

# Research

The Relationship Between Choice and Injuries  
of People With Intellectual and Developmental  
Disabilities



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## CHOICE AND INJURIES

### The Relationship Between Choice and Injuries of People with Intellectual and Developmental Disabilities

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**Abstract**

People with IDD are often denied choices based on concerns for their safety, including to prevent and reduce injuries. This study examined the relationship between the service-related choices of people with IDD, and their injuries. In this cross-sectional analysis, we analyzed secondary Personal Outcome Measures<sup>®</sup> interview data and injury data from 251 people with IDD. Our findings revealed, controlling for all demographics, for every one-unit increase in service-related choice outcomes present, there was a 35% decrease in injuries. Expanding people with IDD's choice-making opportunities may result in fewer injuries. We must move beyond custodial models of care and ensure people with IDD are supported to live the lives of their choosing.

*Keywords:* people with intellectual and developmental disabilities; choice; injuries; safety; social determinants of health

## **The Relationship Between Choice and Injuries of People with Intellectual and Developmental Disabilities**

People with disabilities are commonly viewed through a deficit-based lens, which focuses on what people cannot do, reinforces difference, and emphasizes dependency and inability (Caldwell, 2011; Goodley, 1997; Harris & Harris, 1977; Wright, 1983). This understanding of disability is especially applied to people with intellectual and developmental disabilities (IDD).

A self-advocate with IDD explains, people

quickly assume that people [with IDD] don't have the capacity to understand or know what's happening in their lives, or somebody has to help them, or somebody has to explain it. And that's not the case... We are always needing to explain to people that people are capable. (Caldwell, 2011, p. 319)

When inability, incompetence, and dependence are exaggerated, it can result in a custodial culture which denies people with IDD rights and choice-making opportunities on the basis of paternalism (Barnes & Mercer, 2003; Keller & Galgay, 2010; Spagnuolo, 2016; Susman, 1994). Historically, people with IDD have often been denied civil rights, and are given protections and exclusions instead in order to protect them (Carey, 2003). One such example is institutionalization, which segregated people with IDD under the guise of providing care (Braddock et al., 2015; Trent, 1994). Another example is guardianship; in the United States, guardians are often given broad, sweeping powers over people with IDD, resulting in rights restrictions and limitations related to decision-making (Salzman, 2011).

While today most people with IDD live in the community (Braddock et al., 2017), custodial models of care continue to shape both institutional *and* community-based congregate settings and services (Spagnuolo, 2016). A custodial model of care focuses on safety, protection,

and supervision – it is about care rather than support (American Association on Intellectual and Developmental Disabilities, 2018; Carlson, 2010; Dodds & Rempel, 2016; Spagnuolo, 2016; Trent, 1994). Under a custodial model of care, attention is drawn to managing people and making choices on their behalf in order to keep people safe, including by minimizing injuries, and mitigate risk – there is a “perceived trade-off between autonomy and safety” (Heller et al., 2012, p. 465; Longo et al., 2002). As a result, people with IDD are often denied choice-making opportunities and not listened to about what they want, people have a lack of opportunities, rules and structures are inflexible, people are isolated, and people’s rights are restricted (Spagnuolo, 2016). In fact, in custodial care, “routinization and efficiency” is frequently emphasized “over self-determined participation” (Johnson & Bagatell, 2017, p. 546).

As a result of the custodial model under which the traditional IDD service system operates, rather than supporting people, disability service organizations often do things for people instead and make choices on their behalf. Consequently, many people with IDD are denied choice-making opportunities, big and small, from where they live, to what they do during the day, to the services they receive. For example, many people with IDD did not choose what type of setting they live in or who their roommates/housemates are (Friedman, 2020, 2021). Despite an interest in integrated employment, many people with IDD are funneled into segregated employment and day settings (Lysaght et al., 2012; Migliore et al., 2007; Nazarov et al., 2012; Rogan & Rinne, 2011). In addition, most people with disabilities, especially those with IDD, do not select the services and supports they receive, the human service organizations who provide those services, or their direct support professionals (Friedman & VanPuymbrouck, 2018).

Denial of choices and opportunities is not only based on a deficit-based and custodial model, it also often conflicts people with IDD's rights to choice, such as those granted by the Convention on the Rights of Persons with Disabilities (United Nations, 2006), and the Home and Community Based Settings Rule (Centers for Medicare and Medicaid Services, 2014); it also conflicts with people with IDD's want for person-centered practices and self-determination (Autistic Self Advocacy Network, n.d.; Self Advocates Becoming Empowered, n.d.). According to self-advocates with IDD, "making choices and decisions for ourselves is... fundamental to having control over our own lives and important for securing all other rights: if we are not allowed to make our own decisions, how can we have a voice in anything else that is important to us?" (Inclusion International, 2014, p. 65).

Unlike custodial models of care, person-centered practices facilitate self-determination and empowerment, and work to ensure people have maximum control over their own lives (Center for Medicaid and CHIP Services, n.d.; Kietzman & Benjamin, 2016). Person-centered practices are based on the assumptions that people with IDD are not only the experts on their own lives, but also opportunities and choices should be incorporated into all service provision (Swaine et al., 2016).

According to person-centered practices, services should be driven by people with IDD's preferences, goals, and choices (Center for Medicaid and CHIP Services, n.d.; Centers for Medicare and Medicaid Services, 2014). Yet, one of the largest barriers people with IDD face when trying to make self-determined choices are support staff and providers, operating under custodial models of care, which appropriate their decisions or limit their control over their lives under the guise of health and safety, in order to reduce harm, including injuries, which people with IDD face at greater rates than nondisabled people (Nonnemacher & Bambara, 2011). For

these reasons, the aim of this study was to examine the relationship between people with IDD having and making service-related choices, and their injuries. Our research question was: What is the relationship between people with IDD having made specific choices and the number of injuries reported? To explore this research question, we analyzed secondary Personal Outcome Measures® interview data about people choosing where to live, where they work, and their services, and injury data from 251 people with IDD.

## **Methods**

### **Data and Participants**

The data in this secondary data analysis were originally collected from adults with IDD who receive services from one state's developmental disabilities department. The department conducted Personal Outcome Measures® interviews with a random selection of people with IDD in 2018. These data, as well as the data human services organizations are required to provide the department about the health and welfare of the people with IDD they serve, in this case injury data, were coded with identifiers. The data were then transferred to the research team.

The sample included 251 people with IDD. While the majority of participants were White (72.65%; Table 1), the racial demographics mirror the demographics of the state. (State demographics are not provided so that the state remains unidentified.) Gender was relatively evenly distributed among men (52.19%) and women (47.81%). The majority of participants' primary communication method was verbal/spoken language (80.08%). Participants most often resided in provider-owned or -operated homes (38.25%), their own home/apartment (31.08%), and family homes (22.71%). In terms of decision-making authority, 25.00% of people had independent decision-making, 49.60% supported decision-making, and 25.40% full/plenary guardianship. The mean age of participants was 47.47 ( $SD = 14.75$ ).

Two variables served as proxies for impairment level: complex support needs; and, intellectual disability (ID) diagnosis. Complex support needs included people who have complex medical support needs (i.e., people who need skilled nursing care 12+ hours per day) and/or comprehensive behavior support needs (i.e., people that need 24-hour supervision due to risk of dangerous behavior). In our sample, 77.05% did not have complex support needs (Table 1), while 6.15% had complex medical support needs, 12.30% had comprehensive behavior support needs, and 4.51% had both complex medical and comprehensive behavior support needs. ID diagnosis included people's clinical ID diagnosis at the following DSM levels: mild, moderate, severe, and profound. In our sample, 40.00% were diagnosed with mild ID, 33.06% moderate, 13.88% severe, and 13.06% profound. All demographic variables served as control variables in the analysis.

### **Dependent Variable**

The dependent variable (DV) in this study was the number of reported injuries people with IDD had in 2018. As part of harm and risk reduction in the state, human services organizations are required to report incidents to the state department about the health and welfare of the people with IDD they serve, such as abuse and neglect, emergency room visits, and injuries. Shortly after injuries happen, the providers submit the incidents to the state department using a secure incident reporting platform; the state department exported the applicable data about injuries, coded it to remove identifiers, and transferred it to the research team. The injury data included every single reported injury regardless of severity. Injuries ranged from cuts and burns to fractures and loss of consciousness.

### **Independent Variable**



Our independent variable (IV) was people's service-related choice outcomes; this variable came from the Personal Outcome Measures<sup>®</sup>, a person-centered quality of life tool. Originally developed based on focus groups with people with disabilities, family members, and other stakeholders about what really mattered in their lives, the Personal Outcome Measures<sup>®</sup> has been continuously refined over its 30 years of administration through focus pilot testing, a Delphi survey, commissioning of research and content experts, feedback from advisory groups, and validation testing. The Personal Outcome Measures<sup>®</sup> has construct validity, and reliability, as all interviewers need to pass reliability tests with at least 85% agreement before being certified (Friedman, 2018; The Council on Quality and Leadership, 2017a).

Personal Outcome Measures<sup>®</sup> administration occurs in three stages. During the first stage of administration, the interviewer has an in-depth conversation with the person with IDD following specific open-ended prompts and suggested questions. During the second stage, the interviewer speaks with someone who knows the person with IDD well, such as a case manager, direct support professional, or family member, and asks them about the person's outcomes and the organizational supports the person receives. During the final stage, if needed, observations and record reviews can be conducted to gather more information; otherwise, the interviewer completes decision-trees based on all the information gathered to determine if outcomes are present.

The Personal Outcome Measures<sup>®</sup> includes 21 outcomes divided into five factors: My Human Security; My Community; My Relationships; My Choices; and, My Goals. A principal component analysis conducted during the most recent validation of the tool indicated the construct of My Choices was comprised of three outcomes: people choose where and with whom to live; people choose where to work; and, people choose their services (Friedman, 2018). The

interviewer decides if each of these outcomes are present (1) or not (0) using the decision-trees in the Personal Outcome Measures<sup>®</sup> manual. (See Table 2 for the full list of decision-tree questions, as well as the information gathering questions.) These three outcomes are then aggregated (summed; missing data excluded) to form the construct of My Choices – “the ability to make decisions that affect one’s life and community” (The Council on Quality and Leadership, 2017b, p. 67).

### **Analysis**

We had the following research question: what is the relationship between people with IDD having made specific choices and the number of injuries reported? We utilized a negative binomial model to examine the relationship between the number of injuries (DV), and My Choices (IV), while controlling for participant demographics (i.e., complex support needs; ID diagnosis; age; gender; race; primary communication method; decision-making authority; and residence type). Based on goodness of fit indicators, a negative binomial model was better suited than a Poisson distribution. All assumptions were met.

### **Results**

The participants with IDD had a mean of 0.59 service-related choice outcomes present (out of a possible 3;  $SD = 0.81$ ). The number of reported injuries ranged from 0 to 5 in a year, with a mean of 0.43 ( $SD = 0.90$ ). The average number of injuries by demographic characteristics is presented in Table 3.

A negative binomial regression analysis examining the association between reported injuries and service-related choices while controlling for participant demographics was significant,  $\chi^2(18) = 53.70, p < 0.001$ . Choice was a significant predictor of the number of injuries (Table 4). Controlling for all other variables, for every one-unit increase in service-

related choice outcomes present, there was a 35.0% decrease in injuries (incident rate ratio (IRR) = 0.65,  $p = 0.02$ ).

There was also a significant relationship between injuries and the following control variables: complex support needs; primary communication method; decision-making authority; and residence type. Controlling for all other variables, including service-related choice outcomes, compared to people without complex support needs, people with comprehensive behavior support needs had a 130.0% increase in injuries (IRR = 2.30,  $p = 0.001$ ), and people with both complex medical support needs and comprehensive behavior support needs had a 321.0% increase in injuries (IRR = 4.21,  $p < 0.001$ ). Controlling for all other variables, compared to people who primarily communicated through verbal/spoken language, those who primarily communicated through other means had a 60.0% decrease in injuries (IRR = 0.40,  $p = 0.03$ ). Controlling for all other variables, compared to people who lived in provider owned- or operated-homes, people who lived in their own homes had a 42.0% decrease in injuries (IRR = 0.58,  $p = 0.02$ ), people who lived in family homes a 93.0% decrease in injuries (IRR = 0.07,  $p < 0.001$ ), and people in ‘other’ settings a 167.0% increase in injuries (IRR = 2.67,  $p = 0.02$ ).

### **Discussion**

In his history of disability civil rights, Shapiro (1994) notes “the issue that has always been at the heart of how we deal with people with [IDD is]: how much protection do they need? Is protection necessarily good, compassionate, and progressive?” (p. 190). Decades later, the IDD field still navigates the same questions, and IDD is still frequently understood through a lens of what people *cannot* do and dependency. As a result, people with IDD are often denied the opportunity to make choices about their lives in an effort to protect them and keep them safe. According to Shapiro (1994), this protection is “a paternalistic response that mires people in

dependency, prevents them from learning how to take care of themselves, and, in the long run, costs society more than independence would” (p. 190). For these reasons, the aim of this study was to explore the relationship between people with IDD’s specific, service-related choices – in this case, choosing where and with whom they live, choosing where they work, and choosing their services – and their reported injuries. While exploring this relationship, we found a decrease in injuries when people with IDD had more service-related choice outcomes present.

Expanding the service-related choices of people with IDD may result in fewer injuries. Our finding is mirrored by past research which indicates people with disabilities’ ability to choose their services and providers not only results in increased satisfaction and those services being more relevant to their wants and needs, but also leads to better health outcomes and quality of life (Beatty et al., 2003; Drum et al., 2005; Friedman & VanPuymbrouck, 2018; Heller et al., 2012; Schmittiel et al., 1997; Swaine et al., 2016; Timberlake et al., 2014). In fact, the rise of person-centered planning and empowerment models are the direct result of the recognition that quality of life is dependent on these concepts (Schalock, 2004).

Despite the benefits of choice and self-direction of services, the custodial culture of the IDD services system has resulted in services being “‘standardized, inflexible and unaccountable to those they serve’” (Spagnuolo, 2016, n.p.), with others often making choices on people’s behalf, and denying people with IDD options and choice-making opportunities. In fact, only 13.9% of people with IDD in this study had organizational supports in place to facilitate the outcome ‘choose where and with whom to live,’ 35.5% for ‘choose where to work,’ and 9.6% for ‘choose services.’ To increase the opportunities of people with IDD, the IDD service system, including the provider organizations and direct support professionals which are often the ones

who appropriate people with IDD's decisions the most (Nonnemacher & Bambara, 2011), must move beyond custodial models of care.

One necessary step in moving beyond custodial models of care is by getting rid of deficit-based understandings of people with IDD. Deficit-based understandings of people with IDD individualize disability and focus on impairment, reflecting harmful stereotypes and attitudes and ignoring broader inequities in the process. Instead, narratives of IDD should reflect the lived experiences of people with IDD, and supports should focus on maximizing people's strengths and supporting people to meet their goals. Accordingly, least restrictive forms of guardianship, such as supported decision-making, can be utilized to expand people with IDD's opportunities to make decisions and maximize their rights (Salzman, 2011).

The best services also balance providers' duty to care and dignity of risk. While avoidance of risk is frequently built into the environments of people with IDD, dignity of risk recognizes people with IDD's rights to make decisions and take risks, just like everyone else (Perske, 1972). Rather than take away people with IDD's choices altogether, providers should support the person to understand risk, expand people with IDD's opportunities to make choices, and embrace the concept of informed choice. Informed choice acknowledges that only having two options to choose from is not truly choice;

instead, people must have education, experience, and exposure; 'to make meaningful choices, people need concrete life experiences'... People with IDD must not only have the opportunity to try new things, but must also have a wide variety of options from which to choose. People with IDD should be supported, if needed, to make a wide range of decisions in their lives and grow as decision-

makers – people should be supported to increase their self-determination.

(Friedman et al., 2020, p. 11)

While not every person may want or be able to make choices independently, people with IDD, including those with more support needs, should be involved as much as possible in the choices and decisions that impact their lives. With the right supports in place, all people can increase their self-determination (Wehmeyer & Bolding, 2001). In alignment with the principles of self-advocacy and interdependence, having support or assistance does not mean people are not self-determined or capable (Caldwell, 2011; Nonnemacher & Bambara, 2011).

### **Limitations and Recommendations for Future Study**

When interpreting our findings, a number of limitations should be noted. Our sample was from one state and all participants received services funded by the state's developmental disabilities department. The sample was not necessarily representative of all people with IDD; for example, almost 50% of people had supported decision-making. This study was also a secondary data analysis, meaning we did not have the ability to ask additional questions or add additional variables, including controls. The *My Choices* Personal Outcome Measures<sup>®</sup> factor – factor four – was comprised of the following service-related choices/outcomes: people choose where and with whom to live; people choose where to work; and, people choose their services. Future research should explore the impact of additional forms of choice.

In addition, future studies should replicate the study with larger and wider samples. As this manuscript focused on the number of injuries, future studies should explore the types and causes of injuries, and their relationship to choices. It would also be beneficial to explore the relationship between choice and other measures of safety beyond injuries. We also believe it would be fruitful for future research to explore individual and organizational characteristics that

may play a role in choice and/or injuries, such as decision-making authority, and direct support professional training. Finally, future research should explore the most effective ways to promote choice in service planning and delivery, including if, and how, those methods produce better outcomes, such as related to injuries.

### **Conclusion**

Attitudes about people with IDD and their abilities directly impact which choices people with IDD have and which choices are made on their behalf. Self-advocates have long advocated for their right to make choices and take risks (Autistic Self Advocacy Network, n.d.; Inclusion International, 2014; Self Advocates Becoming Empowered, n.d.; Shapiro, 1994). Expanding the choice-making opportunities of people with IDD not only honors their rights and the values of the self-advocacy movement, but may also play a role in people with IDD's safety. Our study found a decrease in injuries when people with IDD had more service-related choice outcomes present. Beyond the potential impact on injuries, ultimately, choice is about ensuring people with IDD are supported to live the lives of their choosing.

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Table 1  
Demographics ( $n = 251$ )

Characteristic	<i>n</i>	%
Complex support needs ( $n = 244$ )		
None	188	77.05%
Complex medical support needs	15	6.15%
Comprehensive behavior support needs	30	12.30%
Both	11	4.51%
ID diagnosis ( $n = 245$ )		
Mild	98	40.00%
Moderate	81	33.06%
Severe	34	13.88%
Profound	32	13.06%
Gender		
Man	131	52.19%
Woman	120	47.81%
Primary method of communication		
Verbal/spoken language	201	80.08%
Other	50	19.92%
Race ( $n = 245$ )		
White	178	72.65%
Black	63	25.71%
Other	7	2.86%
Residence type		
Provider-owned or -operated home	96	38.25%
Own home/apartment	78	31.08%
Family's house	57	22.71%
Host family/family foster care	14	5.58%
Other	6	2.39%
Decision-making authority ( $n = 244$ )		
Independent decision-making	61	25.00%
Supported decision-making	121	49.60%
Full/plenary guardianship	62	25.40%

Table 2

*My Choices: Information gathering questions and decision-tree questions*

Suggested information gathering questions		
Interview with person with IDD	Interview with supporter	Decision-making questions (all answers must be yes)
<b>People choose where and with whom to live</b>		
<ul style="list-style-type: none"> <li>• "How did you choose where to live?</li> <li>• What options did you have to choose from?</li> <li>• How did you decide who would live with you?</li> <li>• What do you like about your living situation?</li> <li>• What would you like to be different?" (p. 69)</li> </ul>	<ul style="list-style-type: none"> <li>• "Who decided where and with whom the person would live?</li> <li>• What options and experiences did the person have in order to make choices?</li> <li>• If the person did not choose, why not?</li> <li>• How do you learn about the person's preferences for type of living situation?</li> <li>• How do you present options to the person so he or she can make informed choices?</li> <li>• Is the person living where and with whom he or she wishes? If not, what is the barrier?</li> <li>• What are you doing to overcome this barrier?</li> <li>• What organizational practices, values, and activities support the person to maintain or achieve this outcome?" (p. 69)</li> </ul>	<ul style="list-style-type: none"> <li>• "Does the person have options about where and with whom to live?</li> <li>• If Yes, do the options include generic (non-disability specific) community settings and the possibility of a private room or home?</li> <li>• Does the person decide where to live?</li> <li>• Does the person select with whom he or she lives?" (p. 70)</li> </ul>
<b>People choose where to work</b>		
<ul style="list-style-type: none"> <li>• "What do you do for work or your career?</li> <li>• What options did you have?</li> <li>• Who chose what you do?</li> <li>• Can you do something different if you want to?</li> <li>• How did others help you with this?</li> <li>• Are you satisfied with the decision either you or others made?</li> <li>• If not, what would you like instead?" (p. 72)</li> </ul>	<ul style="list-style-type: none"> <li>• "How was it decided where the person would work?</li> <li>• What options/experiences did the person have?</li> <li>• Who made the decision about where the person works? If it wasn't the person, why not?</li> <li>• Is the current work situation satisfactory to the person? If not, what is being done?</li> <li>• How are the person's concerns addressed if there is not a good match?</li> <li>• How does the person's current job relate to his or her preferences, skills, and interests?</li> <li>• How do you learn about the person's preferences for work?</li> <li>• How do you present options to the person so he or she can make informed choices?</li> <li>• Is the person working where he or she wishes? If not, what is the barrier?</li> <li>• What are you doing to overcome the barrier?</li> <li>• How do you learn about the person's job satisfaction?</li> <li>• What organizational practices, values, and activities support the person to maintain or achieve this outcome?" (p. 72)</li> </ul>	<ul style="list-style-type: none"> <li>• "Does the person have opportunities to experience different options?</li> <li>• If Yes, do the options include generic community work/day activities?</li> <li>• Does the person decide where to work or what to do (e.g., type of job/employer, or daytime activity and amount of time spent engaged)?" (p. 73)</li> </ul>
<b>People choose their services</b>		
<ul style="list-style-type: none"> <li>• "What services are you receiving?</li> <li>• When, where, and from whom do you receive the services?</li> <li>• Who decided what services you would receive?</li> <li>• If you did not decide, what was the reason?</li> <li>• How did you decide who would</li> </ul>	<ul style="list-style-type: none"> <li>• "What services does the person use?</li> <li>• What services were identified as beneficial by the person?</li> <li>• What options for services were presented to the person?</li> <li>• How do you determine the services desired by the person?</li> <li>• How were options for services and providers presented to the person?</li> <li>• How were the person's preferences considered when presenting options?</li> <li>• If the person has limited ability to make decisions or limited experience in decision-making, what do you do?</li> <li>• How do you assist the person to overcome barriers to this outcome?</li> </ul>	<ul style="list-style-type: none"> <li>• "Does the person select the services and/or supports that they receive? (residential/in-home, employment/day, health, case management, generic community)</li> <li>• Do the services and/or supports focus on the person's goals? (residential/in-home, employment/day, health, case management; generic community)</li> <li>• Does the person have choices about service provider organizations? (residential/in-home,</li> </ul>



provide the service?

- Are these the services you want?

- Do you have enough services?

Are they meeting your needs and expectations?

- Can you change services or providers if you so choose?"

(p. 75)

- What organizational practices, values, and activities support this outcome for the person?" (p. 75)

employment/day, health, case management, generic community)

- Does the person have choices about direct support professionals/staff? (residential/in-home; employment/day)" (p. 76)

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*Note.* Source: The Council on Quality and Leadership (2017b).

Table 3  
Descriptive Statistics: Injuries

Characteristic	<i>M</i>	SD
Complex support needs		
None	0.34	0.81
Complex medical support needs	0.43	0.76
Comprehensive behavior support needs	1.07	1.31
Both	1.00	1.18
ID diagnosis		
Mild	0.46	0.77
Moderate	0.58	1.09
Severe	0.48	1.18
Profound	0.20	0.66
Gender		
Man	0.45	0.91
Woman	0.48	0.97
Primary method of communication		
Verbal/spoken language	0.53	0.98
Other	0.20	0.70
Race		
White	0.45	0.92
Black	0.52	1.01
Other	0.33	0.52
Residence type		
Provider-owned or -operated home	0.73	1.12
Own home/apartment	0.39	0.70
Family's house	0.04	0.20
Host family/family foster care	0.18	0.41
Other	1.80	2.49
Decision-making authority		
Independent decision-making	0.32	0.69
Supported decision-making	0.61	1.06
Full/plenary guardianship	0.34	0.88

Table 4  
*Injuries: Results of the Negative Binomial Regression*

Variable	IRR (95% C.I.)	<i>p</i>
(Intercept)	0.21 (0.06 - 0.78)	0.02
Choice outcomes	0.65 (0.45 - 0.93)	0.02
Complex support needs (ref: none)		
Complex medical support needs	1.53 (0.62 - 3.78)	0.35
Comprehensive behavior support needs	2.30 (1.40 - 3.77)	0.001
Both	4.21 (1.95 - 9.09)	< 0.001
ID diagnosis (ref: mild)		
Moderate	0.94 (0.60 - 1.49)	0.81
Severe	1.78 (0.90 - 3.51)	0.10
Profound	0.99 (0.36 - 2.68)	0.98
Age (in years)	1.00 (0.98 - 1.01)	0.95
Gender: women (ref: men)	0.94 (0.61 - 1.45)	0.79
Race (ref: White)		
Black	1.06 (0.67 - 1.68)	0.80
Other	1.46 (0.34 - 6.26)	0.61
Primary communication: other (ref: verbal)	0.40 (0.17 - 0.92)	0.03
Decision-making authority (ref: independent decision-making)		
Supported decision-making	1.61 (0.92 - 2.80)	0.09
Full/plenary guardianship	0.79 (0.39 - 1.62)	0.53
Residence type (ref: provider-owned or -operated home)		
Own home/apartment	0.58 (0.36 - 0.93)	0.02
Family's house	0.07 (0.02 - 0.31)	< 0.001
Host family/family foster care	0.29 (0.07 - 1.25)	0.10
Other	2.67 (1.18 - 6.06)	0.02