Identifying victimization clusters across people with intellectual disabilities: A latent class analysis

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ABSTRACT

Background: Research has shown high rates of victimization among people with intellectual disabilities (ID), but victimization clusters have been barely explored.
Objective: We address the gap by examining how reported victimization experiences are grouped into different classes and identifying differences in the characteristics of the individuals in each class.
Methods: We conducted a cross-sectional self-report study with a sample of adults with an ID diagnosis ($n = 260$). We gathered data about the participants' victimization experiences and socio-demographics, and then subjected the data to latent class analysis (LCA).
Results: Three different classes were detected: High victimization ($n = 27$, 10.4 %); medium victimization, low sexual ($n = 97$, 37.3 %); and low victimization ($n = 136$, 52.3 %). The results highlight the experiences of sexual and physical victimization among the high-victimization class, in which women are overrepresented, and physical victimization among the medium-victimization class. The study also found that experiences of assault and bias attacks occur to a varying extent across all three classes. The LCA and poly-victimization methods showed substantial agreement but also differences when identifying the most victimized participants. In addition, we detected significant differences between classes in gender, type of school attended, place of residence, legal incapacity, type of support needed, secondary disability and poly-victimization status.
Conclusion: We identified distinct underlying ingroup patterns of victimization and sociodemographic inter-class differences that contribute to a better understanding of victimization within the population in question. The results have prevention and intervention implications for caregivers and providers of services for people with ID.

1. Introduction

It is estimated that people with intellectual disabilities (ID) account for 1.74 % of the worldwide population, albeit regions with lower to middle socio-economic index have higher rates of ID than regions with higher indices.[1] ID comprise a group of diagnoses that entail significant handicaps in intellectual functioning and adaptive behavior, starting before age 22 [2]. In addition to the handicaps inherent in the condition, the group also tends to present more mental health problems[3] and higher poverty rates,[4] while group members often face cumulative adverse life events, violence, marginalization and stigma.[5] Comprehensive research on the adverse life experiences of people with ID is limited. Despite this constraint, the literature has made it possible to perform a number of meta-analyses[6–8] that show a higher overall risk of experiencing violence for people with disabilities than for people

without disabilities. The existing research primarily focuses on certain types of interpersonal violence,[7] such as sexual violence,[9] intimate partner violence[10] and physical violence.[11] However, there is little evidence for other relevant experiences of the underrepresented group in question because of the challenges of collecting this data, such as bias victimization,[12] i.e., instances in which individuals are targeted because of motivations partly or entirely related to the victim's real or perceived group membership[13]; and victimization at hands of caregivers.[14]

In line with these findings, studies that assess different types of violence within the same survey have reported a pattern of multiple victimizations marked by several episodes of abuse rather than a single isolated event.[15,16] In contrast, other authors have suggested that the increased risk is distinctly different from the general population only for some experiences such as sexual and violent victimizations, but not for other types.[17,18] This may suggest a different distribution of

victimization from those classically assumed for the ID population or indicate that there are various intragroup profiles among victims.

The homogenizing rationale that presumes everyone with ID is at greater risk of victimization is often accepted uncritically and the increased risk is attributed to an intrinsic vulnerability linked to the ID condition[19] as if all the individuals shared a single core condition. However, this assumption prevents an integrative understanding of the underlying dynamics of violence that come to light when different subpopulations of people with ID are analyzed and their differences considered.[20,21,22] Some highlighted intragroup differences in relation to the risk of experiencing violence are, for example, gender for certain types of violence, such as sexual or physical types[17,18,23]; the level of cognitive functioning[22]; the type of intellectual disability[20]; and any comorbidity with mental health disorders.[3,17] Some environmental factors, such as living at home or in a residential or care facility, have also been found to be relevant. Individuals in congregate centers face a higher risk of physical and sexual victimization by staff members or other users.[14,15]

Vulnerability to victimization often exists as a continuum in the lives of people with intellectual (ID).[8] When examining childhood victimization experiences, children with ID face a higher risk of physical and sexual violence compared to their peers without these disabilities.[24] Clustering retrospective childhood adversity and abusive experiences among adults has been shown to identify different patterns of victimization among victims that can prove clinically useful.[25] It can help allocate resources effectively and deploy tailored interventions and prevention initiatives to address their unique vulnerabilities and risks, leading to more efficient and impactful efforts. While the clustering approach may yield valuable information, however, few studies have applied it to ID populations. In addition, we have also considered poly-victimization, defined as the experience or co-occurrence of multiple types of victimization in different episodes during a childhood,[26] which will allow us to compare two methods to identify the highest victimized group: the clustering technique and poly-victim status.

The current study has three main objectives: (a) identify different unobserved clusters of victims among a sample of people with ID; (b) compare the performance of the clustering method in relation to the identification of the most victimized group based on poly-victim status; and (c) compare the differences across the identified unobserved groups.

2. Method

2.1. Participants and procedure

We draw a non-probabilistic clinical sample of 260 adults with an ID diagnosis, aged between 20 and 71 years, recruited through a specialized association that brings together a number of specialized institutions dedicated to supporting individuals with ID by providing housing, services, education, and employment opportunities. Access to these services requires a clinical ID diagnosis, and all our participants were users of these services and had such a diagnosis and were on the more functional end of the spectrum.

Before conducting the study, we signed a collaboration agreement with the organization and approval was obtained from the ethics committee. The inclusion criteria were to be 18 years of age or older, be able to understand the study's aim and its questions, and be able to give consent to take part. All individuals voluntarily agreed to participate before entering the study. We prepared an easy-to-understand version of the questionnaire to ensure that participants understood the study's nature, aim and content. We conducted individual interviews with each participant, relying on visual support (i.e., pictograms) when necessary. If required, participants received additional support to answer the questions. Only 9.6 % of the sample asked for such support.

2.2. Measures

Socio-demographics. We prepared a datasheet for the study to cover age, gender, type of school attended, housing, secondary disability diagnosis and information related to the disability, legal incapacity and support needed.

Victimization. An adapted version of the *Juvenile Victimization Questionnaire*, Adult Retrospective form was administered.[27] The JVQ is a well-validated instrument to capture multiple forms of victimization and has demonstrated robust psychometric properties.[28] Similarly, this version exhibits good reliability ($\alpha = 0.84$). The JVQ has been employed with diverse samples, ranging from the general population to young people in the juvenile justice system, those in the care of the protective system, those with mental health issues, and also people with ID.[29,30] For this adaptation, we included personalized cards containing pictograms corresponding to each item's statements. These pictograms were supplementary illustrations to ensure participants correctly comprehended the interviewer's inquiries.

This version contains five modules covering 28 specific victimization events, of which we used 11 to conduct the analysis described below. We selected the 11 items because they are the most representative ones across the victimization typologies and they are the most appropriate for the population assessed.[12,15,17,18,24] They include two items from the common victimization module, three items from the caregiver victimization module, three items from the sexual victimization module, two items from the witnessing and indirect victimization module, and one item from the electronic victimization module. Specifically, the items address bias attack, assault, verbal aggression by the caregiver, physical abuse by the caregiver, neglect, fondling, sexual stimulation, rape, witness to violence between parents, witness to sibling assault by a parent, and cyber-harassment (see Table 1 for the victimization rates by gender). We also calculated poly-victimization using the 28 JVQ items and compared the degree of agreement between the highest victimized class identified by the cluster technique and poly-victimization status using Cohen's kappa (κ). We identified poly-victims as those participants in the 90th percentile of victimization scores, which is a suitable cut-off criterion for a positively skewed distribution,[26] as in the case of the present study.

2.3. Data analysis

Missing data rates for victimization were low (the overall missing data rate was 1.23 %) and ranged from 0.4 % to 6.9 % across all items. We visually inspected the missing data pattern and applied Little's Missing Completely at Random (MCAR) test ($X^2 = 769.61$, $p = .189$), and concluded that they appeared to be missing at random with no identifiable pattern. We used chained equations through the mice package in R for multiple imputation.[31]

Then, to identify unobserved groups with similar response patterns,

Table 1
Rates of victimization.

Victimization Items	Total ($n = 260$)	Women ($n = 106$)	Men ($n = 154$)
	%	%	%
Bias attack	35.4	39.6	32.5
Assault	39.6	35.8	42.2
Verbal aggression	24.6	33.0	18.8
Neglect	19.2	21.7	17.5
Physical abuse	36.5	43.4	31.8
Fondling	19.2	29.2	12.3
Sexual stimulation	12.3	17.9	8.4
Rape	14.2	24.5	7.1
Witness to violence between parents	25.0	28.3	22.7
Witness to sibling assault by parent	24.2	22.6	25.3
Cyber-harassment	11.2	14.2	9.1

we used latent class analysis (LCA). To ensure the validity of this approach, we calculated the Hopkins statistic ($H = 0.999$) and assessed the Visual Assessment of Tendency (VAT) of the victimization items. Our analysis indicates that the data points are not randomly distributed, suggesting the presence of potentially meaningful clusters. Large samples are preferred to cluster techniques, but when there are fewer than three hundred cases, then models with few indicators and well-separated classes bigger than 5 % are desirable for good performance.[32] Following these principles, we fit a series of LCAs with two to six classes using the 11 victimization indicators described above, doing so by means of the glca package in R[33] to estimate class membership and using the expectation-maximization algorithm to find maximum likelihood. Significance levels were estimated using the *p*-value at 5 %. LCA allows us to probabilistically classify participants based on the underlying statistical model, producing and evaluating the fit of the models and comparing the statistical performance of the different class solutions.[34] We examined model fit by comparing the Akaike information criterion (AIC), the Consistent Akaike information criterion (CAIC), the Bayesian information criterion (BIC), the likelihood-ratio test statistic (G^2) and its bootstrap likelihood-ratio test (BLRT). We also assessed classification diagnostic statistics using entropy and average posterior probabilities (AvPPs), which help to evaluate the accuracy of the classification, but are not relevant in determining the final class solution. BIC and AIC give the relative fit of models where lower values indicate better fit and parsimony. BLRT yields an approximate *p*–value for absolute model fit to evaluate whether a specific model correctly represents the data. The null hypothesis posits that the observed data comes from the fitted model. Thus, you expect not to reject the null hypothesis ($p > .05$). BLRT also provides a deviance statistic for relative model fit to compare the better fit across the two competing models. The null hypothesis is that the current model (k classes) does not outperform the preceding model (k – classes). A desirable *p*-value ($p < .05$) shows that the current model provides a more parsimonious fit. An entropy closer to 1 is ideal: values greater than 0.80 stand above the recommended threshold, whereas values below 0.60 are considered unacceptable. AvPPS (i.e., the likelihood of the class model accurately predicting class membership for each individual given their answers on the indicator variables used to create the classes) close to 1 are also ideal and values above 0.80 are considered acceptable.[32] LCA also provides item-response probabilities (i.e., the likelihood of an individual who belongs to a particular class given their responses across all the items in the model).

Once the best solution is selected, each participant is assigned to a most likely latent class using maximum posterior probabilities, victimization class prevalence is summarized, and victimization classes are labeled based on item-response probabilities. A fundamental assumption for LCA models is local independence (i.e., observed indicators are uncorrelated within each class), we assessed this by visually inspecting the residuals and conducting the Chi-square test for each pair of indicators within each latent class.[35] Finally, we present descriptive statistics across the optimal class solution. We examine the difference between classes using one-way analysis of variance (ANOVA) for continuous variables and Chi-square or Fisher's Exact test for categorical variables, corrected for multiple comparisons to avoid type I error, and calculated effect sizes. All analyses were conducted in R version 4.2.2.[36]

3. Results

3.1. Descriptive statistics

The sample comprised 154 men (59.2 %) and 106 women (40.8 %). The mean age of participants was 41.7 ($SD = 12.0$), with no significant differences between men and women ($T = 0.175$, $p = .862$). Most participants were declared legally incapable (64.2 %), in which case legal guardianship was conferred to family members or relatives (55.2 %), institutions (38.8 %) or others (6 %). Only a little more than one-sixth

(17.7 %) lived alone, while the rest lived with family or relatives (46.5 %) or in an institution or group (35.8 %). Five-sevenths of the participants (71.9 %) needed limited or intermediate support on a daily basis. Roughly two-thirds of the sample (66.9 %) has a secondary disability diagnosis that concurs with their intellectual disability diagnosis. A total of 28 participants fell in the top 10 % of most victimized, regarded as poly-victims, and experienced at least 13 different types of victimization ($M = 13.0$, $SD = 4.84$). They include 18 women and 10 men, who account for 17.0 % and 6.5 % of each group, respectively, pointing to the overrepresentation of poly-victims among women.

3.2. Model selection and class assignment

Values of the goodness-of-fit statistics for the different models appear in Table 2. Only the three-class and four-class models fit the data adequately in terms of the absolute model fit statistic (BLRT $p = .08$, for both models). However, in terms of relative model fit, the four-class model does not outperform the three-class model (BLRT deviance $p = .06$), which at the same time offers better performance than the two-class model. The three-class model also presents the lowest values in two out of three information criteria (AIC and BIC), the second lowest value in CAIC, an entropy value of around 0.8, the highest degree of certainty in classification accuracy (AvPPs), and an adequate size for the smallest class (above 10 %). Successful application of this technique implies achieving homogeneity within ingroup classification concerning the response patterns of individuals within a particular class. Simultaneously, it also entails maximizing heterogeneity in response patterns when comparing different groups or classes. Therefore, based on the fit indexes, parsimony, conceptual considerations, interpretability and adherence to the local independence assumption, we have selected the three-class solution because it shows the best performance.[32] When considering all the requirements together, a good classification model has been achieved. Fig. 1 and Table 3 present the response patterns identified across the three classes.

3.3. Class description and comparison

Class 1: *High victimization* ($n = 27$, 10.4 %). The smallest class among the three has the highest probabilities for each of the 11 victimization items, ranging from 0.42 for cyber-harassment to 0.87 for physical abuse. The probability of sexual victimization is remarkably high across the three items that are over seventy, namely fondling (0.84), sexual stimulation (0.75) and rape (0.71). Such probabilities indicate a pronounced vulnerability to various forms of victimization within this class. This stands in stark contrast to the other two classes, where only one of the three items is higher than 0.10. That said, caregiver and witnessing victimization probabilities are not as high as they are for sexual victimization, but they are all over 0.50.

Class 2. *Medium victimization, low sexual* ($n = 97$, 37.3 %). The second largest class presents medium levels of victimization probabilities in about half of the items measured, ranging from 0.03 for sexual stimulation to 0.62 for physical abuse. Then, assault (0.53), witnesses to sibling assault by parents (0.49) and bias attack (0.47) have the highest loadings, which are not far from those for the high-victimization class. Low probabilities in sexual victimization, including fondling (0.14), rape (0.10) and sexual stimulation (0.03), characterize this class, with the latter having the lowest loading of the three. Only cyber-harassment has a similar probability (0.12).

Class 3. *Low victimization* ($n = 136$, 52.3 %). Class 3 represents the largest group with the lowest item response probabilities of endorsement for all victimizations measured. The probabilities range from .00 for witness to sibling assault by parents to .24 for assault. Nine of the 11 items are below 0.10, except for the two common victimization ones, bias attack and assault. The low loadings here stand in stark contrast to the two witnessing and three caregiver victimization items, which have medium to high loadings in the other two classes.

Table 2
Model-fit statistics comparisons by latent class.

Model	Residual df	AIC	CAIC	BIC	G^2	BLRT p	BLRT deviance p	Smallest class %	Entropy	AvPPs
Two-class	236	2798	2903	2880	607	<.001	N/A	32.7	.75	0.89–0.94
Three-class	**224**	**2748**	**2907**	**2872**	**533**	**.08**	**.00**	**10.4**	**.78**	**0.89–0.97**
Four-class	212	2747	2961	2914	508	.08	.06	10.4	.82	0.87–0.95
Five-class	200	2749	3018	2959	486	.02	.18	5.3	.86	0.78–0.96
Six-class	188	2754	3078	3007	468	<.001	.04	4.1	.86	0.81–1.00

The best solution appears in bold.
Note: AIC = Akaike's information criterion; CAIC = Consistent Akaike information criterion; BIC = Bayesian information criterion; G^2 = Likelihood-ratio chi-square statistics; BLRT = Bootstrap likelihood-ratio test, AvPPs = Average posterior probabilities.
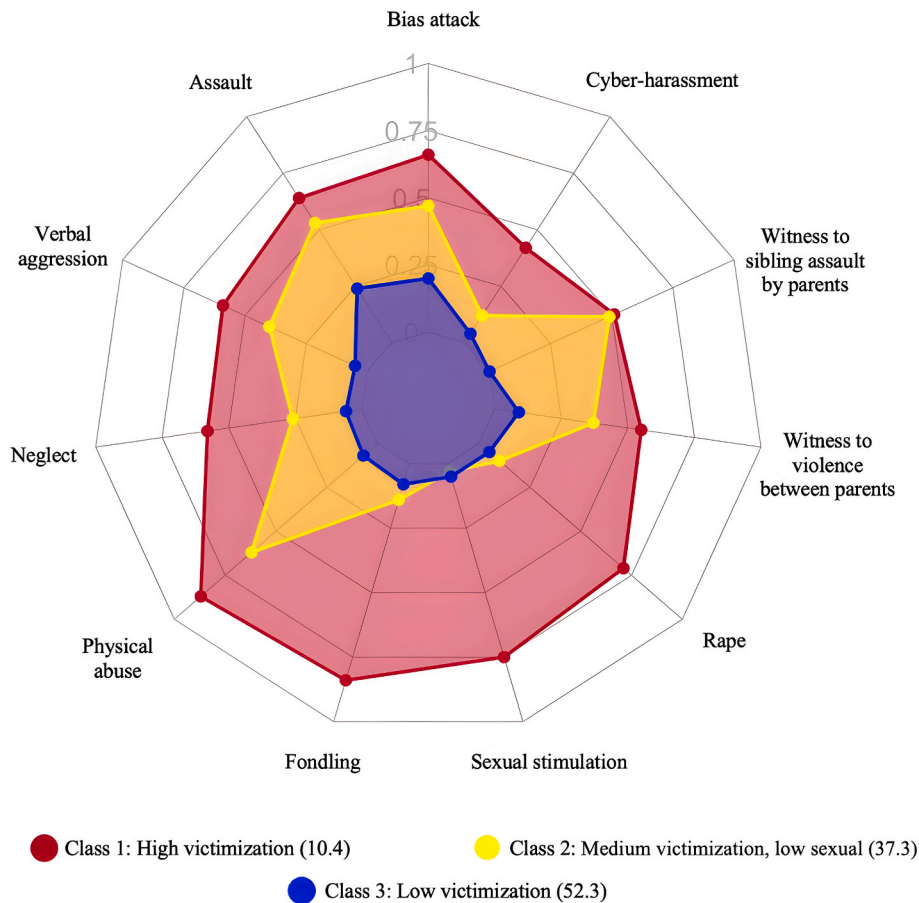

Fig. 1. Radar plot of item-response probabilities across latent classes.
Note. The item response probability represents the likelihood that members of a particular class will provide a response of "x" for a given indicator "y".

All considered variables and comparisons across the three latent classes appear below in Table 4. Overall, there was a significant difference between the three classes except in two variables: age ($p = .537$) and the existence of a secondary disability diagnosis ($p = .260$). All other variables, including gender ($p < .001$), type of school attended ($p = .003$), place of residence ($p = .042$), legal incapacity ($p = .018$), type of support needed ($p < .001$) and type of secondary disability ($p = .014$) showed significant differences across the three groups. Women are overrepresented in the high-victimization class compared to men since they make up almost three-quarters of the group ($n = 19$; 70.4 %), while they account for 18.3% when considering the relative proportion of women in the sample. For the type of school attended, medium and high-victimization classes mostly attended regular education with special support and regular education, respectively. Regarding the place of residence, the high-victimization class differs from the medium and low-victimization classes in that it contains the highest rate of participants living at home or alone, whereas the low-victimization class reported

mostly living with family or relatives. Both medium and high-victimization classes are more likely to live in residential centers than members of the low-victimization class. On legal incapability, the high-victimization class has the highest rate of participants declared legally incapable. For individuals declared legally incapable, their legal guardianship was conferred largely to an institution (59.4 %) for the high-victimization class, which is two or three times the rate for the medium and low-victimization classes. The low-victimization class also has the highest rate of legal guardianship conferred to family or relatives, which is consistent with place of residence. Participants in the low-victimization class required the highest level of support needed daily: general or extensive. On type of secondary disability, a mental health diagnosis is more than twice as likely in the high-victimization class than in the other two groups. However, presenting both a secondary mental health and a secondary physical diagnosis is more prevalent in the low-victimization group than in the other two groups. Finally, 77.8 % of participants in the high-victimization class —21 out of 27 individuals –

Table 3
Item-response probabilities across classes.

	Class 1: High victimization	Class 2: Medium victimization, low sexual	Class 3: Low victimization
Class size	n = 27 (10.4 %)	n = 97 (37.3 %)	n = 136 (52.3 %)
Bias attack	**.66**	.47	.20
Assault	**.64**	**.53**	.24
Verbal aggression	**.59**	.40	.05
Neglect	**.58**	.26	.06
Physical abuse	**.87**	**.62**	.07
Fondling	**.84**	.14	.08
Sexual stimulation	**.75**	.03	.05
Rape	**.71**	.10	.05
Witness to violence between parents	**.55**	.37	.09
Witness to sibling assault by parent	**.51**	.49	.00
Cyber-harassment	.42	.12	.04
Highest loadings appear in bold (≥.50)			

are also classified as poly-victims (n = 28). The two methods showed a substantial level of consistency when identifying group members (κ = 0.736; p < .001). The remaining poly-victims (7) fell into the medium-victimization class, whereas none was in the low-victimization class.

4. Discussion

This study provides evidence of heterogeneity in the patterns of victimization among ID populations and highlights differences among the individuals who belong to each of the three identified classes. The three classes show a well-reported tendency among people with ID to experience different types of victimization,[7,15,16] but they also differ in the quantity and distribution of such experiences. The most prominent experiences among the high victimization class are sexual and physical victimization, which is consistent with previous findings.[15,17,18] These overrepresented forms of abuse may have a disability-related origin, that is, they may involve taking advantage of the victim's condition or legitimizing an abusive treatment because of it;or due a greater environmental exposure. The paper also shows a general tendency of vulnerability to physical violence among people with ID, with assault and bias attack popping to a varying extent across all three classes.

The clustering method and poly-victimization status differ in that LCA distinguishes participants based on the interdependence of variables and yields a homogeneous ingroup identification of victimization profiles, but is also heterogeneous across groups, as evidenced by the rates of sexual victimization among the high-victimization class. By contrast, poly-victimization relies on a general and fixed classification of the 90th percentile of victims regardless of the type, characteristics or size of the population analyzed. The results of the two techniques found nearly the same number of individuals, however, they differ in seven of the participants put in the high-victimization class who were not identified as poly-victims. These similarities and differences validate the use of the clustering method and highlight the advantages of more nuanced and specific identification of victimization experiences between and within groups.[37]

The high-victimization class (class 1) is defined by a general multiple victimization pattern, most prominently involving experiences of physical and sexual violence. It is the most at-risk class, as it suffers from all types of victimization. Being a woman, having attended regular school with support, being under the guardianship of an institution, living in a group home or at their own home, requiring less support, having a secondary diagnosis of mental health disability and being a poly-victim are the most prominent characteristics for the class. The fact that the group in question shows greater autonomy, independence and social exposure may have to do with their greater experience of victimization. The highest rates of secondary mental health disability in the high-victimization class are in line with the research showing that the presence of comorbid mental health issues aggravates the risk of victimization.[17] The highest presence of all forms of sexual violence,

including rape, is overrepresented among women. This is no coincidence since the research has repeatedly pointed out that being a woman is a strong risk factor for sexual victimization in people with ID.[9] Comparative studies have also shown that women experience these forms of victimization at a significantly higher rate than their male counterparts with ID.[16–18]

The medium-victimization, low-sexual class (Class 2) displays a medium-victimization trend, with prominent physical violence but low sexual victimization. This class presents similarities with the high-victimization class, such as living in a group home or institution or requiring less support, meaning that they have more autonomy. However, the individuals differ in having attended regular education without support and in having secondary disability diagnoses, in which both physical and mental health diagnoses are prominent. The medium-victimization class has the most similar ratio of men and women among the three classes. Those in this class experienced substantial levels of violence except in the sexual domain. Individuals in the medium-victimization class have dealt with different types of physical and verbal violence, and have witnessed violence in their household. This may suggest a tendency to use violence as a common mechanism of interaction or problem management in the care of people with ID.[14] In comparison to those in the low-victimization class, individuals in the medium-victimization class may be more exposed to potentially abusive environments and abusers, for example, from non-disabled peers in regular school or from caregivers and medical providers, owing to their secondary physical and mental health problems.

The low-victimization class (class 3) is the largest group, making up half of the total sample and displaying a low-victimization profile. Being a man, living with a family member or relatives that have legal guardianship, having more support needs and having comorbid physical disabilities are the most prominent characteristics of the class. Specifically, the low class encompasses the most dependent, least socially exposed subjects, which may result in reduced risk opportunities and interactions with potential aggressors compared to individuals in the high and medium victimization classes who live in residential centers and face a higher risk of victimization by multiple perpetrators.[14,15] The relevance of self-reporting in victimization studies seems especially important among participants in the low victimization class. As such cases are less formally "monitored", abuse reports may not be as numerous as they are among those living in residential or care settings. Nevertheless, low victimization rates among the least autonomous group could mask some of the barriers to recognizing and reporting abusive situations.[11] The lower victimization rates could be related to a high level of general compliance learned since childhood or their physical, emotional, and financial dependency on caregivers.[38] Then, the opportunities to detect abusive caregivers might be limited. Abusive caregivers may often remain within earshot, instilling fear or intimidation in the victim, which reduces the likelihood of disclosure, or it may also be difficult for third parties to inquire or have the necessary knowledge.

Table 4

Comparisons across the three latent classes by sociodemographic variables.

Variables	Total sample ($n =$ 260)	High victimization ($n =$ 27)	Medium victimization, low sexual ($n = 97$)	Low victimization ($n =$ 136)	Statistics
	%	%	%	%	
Gender					$X^2(df) = 11.5(2), p < .001; \varphi_c = .210$
Men	59.2	29.6	59.8	64.7	
Women	40.8	70.4	40.2	35.3	
Age M (SD)	41.7 (12.0)	39.3 (10.8)	41.8 (12.6)	42.1 (11.9)	$F(df) = 0.623(75.3), p = .537$
Type of school attended[a]					$X^2(df) = 16.20(4), p = .003; \varphi_c = .153$
Regular education	43.1	22.2	52.6	40.4	
Regular education & support	20.0	44.4	12.4	20.6	
Special education	36.9	33.3	35.1	39.0	
Place of residence					$X^2(df) = 9.92(4), p = .042; \varphi_c = .138$
With family/relatives	46.5	33.4	39.2	54.4	
Group home/institution	35.8	37.0	44.3	29.4	
Own home/alone	17.7	29.6	16.5	16.2	
Legally incapable[b]					$X^2(df) = 7.99(2), p = .018; \varphi_c = .175$
Yes	64.2	88.9	61.9	61.0	
No	35.8	11.1	38.1	39.0	
Legal guardianship[c]					$X^2(df) = 29.9(6), p < .001; \varphi_c = .240$
No	36.5	11.1	38.2	40.5	
Institution	24.6	59.3	27.8	15.4	
Family members/ relatives	35	25.9	27.8	41.9	
Others	3.9	3.7	6.2	2.2	
Type of support needed[d]					$X^2(df) = 26.6(6), p < .001; \tau_b = .219$
Intermittent	38.8	51.9	50.5	27.9	
Limited	33.1	40.7	28.9	34.6	
Extensive	21.2	3.7	11.3	31.6	
General	6.9	3.7	9.3	5.9	
Secondary disability[e]					$X^2(df) = 2.69(2), p = .260$
No	33.1	22.2	38.1	31.6	
Yes	66.9	77.8	61.9	68.4	
Type of secondary disability					$X^2(df) = 16.0(6), p = .014; \varphi_c = .160$
Physical disability	28.5	14.8	25.8	33.1	
Mental health disability	26.1	55.6	24.7	21.3	
Both	12.3	7.4	11.3	14.0	
Polyvictim					$\kappa = .736, p < .001$[f]
No	89.2	22.2	92.2	100.0	
Yes	10.8	77.8	7.8	0.0	

[a] Regular education; regular education with special support; special education for children with ID.

[b] A person who is not able to handle personal, financial or legal affairs and needs a legal guardian.

[c] The authority conferred on someone to take care of a person declared legally incapacitated.

[d] Support is the assistance required to carry out daily activities. They are as follows, from the lowest to highest support needed: Intermittent is required only when needed at specific times; limited is given for a limited time but on an ongoing basis; extensive means regular support related to some environments and without time limit; and general implies high intensity and constant support.

[e] Another diagnosed disability that coexists alongside the main intellectual disability.

[f] Cohen's kappa test was used to determine the degree of agreement between poly-victimization status and high-victimization class.

5. Conclusions

The findings from the clustering approach can help to raise awareness of the heterogeneity of victimization profiles in people with an ID diagnosis. Though we identified a smallbut extremely victimized class and a sizable medium-victimization group, half of the participants fell into the lowest victimization class. This finding points to the problems involved in adopting simplistic views when dealing with the characteristics and life experiences of people with ID. In addition, the unobserved groups identified help promote the implementation of distinct prevention programs among ID service users by offering valuable insights into the characteristics and patterns of such experiences, informing the creation of tailored strategies for each cluster's unique needs.[39] They are also useful for informing professionals and encouraging person-focused interventions depending on the risk profile detected in care services.

6. Limitations

Although our study provides new insights into the different types of victims among persons with ID, it has limitations and its results should be interpreted with caution. The study design is cross-sectional and retrospective, and the sample is non-probabilistic and relatively small. This prevents the generalization of the obtained classes to the whole population with ID and does not allow us to distinguish the temporal sequence of the victimization experiences. We did not capture the experiences of those who do not make use of a care or occupational service or who may be more socially isolated. The same applies to any participants with a more severe disability that prevented them from taking part in the study. Although our collection of victimization experiences was

sensitive to the population's reporting challenges, some details were difficult to obtain. Additionally, it was not possible to explore further individual characteristics that would have been interesting for the clustering technique, such as the degree of disability or the presence of other behavioral problems.

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CRediT authorship contribution statement

Diego A. Díaz-Faes: Conceptualization, Data curation, Formal analysis, Methodology, Visualization, Writing – original draft, Writing – review & editing. **Marta Codina:** Conceptualization, Data curation, Writing – original draft, Writing – review & editing. **Noemí Pereda:** Funding acquisition, Resources, Supervision, Writing – review & editing.

Declaration of competing interest

The authors report there are no competing interests to declare.

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