation feels realistically achievable.

Accordingly, efforts to promote physical activity should move beyond motivating individuals towards creating environments that make participation possible. Future research should extend this perspective from behavioural readiness to actual participation, examining whether more accessible and supportive participation environments translate into sustained engagement in physical activity.

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