626 **Table 1: Characteristics of qualitative studies and quantitative studies with descriptive findings**

Study	Methods	Participants and sample	Aim
Berry et al 1996 [21]	Semi-structured interviews	36 caregivers of 34 children; 5-17 yrs; plus 2 adults 18-23 yrs; 29 CP; 4 SB; 3 other	Explore caregiver perspective on use or non-use of PWC
Durkin 2009 [42]	Focus groups Focus group Participant observation Participant observation	22 peer professionals 7 expert PWC drivers 9-12 yrs; CP 11 children 5-10 years; CP 11 children 6 mos-5 yrs; typically developing	Explore 'how does a child learn to use powered mobility to explore their environment?'
Evans et al. 2007 [43]	Telephone interviews	18 adolescents 10-18 yrs with parental assistance; MD, CP, other	Explore experience of using an EPIOC
Frank et al. 2010 [45]	Telephone interviews	64 EPIOC users with caregivers 10-81 yrs; 18 under 18 yrs; MD, CP, SCI, other 13 quotes attributed to users under 19 yrs	Explore effect of EPIOC provision on family and caregivers
Frank et al. 2012 [44]	Telephone interviews	64 EPIOC users 10-81 yrs; MD, CP, SB, other 3 quotes attributed to users under 19 yrs	Explore experience of pain and discomfort in EPIOC users
Gudgeon & Kirk 2013 [50]	Semi-structured interviews	9 EPIOC users 7-16 yrs; MD, CP, SMA, brain tumor	Explore the experiences of children and young people who use an EPIOC
Huang et al. 2009 [46]	Semi-structured interviews	15 children 8-15 yrs; 15 mothers and 14 teachers; 1 8yr old PWC user; CP	Explore how children with CP perceive assistive devices and factors influencing use
May & Rugg 2010 [47]	Semi-structured interviews COPM	20 EPIOC users 11-92 yrs; 1 child 11 yrs; SMA	Explore impact of EPIOC on perceived occupational performance and independence
McGarry et al. 2012[48]	Semi-structured interviews Participant observation	Parents 4 children 5-13 yrs; CP GMFCS V	Explore impact of Smart wheelchair training on driving skills and pro-social outcomes
Nilsson & Nyberg 2003[49]	Participant observation Semi-structured interviews	2 children 4-5 yrs; Profound disabilities Parents	Describe effects of training in a joystick-operated PWC on children with profound disabilities

COPM = Canadian Occupational Performance Measure; CP = Cerebral Palsy; EPIOC = electric powered indoor-outdoor wheelchair; GMFCS = Gross Motor Function Classification System; MD = Muscular Dystrophy; mos = months; PM = power mobility; PWC = power wheelchair; SB = Spina Bifida; SCI = Spinal Cord Injury; SMA= Spinal Muscular Atrophy; Yrs = years.

Study	Methods	Participants and sample	Aim
Skar 2002 [28]	Semi-structured interviews	8 children 6-11yrs; 1 PWC user; CP, SB, other	To gain a deeper understanding of how children with disabilities perceive technical aids and interact with them in play
Wiart et al. 2004[18]	Semi-structured interviews	5 mothers of children; 10-18 yrs; 4 CP, 1 SB	Explore parent's experiences and perceptions of child's use and experience of PM
Quantitative studies with descriptive findings			
Benedict et al. 1999 [15]	Telephone survey Semi-structured interviews	13 families 2-4 yrs; 11 CP, 2 metabolic 4 families participated in interviews; included 1 PWC user	Describe parent's view of impact of device on child's participation and care
Bottos et al 2001 [20]	Semi-structured interviews	Parents and 25 children 3-8 yrs; CP	Describe parent's and children's perceptions and attitudes to PM
Douglas & Ryan 1987 [54]	Detailed case description	1 child 4 yrs; High level SCI	Describe impact of PWC use on child's development and behavior
Everard 1984 [19]	Parent described her own perceptions	Parent of 1 child 22 mos; SMA	Describe impact of PWC use on child's development and impact on others
Horne & Ham 2003 [52]	Questionnaire	57 parents of children 2-7 yrs; CP, SMA	Understand parent views on benefits and challenges of PWC provision
Jones et al., 2003 [55]	Detailed case description	1 child 20 months; SMA	To demonstrate developmental changes after PWC use in a young child
Nisbet et al 1996 [53]	Detailed case descriptions	3 children 8, 8.5 and 10 yrs; CP	Describe development of driving skills and impact on overall development
Nisbet 2002 [51]	Detailed case descriptions	3 children 10, 10 and 5 yrs; CP	Describe development of driving skills and impact on overall development
Wiart et al 2003 [17]	Structured telephone interview with four open ended questions	66 (52 by proxy) used PWC <18 yrs; 4.5-27.5 yrs; CP, SB, SCI, OI, TBI, amputee, arthrogryposis, JRA, other	Evaluate use of PM by children with physical disabilities

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Table 2: Inter-study matrix

Third-order Analytical Themes	Power mobility experience promotes developmental change and independent mobility					Power mobility enhances social relationships and engagement in meaningful life experiences			Power mobility access and use is influenced by factors in the physical, social and attitudinal environment							Intensity ES%	
Second-order Themes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>25	Total
Qualitative Studies																	
Berry et al. [21]	■		■			■	■		■		■			■		66%	47%
Durkin [42]	■			■							■				■	22%	27%
Evans et al. [43]		■	■				■	■	■	■		■		■	■	44%	60%
Frank et al. 2010 [45]			■						■	■		■				33%	27%
Frank et al. 2012 [44]		■								■						11%	13%
Gudgeon & Kirk [50]	■		■			■	■		■	■	■					78%	47%
Huang et al. [46]						■	■	■	■							33%	27%
May & Rugg [47]	■		■				■		■							44%	27%
McGarry et al. [48]	■		■		■	■				■			■			67%	40%
Nilsson et al. [49]	■				■											22%	13%
Skar [28]	■					■	■		■							44%	27%
Wiart et al. 2004 [18]			■			■	■	■	■		■		■			67%	47%
Descriptive Studies																	
Benedict et al. [15]	■		■				■		■			■				44%	33%
Bottos et al. [20]	■		■										■			33%	20%
Douglas & Ryan [54]	■		■	■	■		■									44%	33%
Everard [19]	■		■		■	■	■	■					■			67%	47%
Horne & Ham [52]	■		■		■	■	■		■	■	■	■	■	■	■	100%	80%
Jones et al. [55]	■		■													22%	13%
Nisbet et al. 1996 [53]	■		■	■	■	■	■			■						67%	47%
Nisbet, 2002 [51]	■			■	■		■			■	■					55%	40%
Wiart et al. 2003 [17]	■		■				■		■		■					55%	33%
Frequency ES%	84%	5%	74%	21%	37%	47%	74%	21%	53%	31%	37%	16%	26%	16%	16%		

1. PM can promote psychological, emotional and behavioral development
2. PMD can be a cause of pain
3. PM can increase independence and freedom
4. PM skills develop through play and self-directed learning across a continuum from early mobility experience through wheelchair operation to enhancing lifestyle
5. PM can promote self-initiated communication and motor development
6. PM can enhance ability to play
7. PM can increase participation
8. PM can enhance peer relationships
9. PM can increase access to environment although physical environment and transportation difficulties can limit use of PM
10. PMD features can limit or enhance use
11. Others attitudes vary and can limit or enhance PM access and use
12. PM use can benefit caregivers
13. PM use can change attitudes of others
14. Training and follow-up are critical to safe and successful use
15. Service delivery may limit or enhance PM access and use