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Part I: Why Do Children and Young People Drop Out of Sport? Development and Initial Validation of the Youth Sport Dropout Questionnaire

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Abstract: Despite the widespread health benefits of physical activity, globally, four out of five adolescents are insufficiently active. Sport participation, a key vehicle for physical activity, diminishes by as much as 80% as children get older. To date, no theoretically grounded, validated research measure of dropout exists. In this two-paper series, we attempt to resolve this issue via the development, initial validation, and application of the Youth Sport Dropout Questionnaire. In the current paper—Part I—we used the COM-B framework to design and initially validate the Youth Sport Dropout Questionnaire. Three sequential studies were conducted. Study 1 includes a review of the existing literature, an expert consultation, and participant focus groups. Study 1 generated 49 reasons for youth sport dropout. Study 2 explored the functionality of the 49 items in a sample of 479 students. Exploratory factor analysis revealed a 28-item four-factor solution. Study 3 tested the dimensionality and reliability of scale in a sample of 648 students from seven European countries. Confirmatory factor analysis supported a final 16-item, four-factor solution, suggesting that reasons for dropout behavior were captured by capability (C), opportunity (O), motivation (M) with the important new addition of injury (I). This initial validation supports the YSDQ as a rigorous research tool to capture the reasons underpinning youth sport dropout behavior.

Keywords: youth sport; dropout; attrition; physical activity; injury; active lifestyle; healthy lifestyle; health crisis; COM-B model

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1. Introduction

Globally, only one in five adolescents meet the World Health Organisation's guidelines for physical activity (World Health Organisation, 2022). Organized sport has been proposed as one of the main tools to address this youth inactivity crisis (Sport England, 2023). Indeed, community sport was cited as one of eight investments that tangibly increases physical activity levels in young people and sustains physical activity across their lifespan (Milton et al., 2021). However, the recent data show a globally declining trend in sport participation across the last decade (e.g., European Commission, 2022; Sport England, 2023; Sport New Zealand, 2022). More specifically, recent research across 27 countries and 18 sports (Emmonds et al., 2023) identified that participation in organized youth sport increases

across most sports until the age of 14 before sharply declining as children move into adolescence and early adulthood.

Given the potentially profound impact on public health, it is unsurprising that youth sport dropout has commanded so much research attention for over 40 years (see Back et al., 2022; Balish et al., 2014; and Crane & Temple, 2015 for reviews). Dropout can be defined as discontinuing sport participation either permanently or over an extended period (i.e., one or more successive seasons; Moulds et al., 2024). Moulds and colleagues' definition accepts that some young people may return to sport after a period as well as transition to a different sport, or prune sport participation to a single sport. This paper understands 'youth sport' as a sport where the participants are below the age of 18. However, dropout that occurred between the ages of 18 and 21 was also included as it was considered transitional from junior to senior sport.

To date, many researchers have attempted to explain youth sport dropout from an eclectic range of different theoretical perspectives (e.g., the Self-Determination Theory, Fabra et al., 2023; the Leisure Constraints Theory, Crane & Temple, 2015; and the Social Ecological Model, Vella et al., 2014). These studies have mainly focused on identifying the reasons for dropout, typically through participant interviews, and establishing correlations with other constructs. These include socioeconomic status, fitness, and motor coordination (Vandendriessche et al., 2012), or sport motivation and the perceptions of parental, coach, and peer support (Boiché & Sarrazin, 2009), amongst many others. This combination of foci, methodologies, and theoretical underpinnings has yielded a wealth of knowledge in relation to the reasons for dropout and some of the contextual features that impact its incidence. The recent reviews of the empirical literature include over 150 factors that may contribute to youth sport dropout (Back et al., 2022; Balish et al., 2014; Crane & Temple, 2015). Such a wide array of theoretical explanations and potential factors can make it difficult to understand where best to focus research and target intervention. In response, some researchers have recently begun to apply more encompassing models to youth sport dropout (e.g., bioecological, Moulds et al., 2024).

Despite these advancements, a tool that integrates this knowledge and enables large-scale studies of specific populations and contexts to identify the reasons for dropout is not yet available. To date, the only questionnaire that has attempted to capture the causes of dropout is the Reasons for Sport Attrition Questionnaire (RSAQ) developed by Gould et al. (1982). This questionnaire contains 32 items covering a range of reasons for attrition and has been used in multiple studies since (e.g., Molinero et al., 2006; Salguero et al., 2003). Despite its widespread use, this questionnaire has several limitations, including not being either expert- or statistically validated and not being theoretically grounded. In addition, the RSAQ, having been designed in 1982, may potentially contain dated items or miss more contemporary dropout factors. Finally, the wording of some of the items is closely tied with the features of youth sport specific to the North American context (i.e., do not travel enough), meaning that some items have to be removed prior to administration in studies based in other regions (e.g., Molinero et al., 2006; Salguero et al., 2003). Therefore, the purpose of this study was to develop and validate a new and comprehensive Youth Sport Dropout Questionnaire (YSDQ).

A comprehensive metatheoretical framework that offers coherent ways to explore dropout behavior is the Behavior Change Wheel (BCW; Michie et al., 2011). The BCW draws together all the relevant components from 19 behavior change theories to provide a systematic approach to behavior change (Michie et al., 2011). At its center, the BCW contains a model of behavior known as COM-B. This acronym stands for Capability, Opportunity, Motivation and Behavior, and the model emphasizes that behavior is the result of interactions between the capability of the individual to do the behavior, the

opportunity to do it, and the motivations towards it. Each central component is further divided into two types: capability can be physical (e.g., physical skills needed to play sport) or psychological (e.g., knowledge of how to compete at a certain level of sport); motivation can be reflective (e.g., self-conscious planning) or automatic (e.g., emotional reactions, drives, and habits); and opportunity stems from the physical environment (e.g., access to facilities) or the social environment (e.g., exposure to ideas). Behavior change requires one or more of these elements (capability, opportunity, and motivation) to be modified to create a new configuration that initiates and sustains the desired behavior (Michie et al., 2011). Previous studies have used the COM-B model to explore the factors that influence wearable activity tracker use among children and adolescents (Budzynski-Seymour et al., 2022) and to understand children's outdoor play (Booth et al., 2022). Therefore, COM-B offers an encompassing theoretical basis from which to understand and target youth sport dropout behavior. However, to date, no research instrument has been created to examine youth sport dropout from a COM-B perspective.

Grounded in the COM-B framework, the aims of this research program—presented here as a multi-study, two-part series—were to develop, test, and administer the system-oriented, theory-driven, and process-focused retrospective Youth Sport Dropout Questionnaire (YSDQ). The objectives of the first phase—presented here as part I—were to develop and provide the initial validation of the YSDQ. In phase two—part II—we administered the YSDQ to a large sample across seven European countries to provide a detailed examination of the importance of the different reasons for dropout.

In phase one, to achieve our objectives of developing and validating the YSDQ, we conducted three sequential studies following the scale development guidance outlined by Boateng et al. (2018). In study 1, based on the previous literature, we generated an encompassing list of items. We then scrutinized the items' face validity by consulting world-leading experts and conducting three athlete focus groups. In study 2, we conducted exploratory factor analysis to identify the functional items and the factor structure of the scale. In study 3, we tested the dimensionality of the scale using confirmatory factor analysis. To enhance the accessibility of this research for key stakeholders, Table 1 provides a lay summary of our research aims, methods, and analytical strategies.

Table 1. Lay summary of aims, methods, and analytical strategies.

Research Aims	Methods/ Analytical Strategies	Lay Summary
Study 1: Identify and develop relevant items, and to assess the face and content validity of the items	Expert panel and athlete focus groups	Ask dropout experts, children and young people to appraise different potential reasons for dropout and generate a long list of relevant reasons for dropout.
Study 2: Assess the functionality of the items developed in study 1, to establish the factor structure of the scale, and to assess the reliability of the factors.	Exploratory Factor Analysis	Use statistics to generate a shortlist of reasons for dropout, and to establish how many categories best represent reasons for dropout. Name the categories based on the reasons they include and assess how well different reasons from the same category fit together.

Table 1. *Cont.*

Research Aims	Methods/ Analytical Strategies	Lay Summary
Study 3: Examine the dimensionality of the scale and further examine the internal consistency of the subscales.	Confirmatory Factor Analysis	Make a final selection of the most relevant reasons for dropout based on how well they align with expected categories.

2. Study 1. Item and Initial Questionnaire Development

The aims of study 1 were to identify and develop relevant items and to assess the face and content validity of the items.

2.1. Item Development

Considering the previous measures of similar constructs (i.e., sport attrition, Gould et al., 1982) and based on the most comprehensive literature reviews available at the time (Balish et al., 2014; Crane & Temple, 2015), we identified over 150 potential youth sport dropout factors. These factors were initially mapped onto the six domains of the COM-B model (Table 2) and collapsed into 11 dimensions via a process of intra-domain thematic analysis (Braun & Clarke, 2021). A total of 14 items were developed to arrive at YSDQ v1.

YSDQ v1 was then shared with seven world-leading experts in youth sport research from the USA, Canada, the UK, Australia, and Spain, who were asked to provide feedback on the 11 dimensions and the 14 items and the proposed methodology for its use. This number and background of experts was based on the recommendation of five to seven experts being considered appropriate, with an increased number of experts generally increasing the robustness of scrutiny (Haynes et al., 1995). The international experts reflected positively on our use of the COM-B model, but also suggested that we had overly simplified the topic area in our attempts to produce a short questionnaire containing only a small number of items. Consequently, the reviewers proposed items viewed as missing from YSDQ v1, and the 150 youth sport dropout factors were revisited. Reflecting on the reviewer feedback, a revised version of YSDQ v2 containing 13 dimensions (Table 2) and 40 items was produced.

The revised YSDQ v2 was shared with the same seven world-leading experts and a new expert reviewer from the UK. Using a Qualtrics survey, the experts were asked to evaluate independently how well each item represented its intended construct, assess each item's clarity and readability, and to add any further comments or items that they deemed appropriate. This process achieved >75% agreement across all the experts that all 40 of the revised YSDQ items should be retained. Furthermore, the experts indicated that certain items were trying to cover multiple stakeholders and recommended separating them into individual questions for key stakeholders (i.e., peers, parents, coaches, etc.). As a result of this feedback, the revised YSDQ grew from 40 items to 50 items, including specific items focused on girls and participants with a disability, and became YSDQ v3. The 13 dimensions were retained.

Table 2. The dimensions of dropout mapped onto the COM-B model across versions of the YSDQ.

YSDQ Version 1		
Capability	**Physical capability**	**Psychological capability**
	1. Competence	3. Mental wellbeing/ capability
	2. Physical wellbeing/ capability	4. Organisational ability
Opportunity	**Social opportunity**	**Physical opportunity**
	5. Social desirability	7. Opportunity
	6. Social enjoyment	8. Material resources
		9. Time
Motivation	**Reflective motivation**	**Automatic motivation**
	10. External motivation	11. Internal motivation
YSDQ Versions 2, 3 and 4		
Capability	**Physical capability**	**Psychological capability**
	1. Competence	3. Mental wellbeing/ capability
	2. Physical wellbeing/ capability	4. Organisational ability
Opportunity	**Social opportunity**	**Physical opportunity**
	5. Social desirability	8. Opportunity
	6. Social enjoyment	9. Material resources
	7. Social support	10. Time
Motivation	**Reflective motivation**	**Automatic motivation**
	10. External motivation	11. Internal motivation
		13. Achievement motivation

2.2. Pre-Testing of Items via Focus Groups

Following the development of YSDQ v3, three focus groups were conducted with individuals within the target demographics of the YSDQ (individuals aged 13–25 years old). The first focus group comprised male (n = 4) and female (n = 2) university students (M age = 21 years), the second comprised of six male basketball players (M age = 15 years), and the third comprised of five female basketball players (M age = 14 years). The focus group participants each received a copy of YSDQ v3 and were asked to review the questionnaire for readability and understandability. They were also asked to identify any missing items based on their own experience in sport. Based on the three focus groups, 11 items were modified to improve their readability and/or understandability, and one item was removed as the focus group participants felt it was a duplication. Following this process, the revised YSDQ v4 contained 49 items (Supplementary Table S1) and 13 dimensions (Tables 2 and 3). This version of the scale constitutes the long version of the Youth Sport Dropout Questionnaire (YSDQ-LV), which shows strong face validity (Boateng et al., 2018) and may be used for the item-level analysis of the relative importance of different dropout factors.

Table 3. Dimensions of dropout definitions.

Dropout Dimension	Definition
Competence	A lack of perceived and/or actual competence. This may be felt generally or be sport specific. It may also be related to personal (how good I am) or relative (how good compared to others) performance standards. It may also be based on the perceptions of others (parents/coaches/peers)
Physical Wellbeing	Experiencing physical discomfort/stress during sport participation (i.e., physical exertion, acute pain, injuries or chronic pain)
Mental Wellbeing	Experiencing mental discomfort/stress during sport participation (i.e., dealing with difficulty/failure, being compared to others, being put under pressure to perform, etc.)
Organisational Ability	Not having the individual or collective organizational ability to engage in organized sport
Social Desirability	Sport participation not being socially acceptable and/or desirable within a particular social milieu (i.e., family, community, peer group)
Social Enjoyment	Not liking and/or having positive relationships with others in the sporting environment
Social Support	Not receiving sufficient social support to facilitate participation
Opportunity	Not having suitable and accessible opportunities to participate
Material Resources	Not having the material resources to physically be able to participate
Time	Lacking enough available free time to be able to partake
External Motivation	Not understanding and valuing the positive consequences and/or rewards of sport participation
Internal Motivation	Lacking an intrinsic desire to partake and/or not experiencing sheer enjoyment taking part
Achievement Motivation	Not wanting to realize one's potential as an athlete or become a professional/elite athlete

3. Study 2

The aims of study 2 were three-fold: to examine the functionality of the YSDQ-LV items developed in study 1, to establish the initial factor structure of the scale, and to assess the reliability of the factors.

3.1. Method

3.1.1. Participants

The participants were 408 undergraduate and graduate students (men = 153, women = 250, non-binary = 5; M age = 23.38, SD = 6.53) from a UK university. This sample size exceeded the minimum parameters (5:1 participant-to-item ratio, $n > 200$, Howard, 2016) needed for factor analysis. On average, they had participated in sport for several years before dropping out (M = 6.98 years, SD = 4.62) and were in their mid-teens when they dropped out of sport (M = 15.47 years of age, SD = 3.15).

3.1.2. Procedure

Ethical approval was granted from the lead author's institution. The participants were invited to participate via email through the university's regular newsletter, which included a link to an online participant information sheet and a consent form. If the participants provided consent, they were then forwarded to the online version of the questionnaire. The average completion time was 15 min.

3.1.3. Measures

The participants were asked for demographic (e.g., age) and sport-related (e.g., main sport practiced where dropout occurred) information before responding to the YSDQ-LV. The YSDQ-LV's 49 items were pre-empted with this question, "In the process of you stopping your participation in sport, how important was the following?", and were measured on a five-point Likert scale (from 1 = 'Not at all Important' to 5 = 'Extremely Important').

3.1.4. Statistical Analyses

All analyses were conducted using IBM SPSS Statistics 28.0 (IBM Corp., 2021). We examined the suitability of the data for exploratory factor analysis using Bartlett's test of sphericity ($p < 0.001$), Kaiser-Meyer-Olkin (KMO; >0.80), and the correlation matrix: r < 0.80 (Field, 2018; Howard, 2016; Tabachnick & Fidell, 2019). Principal axis factoring (PAF) with direct oblimin rotation (delta = 0) was run iteratively to determine the most appropriate factor solution and which items to retain (Watkins, 2018). We chose the number of factors based on a visual scree plot, Eigen values (>1.00), and parallel analysis. Items were removed if they failed to meet the following criteria: (a) primary factor item loading >0.40; (b) cross-loading on other factors < 0.30; (c) difference >0.20 between primary and cross-loadings; and (d) communality (h2) > 0.275 (Howard, 2016).

3.2. Results

Bartlett's test of sphericity was significant, $\chi^2(1176) = 9542.51$, $p < 0.001$, and KMO = 0.88, suggesting the data were suitable for EFA (Howard, 2016). The inspection of the correlation matrix revealed no correlations >0.80, suggesting that multicollinearity was not a concern. Together, these preliminary analyses suggested the data were appropriate for factor analysis.

The initial inspection of the visual scree plot indicated that four factors should be retained. While a three-factor solution was considered in line with COM-B, there was no case for this based on the visual scree plot. The Eigen values for the four factors identified in the visual scree plot were >1.00, so item reduction proceeded based on the four-factor solution. In line with the factor loading and communality cut-off criteria, 18 items were removed (Supplementary Table S2). Following initial item removal, PAF was re-run. The scree plot again suggested the presence of four main factors. Therefore, we continued with the four-factor solution and further item reduction, which resulted in another three items being removed (Supplementary Table S3). This stage also revealed one cross-loading > 0.30 absolute value ("There were no available/suitable facilities near you." = 0.73 on factor 2 and −0.30 on factor 4). However, as the discrepancy between primary loading and this cross-loading was >0.20 and communality was >0.275, this item was retained.

As seen in Table 4, the most robust and interpretable solution comprised 28 items that loaded from moderately to strongly (≥0.43) on four reliable ($\alpha \geq 0.82$) factors. These factors accounted for a large portion of the total variance in the reasons for youth sport dropout. The factors align closely with capability, opportunity, and motivation from the COM-B model, along with injury as an additional factor.

Table 4. Descriptive statistics, reliability, principal axis factoring, factor loadings, and communalities.

Factors/Indicator Items	M (SD)	F1	F2	F3	F4	h^2
Capability (Factor 1): α = 0.88 Eigenvalue = 7.99, % variance explained = 25.76	2.50 (0.95)					
1. You didn't think you were as good at sport as your peers/friends		**0.82**	−0.01	−0.10	0.03	0.65
2. Your peers/friends didn't think you were good enough		**0.79**	0.10	−0.01	−0.09	0.62
3. You didn't think you were good enough to take part		**0.78**	−0.01	−0.10	−0.04	0.57
4. Your coaches didn't think you were good enough		**0.76**	0.04	0.09	−0.14	0.59
5. You found it stressful to deal with expectations from friends/peers		**0.69**	0.03	0.10	0.02	0.53
6. You didn't have a positive relationship with the people you took part in sport with		**0.60**	0.03	0.12	0.05	0.43
7. You found it stressful to deal with expectations from your coach/es		**0.60**	−0.06	0.26	0.12	0.53
8. You were uncomfortable about your physical appearance while taking part in sport		**0.57**	0.08	−0.11	0.18	0.43
9. You found it stressful when you did not perform/play as well as you expected		**0.57**	−0.10	0.24	0.09	0.46
10. You had no close friends amongst the people you took part in sport with		**0.43**	0.24	−0.06	0.15	0.35
Opportunity (Factor 2): α = 0.86, Eigenvalue = 3.49, % variance explained = 11.27	2.02 (0.87)					
1. There were no available/suitable facilities near you.		−0.03	**0.73**	**0**.04	−0.30	0.51
2. Taking part in sport in general was not seen as a positive thing in your family or local community.		0.04	**0.72**	0.05	0.09	0.58
3. The sport you were into was not important in your family or local community.		0.05	**0.71**	−0.10	0.18	0.60
4. Taking part in your specific sport was not seen as a positive thing in your family or local community.		0.04	**0.71**	0.07	0.08	0.57
5. Sport in general was not important in your family or local community.		0.09	**0.68**	−0.12	0.21	0.58
6. It was difficult to organise your sport participation (for example enrolment in club/competitions, getting equipment, transport to/from training/competitions).		0.08	**0.65**	0.01	−0.24	0.44

Table 4. *Cont.*

Factors/Indicator Items	M (SD)	F1	F2	F3	F4	h^2
7. Your family could not afford the costs involved in you taking part in sport (for example club/competition fees, equipment, transportation).		0.06	**0.63**	0.07	−0.11	0.41
8. There were no clubs or teams that were a good match for your level of ability or motivation.		0.11	**0.56**	0.09	−0.22	0.37
9. You had to help at home and had no time to take part in sport (for example looking after siblings, earn money, helping with chores).		−0.18	**0.55**	0.14	0.20	0.38
10. There were no girls-only clubs, sessions or teams.		0.07	**0.52**	−0.02	0.07	0.31
Injury (Factor 3): α = 0.83, Eigenvalue = 2.27, % variance explained = 7.32	2.04 (1.06)					
1. You felt there was a high risk of having an injury while playing your sport		0.05	0.02	**0.86**	−0.04	0.76
2. You suffered injuries while practicing/playing your sport		0.03	−0.05	**0.86**	−0.05	0.73
3. It was difficult to deal with the physical discomfort, pain or tiredness caused by your sport		0.15	0.06	**0.70**	0.13	0.62
4. You had to stop due to illness or because of an injury that happened outside of your sport		−0.04	0.10	**0.66**	0.08	0.47
Motivation (Factor 4): α = 0.76, Eigenvalue = 1.91, % variance explained = 6.15	2.55 (1.08)					
1. As you got older, the enjoyment you got out of sport was not worth the amount of effort it took		0.17	−0.14	0.12	**0.73**	0.64
2. You found other things to do that you enjoyed more than sport (for example working to earn money, going out with friends, listening to music, playing videogames, etc.)		0.22	−0.23	0.03	**0.70**	0.60
3. You didn't want to advance to a higher level of competition or performance		0.12	0.04	−0.01	**0.64**	0.48
4. You had already achieved everything you wanted to achieve in your sport		−0.07	0.10	0.14	**0.55**	0.35

Note: communality = h^2. Primary factor loadings in bold. Cross-loading > 0.30 underlined.

4. Study 3

The aim of study 3 was to assess the dimensionality of the scale using a separate European sample and to further examine the internal consistency of the subscales. We did so using the four factors and the 28 items established in study 2 as our analytical starting point.

4.1. Method

4.1.1. Participants

The participants were 552 undergraduate and graduate university students (male, n = 224; female n = 321; non-respondents, n = 7; M age = 23.11, SD = 6.33) from the European Union (Spain, n = 330; Ireland, n = 88; Hungary, n = 49; Germany, n = 41; Netherlands, n = 37; and Lithuania, n = 7). On average, they had participated in sport for several years before dropping out (M = 8.06 years, SD = 4.57) and were in their mid-teens when they dropped out of sport (M = 16.05 years of age, SD = 3.00).

4.1.2. Procedure

An expert partner of the research team from each European country translated the items into their language. These translated items were then reviewed by a panel of native speakers in each respective country. A separate partner then back translated into English before a panel of dual linguists reviewed it to ensure that the translation had not altered the meaning. Ethical approval was granted from the lead author's institution. The participants were invited to participate via their university newsletter, which included a link to an online participant information sheet and a consent form. If the participants provided consent, they were then forwarded to the online version of the questionnaire. The average completion time was 15 min.

4.1.3. Measures

Demographic and sport-related information and YSDQ-LV were measured as per study 2.

4.1.4. Statistical Analyses

Confirmatory factor analyses were conducted using IBM SPSS AMOS 28.0 (2021) with maximum likelihood (and bootstrapping to account for any deviations from normality). Model fit was assessed using Hair et al.'s (2019) guidance for large samples (n > 250) and models with >12 observed variables, with significant χ^2 p values expected, and CFI > 0.94, SRMR < 0.08 RMSEA < 0.07 denoting an acceptable model fit. Factor loadings < 0.50 and standardized residual covariances > 4.00 were used as markers to identify potentially problematic items to consider for deletion. Modification indices > 10.00 were assessed, and parameters were added where there was clear theoretical justification (i.e., covaried errors for items from the same subscale).

4.2. Results

The initial examination of the hypothesized model produced a poor fitting model: χ^2 (344) = 1942.23 p < 0.001, χ^2/DF = 5.65, CFI = 0.74, RMSEA = 0.09 (90% CI = from 0.09 to 0.10), and SRMR = 0.08. Therefore, we examined the potential sources of misfit in the model. This revealed several items with standardized residual covariances > 4.00 (capability items 3, 7, 8, and 9; opportunity items 1 and 10). In line with the guidance from Hair et al. (2019), these items were deleted. We then re-ran CFA with the remaining items. This produced a better fitting model, albeit one that did not reach an adequate goodness-of-fit across all the indices: χ^2 (204) = 984.29 p < 0.001; CFI = 0.81, RMSEA = 0.08 (90% CI = from 0.08 to 0.09), and SRMR = 0.07. We then deleted the items with factor loadings < 0.50 (opportunity items 6, 7, 8 and 9; injury item 4; and motivation item 4), and added parameters where there were appropriate modification indices and re-ran CFA. The final CFA demonstrated a good-to-excellent fit to the data: χ^2 (87) = 281.65 p < 0.001, χ^2/DF = 3.24, CFI = 0.94, RMSEA = 0.06 (90% CI = from 0.06 to 0.07), and SRMR = 0.05. The final subscale items

with internal consistencies (α), composite reliabilities (ρc), and relevant standardized factor loadings are presented in Table 5.

Table 5. Final items and standardized factor loadings for COMI Youth Sport Dropout Questionnaire.

Subscale	α	ρc	Item (Original Item Number on YSDQ-LV)	Standardized Factor Loading
Capability	0.84	0.83	1(2). You did not think you were as good as your peers/friends	0.71
			2(3). Your peers/friends did not think you were good enough	0.79
			3(4). Your coaches didn't think you were good enough	0.69
			4(16). You found it stressful to deal with expectations from your friends/peers	0.70
			5(26). You didn't have a positive relationship with the people you took part in sport with	0.64
			6(27). You had no close friends amongst the people you took part in sport with	0.51
Opportunity	0.88	0.87	7(22). Taking part in sport in general was not seen as a positive thing in your family or local community	0.73
			8(21). The sport you were into was not important in your family or local community	0.78
			9(23). Taking part in your specific sport was not seen as a positive thing in your family or local community	0.81
			10(20). Sport in general was not important in your family or local community	0.83
Injury	0.72	0.74	11(7). It was difficult to deal with the physical discomfort, pain or tiredness caused by my sport	0.53
			12(8). You suffered injuries while practicing/playing your sport	0.69
			13(9). You felt there was a high risk of having an injury while playing your sport	0.85
Motivation	0.57	0.63	14(47). You didn't want to advance to a higher level of competition or performance	0.59
			15(45). You found other things to do that you enjoyed more than sport	0.54
			16(41). As you got older, the rewards you got for participating in sport didn't motivate you anymore	0.67

5. Discussion

Considering the decline in youth sport participation, and the subsequent impact on physical activity and health and wellbeing outcomes, the rigorous measurement of the reasons that underpin youth sport dropout has never been more important. In response, the purpose of this series of studies was to develop and provide the initial validation of a system-oriented, theory-driven, and process-focused Youth Sport Dropout Questionnaire (YSDQ). Study 1 provided strong face validity for the YSDQ-LV. This long version of the YSDQ shows significant promise for the comprehensive study of the relative importance

of dropout factors (i.e., item-level analysis). Across studies 2 and 3, we found support for a 16-item YSDQ grounded in the COM-B model, but with the notable addition of injury as a central factor. The YSDQ is a research tool consisting of four subscales, capability (six items), opportunity (four items), motivation (three items), and injury (three items), that can be used to assess the reasons for youth sport dropout. The YSDQ has potential to be used for concurrent analysis with other psychometric measures (e.g., motivational climate, coach behavior, and perfectionism). To better understand dropout factors, whether using the YSDQ-LV or the YSDQ, researchers and practitioners will be able to work towards reducing the dropout levels and supporting young people in achieving the physical, psychological, social, and emotional benefits associated with youth sport participation.

Our findings provide broad support for COM-B as a viable framework from which to measure youth sport dropout with the addition of injury. Both exploratory and confirmatory analyses denote a lack of capability, a lack of opportunity, and a lack of motivation as key overarching reasons for youth sport dropout behavior. The capability factor highlights the salience of psychological capability in the form of interpersonal perceptions of inferior ability. Specifically, combined, the interpersonal items in the capability factor demonstrate the potential impact of inferior comparison with peers, as well as the key roles of coaches, and broader relationships within the sport environment. Given the average mid-teen dropout ages of our UK and European samples, these interpersonal reasons for dropout reflect the increasing influence of peers and the elevated need for belonging that characterize this development stage (Vernon, 2004).

Interestingly, the interpersonal influence on capability extended to two social enjoyment items ("You didn't have a positive relationship with the people you took part in sport with" and "You had no close friends amongst the people you took part in sport with"). In line with COM-B, we initially expected the social enjoyment items to load on opportunity, rather than capability. One potential explanation for this is that a lack of positive relationships is directly intertwined with a lack of capability. That is, in sporting environments where individuals appraise their capability as inferior, either due to their own or others' expectations, they may also find it difficult to gain acceptance and form positive relationships. In support of this view, the previous findings suggest strong associations between children's lack of physical competence and a lack of peer acceptance in youth sport (Weiss & Duncan, 1992). Equally, when young people perceive their capability is being thwarted by their coach, this undermines the quality of the relationship between the coach and the athlete (Wekesser et al., 2021).

The findings suggest the importance of opportunity as a central factor underpinning youth sport dropout. The opportunity factor comprises items reflective of sport being viewed unfavorably in families and communities. This applies to both the specific sports that the participants once engaged in and sport in general. Together, these opportunity items provide a strong indication of how social environments not conducive to sport may underpin dropout. The opportunity factor aligns closely with the previous findings indicating low-level social desirability as an important barrier to physical activity (Gunnell et al., 2015).

Motivation also emerged as a key factor in why youths drop out of sport. The final items encompass both automatic (e.g., a lack of enjoyment relative to other activities) and reflective (e.g., rewards losing value) motivational components. The importance of these motivational features aligns well with the recent findings highlighting the motivational predictors of intentions to continue or dropout from sport (e.g., Castillo-Jiménez et al., 2022). Specifically, our findings here and in those in previous studies allude to the fleeting value of external rewards and the way in which a lack of enjoyment severely undermines continuing sport participation (Back et al., 2022; Balish et al., 2014).

The findings also highlight the unique and profound impact that an injury can have in relation to youth sport dropout behavior. In line with COM-B, we anticipated that injury would be best captured under capability given that an injury directly restricts the physical and psychological (e.g., fear of reinjury) capacity to engage in sport. However, injury emerging as a separate factor suggests that the best way of measuring youth sport dropout is to adopt the COM(I)-B approach. On reflection, the unique contribution of injury is perhaps unsurprising because an injury arguably transcends capability. For instance, an injured athlete is likely to not only feel that their capability is hampered, but also that their opportunity is restricted, and often that their motivation is diminished (Forsdyke et al., 2016). Furthermore, an injury being experienced in sub-optimal sporting environments (e.g., where there are poor coach–athlete relationships, ineffective communication between coaching staff and science and medicine teams, and where injured players are isolated from their team-mates) or in instances where the injury has a significant impact on dual-career demands (e.g., the injury impacting on one's ability to complete academic studies or a necessary part-time job) can increase the likelihood of dropout from sport, even when the severity of the injury does not necessitate dropout (Gledhill & Forsdyke, 2021). In essence, the athlete makes a choice that the risk of further injury is not 'worth it' anymore, against the backdrop of competing non-sport-related demands.

The factor structure of the YSDQ, the tenets of the COM-B model, and the relatively low mean importance scores for any single item reported in our findings (see Table 4) suggest that no single reason determines whether a young person drops out of sport. Instead, dropout behavior is likely determined by a highly individualized cumulative effect of multiple reasons that span one or more COM(I) factors. Therefore, the YSDQ has great potential practical utility with which to better understand dropout and to reduce the risk of it for groups and individuals alike. The YSDQ can be used retrospectively by sport organizations and NGOs to understand the reasons for dropout in a specific sport and/or population. This analysis may reveal certain reasons that are more important in specific contexts, and if coupled with individuals' demographic data, that certain social groups may have specific risk factors. Targeted preventative measures could then be put in place to mitigate dropout. Likewise, it can be used by coaches and sport practitioners as a basis from which to understand reasons for dropout, with a view to interventions being designed to prevent it. Finally, there is also potential for developing a prospective modified version of the YSDQ which would have predictive value and help identify participants at risk of dropping out and the reasons why, so adequate support can be provided.

The studies outlined in part I of this two-part series provide initial support for the factor structure and reliability of the YSDQ. However, there are limitations to our initial validation that also present potential future research opportunities. Firstly, we did not examine the test-retest reliability of the YSDQ. Although we found support for the measure in separate samples, understanding the extent to which participant responses are repeatable would further enhance the rigor of the measure. Second, another direction for future validation would be to further explore the concurrent validity of the YSDQ by comparing it to instruments that measure similar constructs (e.g., sport attrition; Gould et al., 1982). Third, the reliability of the motivation items was low based on the internal consistency and composite reliability scores. Although reliability is typically lower in subscales with fewer items and Cronbach's α can understate reliability (Hair et al., 2019), the closer scrutiny of the motivation subscale is required in future investigations that utilize the YSDQ. Fourth, as our primary aims with part 1 were to develop and provide the initial validation of the YSDQ-LV and the YSDQ, we have not examined invariance in the measure (e.g., gender and age). Studies exploring such invariance will represent an important next step for the YSDQ moving forward. Finally, the validation process inevitably leads to the winnowing of items

that align with a coherent factor structure to serve as a research instrument. However, this means that some potentially important reasons for dropout may be removed during this process. Therefore, from a practical standpoint, the detailed examination of the importance of the wider pool of reasons for dropout is an important direction for future research. The YSDQ-LV may be a useful tool to this effect, as proven in part II of this series.

6. Conclusions

Sport participation is a central pillar in achieving the WHO's 2030 target of reducing the prevalence of insufficient physical inactivity by 15%. To maintain sport participation and reduce dropout, valid and reliable, theoretically grounded research tools that increase our understanding about youth sport dropout are needed. In the studies presented in this first phase of a larger research project, we outlined the development and initial validation for the YSDQ in two independent samples. Grounded in the COM-B model, the YSDQ represents a useful tool that can provide impetus for behavior change across youth sport. In the second phase—Part II of this series—we used the YSDQ-LV to examine the relative importance of the different reasons for dropout in a sample of university students across seven European countries.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/youth5020050/s1, Table S1. Dropout sub-dimensions mapped onto COM-B model; Table S2. YSDQ-LV 49 Item Version Following Expert Consultation and Focus Groups; Table S3. Initial item reduction based on six-factor solution; Table S4. Further item reduction based on four-factor solution.

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