



PERCEPTIONS ABOUT NEURODIVERSITY AT WORKPLACES- A Q-METHODOLOGY STUDY FROM OCCUPATIONAL THERAPY PERSPECTIVE

Occupational Therapy

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ABSTRACT

Aims & Objectives: To study and understand the perceptions about neurodiverse individuals at work places, their related stakeholders and the implications for Occupational Therapy

Study Design: A Q- Methodology was used which draws on both quantitative and qualitative approaches.

Methods: Keeping in line with the Q-methodology a diverse, purposive sample of 13 including neurodiverse individuals and stakeholders were selected. Their perceptions (Q-Sort Statements) were sorted into normally distributed 39 cell grid (Q-sort grid).

Results: Analysis of the data gathered was done by an online software PQMethod for rank ordering, and then factor analysis. Factors that emerged were labelled as follows A) Interests/passions and advocacy B) Career pathways B) Transition to work C) Neurodiversity at workplaces, challenges and supports.

Conclusions: Through this study the perceptions about neurodiversity at workplaces was understood. Implications for Occupational Therapy were discussed.

KEYWORDS

Neuro diversity, Occupational Therapy, Perceptions, Q- Methodology, Workplace

INTRODUCTION

Neurodiversity is a term that evolved from the advocacy movement on behalf of individuals with autism spectrum disorders (ASD) and has been embraced by other groups of individuals with neurologically based disabilities which are a natural variation in brain differences. Literature shows, that there is a lack of literature about the perceptions of neurodiverse individuals at varied workplaces, and those associated with them.

AIMS AND OBJECTIVES

To study and understand the perceptions about neurodiverse individuals with varied diagnosis, with varying levels of functioning, working at varied workplaces like homes (self-employment), vocational centres (sheltered/supported employment) or companies(open/competitive employment), perceptions of related stakeholders like caregivers, employers, job coaches , co-workers , therapists and to discuss implications for Occupational Therapy

METHODS

Ethical Consideration:

This study was conducted as per the "Declaration of Helsinki". All participants signed a written informed consent.

Study Design:

A Q- Methodology (QM) Study which a mixed – methods research design which adds quantitative aspects to qualitative data. Through its quantitative part, it helps in rank ordering and factor analysing qualitative data and thus helps in grouping similar and dissimilar perceptions of varied individuals about a particular topic.

Study Participants:

Q Methodology does not require large samples, since the aim is to select participants who will potentially reflect a range of perceptions. Neurodiverse individuals with mild Intellectual Disabilities, Autism Spectrum Disorders, Down's Syndrome, Learning Disabilities, without Physical Disabilities, age range -18-30 years, both males and females, working individuals (self /sheltered/ open employed), caregivers, employers, job-coaches, and co-workers of these neurodiverse individuals were selected for the study. A non-probability purposive sampling was used because Q- methodology is partially qualitative in nature, which requires recruiting the most relevant people possible to share their perceptions about neurodiversity at workplaces. As per Weber T et al , the sample calculation was done using the ratio of 3Q sort statements: 1 Q participant , therefore as 39 Q sort statements were used in this study, the number of participants were 13 who were recruited using snow ball technique.

Table 1: Participant Characteristics

Variable	Number
Gender	
Male	10
Female	3
Professional status	
Self employed neurodiverse individual	1
Sheltered/Supported employed neurodiverse individuals	2
Open employed neurodiverse individual	1
Caregivers	2
Employers	2
Job Coaches	2
Occupational Therapist	1
Co-workers	2

Study Procedure: The four phases in Q- Methodology are

Phase 1: Developing the Concourse and Q- Sort Statements (QSS)

Initially 52 concourse statements were derived from relevant literature, from OT experts and a pilot test with focus group discussion, and then were filtered and reduced to most relevant 39 QSS pertaining to the neurodiversity at work places.

Table 2: Q-Sort Statements

1. The best thing about being employed is the feeling of self sufficiency, and contribution toward s economics of the family no matter how little
2. Every job has its own challenges
3. Challenges are at every stage from developing skills, to applying for apt job, to fit in.
4. Specific challenges include sensory issues, overload and social interaction
5. Over coming the challenges needs lots of planning and support
6. Extra efforts are required to obtain and keep a job
7. There are opportunities for neurodiverse individuals but they are sparse
8. Training prior to a job will help in joining a job
9. Internship prior to a job will help in joining a job
10. Occupational Therapy is required in childhood
11. Occupational therapist is still associated with us
12. Help is need ed to understand instructions sometimes ,its always better if is in written than verbally
13. At the work place, when the light s are dim , the noise levels a r e low, the work space is less cluttered and more or ganized it is better.

14. It is so important to be guided and advocated in the right career pathway
15. There should be a variety of job opportunities in various areas like culinary, house keeping, multimedia, arts and crafts etc.
16. Interests and passion needs to be considered while choosing a job
17. The gap between the skills and job acquisition needs to be filled up
18. Supports are required to function well at work
19. Job coaches are required to do the job well
20. Co-workers need to be sensitized to facilitate better inclusion of the employees at work places.
21. Co-workers sensitization needs to be done in terms of social interaction
22. Co-workers sensitization needs to be done as to what has to be done in case of melt down
23. Mentorship helps at work place
24. Exceptional savant skills exist in just few individuals, it should not be generalized
25. Repetitive work is not always loved by neurodiverse individuals
26. In a work place, excessive importance is given to high functioning employees.
27. Preparation for the job needs to be done from childhood / adolescence itself i.e. the underlying skills needs to be trained, so it will be easier to obtain a job.
28. Special interests in art/ music are present in neurodiverse individuals
29. Work opportunities should be available at different work places like home, offices, sheltered centre etc.
30. Self / sheltered / supported / open should be opted for depending on interests, passions, opportunities
31. Pre-vocational and vocational training is important for better career prospects.
32. Executive functions like organizational skills, time management, problem solving, self-regulation is important for working well, and training in these skills can help.
33. It is not always easy to find the interests/passions and convert it into an employable skill.
34. Work behaviours like punctuality, physical appearance, logistics, social interaction, quality and quantity of work are important to be able to progress at work.
35. There is a need for professional guidance to know about advocacy and rights.
36. While providing supports at work place using "Universal Design" shall benefit everyone.
37. Visual supports and video modelling will help to work better
38. Typical individuals generally may have a set mind-set about individuals with neurodiversity.
39. Understanding the perceptions of neurodiverse individuals and their associated stakeholders will make career pathways more clearer and inclusive.

Phase 2: Sorting Of Statements

For collection of the data set, the participants were met at their workplaces or at their homes, their demographic data was collected, and were required to rank-order the 39 QSS, according to the degree to which each statement reflected their own perceptions using the Q-Sort Grid arranged as a normal distribution curve, with one pole of the grid representing statements that are "totally unlike own perceptions" (ranked -4) through "neither like nor unlike own perceptions" (ranked 0) to "very like own perceptions" (ranked +4), at the opposing pole. A comment box was provided on the sorting grid for feedback. Most of the participants completed the sorting within an hour.

				39					
			18	27	29				
		22	5	20	11	35			
		4	3	23	37	38			
	24	26	28	7	10	21	1		
30	16	33	9	34	19	32	31	14	
12	8	25	13	2	36	15	17	6	
-4	-3	-2	-1	0	+1	+2	+3	+4	

Figure 1: Q-Sort Grid

Phase 3 Factor Extraction, Rotation & Loading

A data analysis software package (PQMethod version 2.35) was used to analyse the grids. Each participant's Q-Sort was entered into the database. In this way 13 Q-Sets of data were entered. PQMethod was then used to extract, and rotate the factors from the sorts

Factor Extraction-

by principal component analysis which is an established highly complex mathematical data reduction technique designed to expose underlying groupings or patterns in the data, known as factors. Conventional factor analysis, analyses a dataset by clustering variables into factors, according to the degree of association between the variables, but with Q-Sort, the data are instead factor analysed case wise, in the order to group the participants according to the similarity/dissimilarity of their perceptions and the resulting groupings constitute the factors.

Factor Rotation-

Varimax rotation ensures that the participants tend to be associated with only one factor, by maximizing the variance between each factor. Factor Loading- Distinguishing sorts per factor and participant indicated by X in the Table 3

Table 3: Factor Extraction, Rotation And Loading

SerialNo	ParticipantCode	Factor1	Factor2	Factor3	Factor4
1	P2	-0.0456X	-0.9595	0.1229	0.1788
2	P4	0.0282X	0.9427	-0.1609	-0.2179
3	P6	-0.1299X	-0.1427	0.9633	0.1341
4	P8	0.1299	0.1427X	-0.9633	-0.1341
5	P10	0.1218	0.2131X	-0.0889	-0.9443
6	P12	-0.1125	-0.2186X	0.2091	0.9217
7	P1	-0.9567	-0.0605	0.1273X	0.1182
8	P3	0.9609	0.0184	-0.1345X	-0.0997
9	P5	0.2659	-0.1069	0.0608X	-0.2164
10	P7	-0.1737	-0.0255	0.1615	0.0813X
11	P9	-0.2097	-0.0895	-0.0483	0.2730X
12	P11	0.2342	-0.0904	0.0370	-0.2261X
13	P13	-0.0078	0.0289	-0.1208	0.0734X

RESULTS

Phase 4: Factor Analysis and Interpretation

FinalFactor Nos	FinalFactor Names	Eigenvalues	Statement Loadings	Z-Scores
1	Interests/passions and advocacy	3.432(>1)	24	2.17
			25	1.73
			27	1.28
			28	-0.93
			33	-1.46
			35	2.07
2	Career pathways	6.326(>1)	1	1.81
			30	1.75
			39	1.44
3	Transition to work	2.876(>1)	2	2.35
			3	2.08
			4	2.03
			5	1.17
			6	2.11
			8	1.68
			9	1.56
			10	0.74
			11	2.30
			17	2.06
4	Neurodiversity, challenges, supports at work places	4.123(>1)	31	-1.41
			32	2.08
			7	2.08
			12	0.92
			13	0.86
			15	-0.90
			18	-1.45
			19	-1.85
			20	2.26
			22	1.79
			23	2.170

Factors:

Originally 8 factors were extracted, all of which had eigenvalues exceeding 1.00 (from 1.3 to 6.6) from these 4 factors were further extracted as per Weber et al'. The demographic profile of the participants and their comments during the Q-sorting were also analysed.

Eigen Values-

The relative contribution each factor makes, to explain the total variance in the dataset is salient. The standard procedure for determining this is the eigenvalues. It is recommended that only those factors with eigenvalues >1 are used in the final interpretation of the data, since these will explain more of the total variance.

Statement Loading –

Statements that are loaded or associated with each factor.

Z-Scores-

here are used as a measure of the salience of each statement, to the factor on which it is loaded or associated. Therefore each statement that loads on to a factor will have a Z-Score. As Z-Score is a measure of standard deviation of the statements.

DISCUSSION

The following is the discussion of the perceptions about neurodiversity at workplaces using the factors as well as the relevant verbatim from the pilot study focus group discussion.

Factor 1: INTERESTS/PASSIONS AND ADVOCACY

(loaded by 3 participants and 6 statements) indicated that the preparation for work experiences in life, has to start early from childhood and adolescence itself. There was a stress upon the trial and error method to be used for understanding the interests that can be transformed into a passion and work/employment option, that it is not always easy, to do this, as all neurodiverse individuals do not display clear cut interests/passions or extraordinary skills like the savant skills, and they do require professional help like that of an Occupational Therapist for the same.

“My sons interest in arts, has helped him to become a graphic designer today”

“For the past few years I have been believing my student's passion to be music, but it turned out to be multimedia”

“My daughter seriously doesn't have any special interests, but people feel I haven't done enough to find that one thing in herI have tried my best, but in vain”

“Savant skills are so over-rated, people feel every child on the spectrum has it”

The caregivers spoke about the difficulties in accessing advocacy and rights related to work / employment. They did get help in this area through the internet, word of mouth and parent support groups and NGOs, in terms of knowing about the policies and reservation for the neurodiverse for eg) special employment exchange, job reservations/quota in government sector, special insurances, social security income for startups, public accessibility, transport etc. They did not know or approach any professionals for access to advocacy and rights.

“I am aware that there are some policies for job reservations, but I am not sure how the percentage distribution is between those with psychological dysfunction, learning disabilities, autism etc and how to avail this for my son”

Factor 2: CAREER PATHWAYS

(loaded by 3 participants and 3 statements)

Since the participants included a variety of neurodiversity in terms of diagnosis, levels of functioning and having different work profiles, they themselves, their caregivers, employers, job coaches shared their perceptions regarding career pathways. They were of the view that career pathways are decided based on the education, interests/passions, the level of functioning of the individual whether low /high, opportunities of careers, caregivers occupation and inputs etc. They opined that the ultimate aim is to get open/competitive employment, but if the requirements of supports and supervision is excessive then,

opting for sheltered/supported employment should be considered, and for some neurodiverse individuals who have exceptional skills that can be converted into a self-employment opportunity, can think about entrepreneurship with support of caregivers. The caregivers mentioned that they find it difficult to find professional help to guide them in the career pathways as though there are many institutes which work for the same, the number of neurodiverse individuals outnumber them.

“I love working at this centre, with my colleagues.....I make artificial jewellery”

Factor 3: TRANSITION TO WORK

(loaded by 3 participants and 12 statements)

The perceptions of the participants were as follows, transitioning from school set up, or a prevocational/vocational training set up to a job/employment situation is a very important step and requires detailed planning and intervention. This is the area which poses a gap between the skill sets of the participants and the actual job. Bridging this gap is very essential and can be done by a number of evidence based practices like the individual transition planning (ITP) and intervention, and individual planning and support (IPS), these insist on job development, internships, on the job training, indefinite support system, mentorships etc. But the barriers for these are at the policy level, though there are policies for IEP for neurodiverse children, there are no clear cut policies for the ITP of adolescents and adults, there are also less transition opportunities and even lesser institutes and professionals who can guide these neurodiverse individuals through their transition to work phase

“My student with Autism loves cooking, has completed his certification courses in culinary and bakery skills, but is jobless, there is scarcity of opportunities and guidance”

“I from our institute give soft skill training to individuals with special needs, help them get jobs, support them as a job coach for initial few weeks, and then slowly wean off my support”

Factor 4: NEURODIVERSITY, CHALLENGES AND SUPPORTS AT WORKPLACES

As per the employers and job coaches there are different kinds of pros associated with different neurodiverse individuals, for example those with autism have excellent visuo-spatial, computing skills, they may not spend time on small talks, will be very focused, will love to work for long hours and may not get frustrated with repetitive and tedious work, those with downs syndrome or intellectual disabilities will do a great job out of tasks which are very familiar with or are interested in like handicraft making, culinary skills etc, those with learning disabilities may be very good with their social and interpersonal skills and may do well at office jobs, BPOs etc. There is con side to this that even amongst these individuals there might be some who are better, and they get more opportunities and others may get left out. So it is important to remember that every neurodiverse individual might have some skills and to tap that at workplaces. The challenges at work places may be majorly due to sensory overload, difficulty with social interaction with co-workers or to match the work performances as per the neurotypicals. The neurotypical co-workers opined that their neurodiverse co-workers, benefit from supports like dim lights, noise cancellation cabins, less cluttered work environments, visual aids for instructions in the form of emails, subtitles during a video conference meetings, specific and clear instructions of projects to be completed etc. They mentioned that these supports acted as a universal design and helped them too. The participants mentioned that different kinds of workplaces i.e. for self /sheltered/ supported /open employment will require different kinds of supports in terms of task or environmental modifications, and these should be provided at optimum level i.e. not too much or too less.

“I have employed a few neurodiverse individuals at my IT firm as software developers”

“My co-worker has learning disability, I try to support her but do not know how, it will be excellent if I could get some training for the same from a professional”

IMPLICATIONS FOR OCCUPATIONAL THERAPY

“I am an OT and I work with neurodiverse individuals at a sheltered centre”

The perceptions of the participants mainly stated that the neurodiverse individuals did undergo occupational therapy services to some extent during childhood/adolescence or at vocational centre in adulthood. But we know theoretically and clinically that occupational therapy has its role in helping neurodiverse individuals and their stakeholders at each of the four factor levels mentioned above i.e. helping in converting the neurodiverse individuals' interests/passions into work skills, providing advocacy about their work rights and opportunities and apt career pathways i.e. open/sheltered/supported/self-employment, helping them transition to work, provide on the job coaching /training to the neurodiverse individuals themselves for on the job skills and their co-workers, caregivers, job coaches and employers for social interaction skills, and also help in designing (individualized and universal) work place adaptations in terms of avoiding sensory overloads, providing uncluttered workspaces and visual supports. But the number of occupational therapists clinically working in these areas are sparse , due to overlapping job roles with organizational psychologists, vocational rehabilitation counsellors etc.

“A National Employment Survey, by Watson et² all has stated that unmet occupational therapy needs is one of the factors correlated with of unemployment in neurodiverse individuals. Therefore occupational therapists who are well equipped to work in this area, of neurodiversity at workplaces, and should consider this avenue.

Aknowledgements

- 1)I would like to thank the Almighty God and my parents
- 2)I would like to thank all my participants

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