NVEO
Natural Volatiles &
Essential Oils

Relationship Between Clinical Conditions And Disability In Adults From A Colombian City

María Margarita Aguas[1], Eustorgio Amed Salazar[1], Jhon Jairo Feria Díaz[2]

[1]Faculty of Health Sciences, Universidad de Sucre, Colombia.

[2]Faculty of Engineering, Universidad de Sucre, Colombia.

ABSTRACT

Objective: To relate disability and clinical conditions in adults from Sincelejo city, Colombia. Methodology: Correlational study; A non-probabilistic sample was made up of 125 people with disabilities, older than 20 years with more than six months of limitation. for disability evaluation, the World Health Organization Disability Assessment Schedule version 2.0 was used and validated by the World Health Organization. Results: The most representative medical diagnosis was nervous system diseases. The disability area evaluated by the WHODAS 2.0 with the highest average score was mobility 44.60±32.3139. The medical diagnosis, the external aids, and the medications consumed presented a significant association with global disability. Conclusion: The medical diagnosis, the use of external aids, and the consumption of medications have a decisive influence on disability perception.

Keywords: Disability, clinical signs, and symptoms, disability assessment, adults

1. INTRODUCTION

The World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (WHO, 2013). Likewise, it is conceived as a physical state, mental and social well-being with the capacity to function, therefore, it encompasses subjective aspects (physical, mental, and social well-being), objectives (capacity to function), and social aspects (adaptation and socially productive work); it is a resource for daily life, not the life goal. It is a positive concept that emphasizes social and personal resources, as well as physical skills (De la Guardia & Ruvulcaba, 2020).

On the other hand, disability according to the International Classification of Functioning, Disability, and Health (ICF) is discerned as the multidimensional interaction between the person with a health condition and the different functioning levels. This generic term includes impairments, activity limitations, and participation restrictions (WHO, 2001). Under this postulate, the disability must be weighed in the light of a systemic model in which functioning, and disability are the interaction results between individual characteristics and the particularities of the contexts in which individuals

live. It is about considering different situations in which an individual may be forced to carry out different activity types, in precise contexts and considering their personal, physiological, and psychological characteristics. The disability concept is here a generic term to designate the interaction of negative aspects between an individual who has a health condition and the contextual factors against which it evolves (Cuenot, 2018).

The binomial health-disability condition elucidates what is referred to by the WHO citing strokes, Alzheimer's, and other dementias among the four main causes that impact mortality and disability-adjusted life years (DALYs) in the Americas from 2000 to 2019, in the total population of both sexes combined (WHO, 2021). It can be similar in Colombia, from the people's total number with disabilities in the Registry of Location and People with Disabilities Characterization (RLCPD), 43% reported some general illness as the origin of this condition (Health and Social Protection Ministry, 2019); In addition, 52.8% of people with disabilities suffer from some long-term illness such as cardiovascular diseases, hypertension, asthma, chronic bronchitis, gastritis, lupus, cancer, gout, leukemia, diabetes, among others. The population with disabilities that required hospitalization in the last 12 months' amounts to 14.6%, an incidence that almost triples in contrast to 5.3% that required hospitalization and does not register any type of disability (Orozco et al., 2021). In Sucre, approximately 2.7% of the total population that lives in the department has some type of disability, and the disability types that most occur are physical and cognitive disabilities. More than half of the registered PwD (74.30%) belong to groups without the ability to pay, and, therefore, their insurance to the social security health system is provided by the State with affiliation through the Subsidized System (Disability Policy of Sucre, 2019). For the year 2020, the widest gap between people with and without disabilities was observed in the health aspect with a difference of 1.9 p.p. against people with disabilities (DANE, 2022).

This health-disability complementary and concatenated nature seen from the biopsychosocial perspective has given rise to countless contributions to scientific evidence, generating a robust theoretical corpus. The relationship between health conditions and disability is complex. The possibility that a health condition causes a disability is determined by interrelated factors, in interaction with contextual factors. Comorbidity has disability consequences (WHO, 2011). It is associated more with severe disability than with individual ailments. This is how the evolution of both concepts has made it possible to broaden the vision in terms of their intervention. It involves more and more actors, responsible for the people's social inclusion with disabilities, leaving a single and unidirectional perspective to another mediated by multifactorial issues, multidimensionality, diversity, and the human being complexity. For this reason, it is important to specify that people with disabilities cannot be considered mere passive subjects who receive care and services from health institutions, they must be consulted and considered when planning and managing the Health System resources. They must participate both in decision-making on matters that concern them directly and, in the planning, and health policy evaluation that develop these aspects. The necessary adjustment that must be made in this regard, supposes for the health sector an opportunity and a responsibility to contribute elements that facilitate or improve the adequate response that allows progress towards the people with disabilities inclusion process.

In this action plan, the present study is aimed to correlate disability with clinical conditions in adults who present disabilities from Sincelejo, Sucre, Colombia. It can be considered as a contribution to scientific knowledge, being a reference for the policies design, programs, and plans that contribute to a holistic and systemic approach based on the biopsychosocial model. It is aimed at the inclusion and social participation of people with disabilities.

2. MATERIALS AND METHOD

The study was developed under a quantitative, descriptive, cross-sectional approach with a correlational phase that established the relationship between clinical conditions and disability in adults with disabilities from Sincelejo, Sucre.

The population was made up of people over 20 years with disabilities from Sincelejo, Sucre. The people population projection with disabilities over 20 years in the participating cities corresponds to information from the location registry and people with disabilities characterization reported by the Municipal Health Secretariat as of 2016. The sample calculation was estimated with the formula for the bilateral test ("estimation of a linear relationship"). It is considered a confidence level of 95%, a statistical power of 90%, and an expected linear correlation of 0.3 considered by Mukaka (2012), as acceptable for this study type. In accordance with the above, the sample consisted of 125 people with disabilities in Sincelejo (Colombia). A non-probabilistic sampling was executed with volunteer subjects over 20 years from institutions, associations, and groups of people with disabilities in the municipality using the snowball technique.

3. RESULTS
3.1 Descriptive Analysis of Clinical Variables

The main medical diagnosis (ICD 10) to which the permanent limitation is attributed was diseases of the nervous system (36%). 50.4% of the participants stated the use of the external aids; of them, 16% refer to the use of the cane. More than half of the participants reported consuming medications, represented by 51.2%, of which 15.2% corresponded to anti-hypertensives. Table 1.

Table 1. Descriptive summary of clinical variables

Clinical Variables	Subvariables	Frecuency	%
Medical diagnostic (ICD 10)	Nervous system diseases	45	36.0
Time ranges of the permanent limitation	More than 121 months	94	75.2
Use of external aids	Yes	63	50.4
Type of external aid	None	61	48.8
	Walking stick	20	16.0
Medication use	Yes	64	51.2
	No	61	48.8

Clinical Variables	Subvariables	Frecuency	%
Medicines	None	61	48.8
	Antihypertensive	19	15.2
Total		125	100.00

Source: Self made

3.2 Descriptive Analysis of Disability

In the 125 people participating in the study, the mean global disability (scale from 0 to 100) was 26.53±15.4415 points. Regarding the areas evaluated by WHODAS 2.0, the one with the highest average score was mobility 44.60±32.3139. The area with the lowest average score was relationships with 11.26 points. Table 2

Table 2. Descriptive statistics global score and by WHODAS 2.0 areas

Areas and Global Disability	Media	Desv. Tip	Minimum	Maximum
Cognition	12.64	16.0841	0.00	75.00
Mobility	44.60	32.3139	0.00	100.00
Personal care	17.44	23.8579	0.00	100.00
Relations	11.26	13.7280	0.00	58.33
Daily life activities	32.48	26.6293	0.00	100.00
Activities of daily living-Paid work	17.85	19.3640	0.00	78.57
Participation	36.53	16.9262	4.17	83.33
Global Disability Score -WHODAS 2.0-	26.53	15.4415	4.35	79.35

Source: Self made

Regarding global disability re-coded from the 6 WHODAS 2.0 areas, it was found that 48% of the respondents presented mild disability. Table 3.

Table 3. Degree of Disability WHODAS 2.0

Grade of Discapacity	Frecuency	%
None	2	1.6
Mild	60	48.0
Moderate	54	43.2
Severe	9	7.2
Extreme	0	0.0
Total	125	100.0

Source: Self made

3.3 Relationship Between Clinical Variables and Disability

The medical diagnosis, the external aids, and the medications consumed presented a significant association with global disability. The relationship found between the mobility areas and self-care with external aids and medications stands out. The other associations had a strength of less than 0.3, some of them statistically significant, and it was therefore not accepted for the study. Table 4.

Table 4. Relationship of clinical variables with global disability and by areas

Variables	Statistical***	Disability by areas and global							
		Cognition	Mobility	Personal Care	Relationships	Activities of Daily Living	Activities of Daily Living-Paid Work	Participation	Global Disability Score
Medical diagnosis (ICD 10)	ETA	0.451	0.660	0.458	0.244**	0.484	0.417	0.232*	0.525**
	P Value	0.367	0.176	0.995	0.001	0.076	0.845	0.003	0.001
Time of evolution of the limitation (months)	Rho/r	-0.080	-0.202*	-0.033	-0.211**	0.095	-0.111	-0.088	0.046
	P Value	0.374	0.004	0.718	0.001	0.290	0.344	0.330	0.613
Use of external aids	ETA	0.004	0.284**	0.237	0.057	0.292	0.056	0.176	0.285
	P Value	0.470	0.001	0.058	0.862	0.159	0.217	0.256	0.149
External aid used	Rho/r	0.262	0.594**	0.406*	0.154	0.404	0.203	0.312	0.429**
	P Value	0.440	0.001	0.003	0.914	0.506	0.380	0.921	0.001
Medication use	ETA	0.136	0.318	0.279	0.025	0.211**	0.229	0.260	0.357
	P Value	0.681	0.069	0.112	0.658	0.001	0.668	0.286	0.578
Medications used	Rho/r	0.358	0.501*	0.479**	0.281	0.539**	0.541**	0.356**	0.469*
	P Value	0.152	0.002	0.000	0.473	0.000	0.000	0.001	0.005

Source: Self made

*p value ≤ 0.05 ** p value ≤ 0.01

*** expected linear correlation of 0.3 considered by Mukaka as acceptable for this type of study

Rho: Spearman's correlation coefficient

4. DISCUSSION

The most representative medical diagnosis was related to nervous system diseases, more than half reported help use and mostly a cane. In their study, Grisales et al., (2020) found that the greatest disease burden due to mental disorders and nervous system diseases was due mostly to the disability they generate. Along the same lines, Gil et al., (2016) showed that more than half of the people with disabilities studied use external aids, and the most used device was a cane. The opposite scenario is described by Quelle et al., (2022) who noted a disease predominance in the circulatory system, followed by endocrine, metabolic, and nutritional diseases. Similarly, according to the health situation analysis, Sucre ASIS (2021), within the five main permanent alterations in the department. Those were found in relation to the body movement, hands, arms, legs, and the nervous system.

According to the disability evaluation, the present study showed that the highest average score was Mobility, it coincides with Gómez et al., (2021). In consideration of this, to develop a device to assist people with disabilities mobility, it is necessary to make a hierarchy of the main needs that these people have. It is due to the large amount of information offered by the environment and the capacity processing of electronic devices (Vázques & Cardona, 2019).

Regarding global disability re-coded from the 6 WHODAS 2.0 areas, it was found a mild disability superiority. Also, a situation analogous was searched in the study by Páez et als., (2021) and Gaviria et als., (2020). These findings show that the commitment degree or functioning level is not only linked to the disability present type. It is important to highlight that the assessment that people make of themselves, and their living conditions is determined by the different opportunities and the support they perceive from their environment. From this point of view, the more links of support and opportunities the person has, the more frequently behaviors are manifested to combat the problem they suffer in different ways, whether congenital or acquired. The difference between subjective well-being in this population can be determined by the resilience levels that they are experiencing in the face of difficulties (Saavedra et als., 2018).

In contrast to the results found for the relationship between clinical variables and global disability and by areas, the medical diagnosis has a moderate positive correlation with the global disability domain. These results agree with the findings of Gil Obando et al., (2016). In this sense, the WHO (2021) promotes strategies that ensure that people with disabilities are informed about their own health problems and that health care personnel support these people, protect their rights, and protect their dignity, and develops instruments and regulations. It includes guidelines to enhance disability inclusion in health care services. For this reason, Esquivia (2014) states that it is essential that the Disability approach be included in the medical undergraduate curriculum and thus ensure that these professionals acquire the skills required to care for patients with disabilities and that its

actions are directed not only to the promotion and maintenance of health but also to the disease's prevention, diagnosis, treatment, and rehabilitation. The undergraduate medical student must know and be able to identify the risk factors that lead to disability. It guides the medical diagnosis and has a clear concept of comprehensive rehabilitation treatment.

Regarding the external aid variables type, it was possible to establish that they have moderate positive correlations with themobility area, that is, depending on the external aid type. This will be the disposition of people with disabilities to move around in their environment. On the other hand, a low and moderate positive correlation is also established between the external help type used and the global disability of people. It means, the external type of help mitigates mobility limitations in people with disabilities. In Colombia, according to DANE (2020), most people with disabilities use glasses, contact lenses, intraocular lenses, adapted computer programs, Braille strips, guide dogs, or the like as a support mechanism, which indicates that the most recurrent difficulty among people with disabilities in Colombia is related to vision. The second most frequent support mechanism is medication or therapy (25.7%), It is followed by the help of other people (22.7%). These mechanisms are mainly used by people who have difficulty eating, dressing, or bathing on their own and relating or interacting with other people. In line with the above, it has been shown that as long as they are appropriate for the user and their environment, the utilization of assistive or auxiliary technologies has important effects on the independence degree and participation to which people with disabilities can aspire. These systems reduce the need for support services. In particular, the mobility devices used creates educational and employment opportunities. It contributes to improved health and life quality, and can also help prevent falls, injuries, further disability, and premature death.

According to the study, the highest mean scores in the mobility, self-care, and global disability domains were obtained by people with disabilities who use wheelchairs, crutches, or a cane in their order. According to these results, mobility limitations such as walking or moving long distances, moving inside and outside the home, imply the need to use external aids such as a wheelchair. Likewise, to execute daily living activities such as bathing, dressing, or staying alone for a few days due to the existence of the limitation. The use of external devices is also necessary.

With reference to the medication variable use, it was determined that it has a moderate positive correlation with the activities of the daily living domain (unpaid work). The World Health Organization (WHO) defines adherence as the degree to which a patient's behavior is in relation to taking medication. It follows a diet or modifying lifestyle, which corresponds to the recommendations agreed upon by the healthcare professional. The magnitude and consequences associated with noncompliance place adherence as an important public health issue worldwide. In addition, the progressive increase in the number of poly-pathological and poly-medicated patients increases this problem (Farmaindustria, 2016). In view of the foregoing, this adherence to pharmacological and non-pharmacological treatment offers a better prognosis in adequate evolution and control terms. Therefore, the life quality of people allows them to carry out their activities, although not in all cases. If it contributes to their being executed closer to their premorbid condition.

According to the results obtained, the medication type that showed the greatest representativeness was anti-hypertensives, a condition like that found by Gómez et al., (2021). Arterial hypertension

(HTN) is the main modifiable risk factor for cardiovascular disease. It occupies the first place among the loss causes of disability-adjusted life years. Heart disease has been the leading death worldwide cause for 20 years. Although, it now causes more deaths than ever. The deaths number due to heart disease have increased since 2000 by more than 2 million people, reaching almost 9 million people in 2019. Heart disease now accounts for 16% of all deaths from all causes (WHO, 2020).

On the other hand, a positive correlation was found between used medication and personal care. The highest mean scores in the self-care areas, relationships with other people, daily living activities (unpaid work), and participation in society were obtained by people with disabilities who use medications such as corticosteroids, anti-retrovirals, antibiotics, and anxiolytics. In this context, Dandicourt (2019) considers that according to Orem's theory, self-care is a behavior that exists in specific life situations, directed by people about themselves, towards others, or towards the environment. This is to regulate factors that affect their own development and functioning for the benefit of their life, health, or well-being. In this way, the use of medications in the presence of a certain health condition contributes to the existence of a self-care agency conceived as the ability of individuals to participate in their own care. Individuals who know how to satisfy their own health needs have a developed self-care agency capable of satisfying their self-care needs (Ferreira & Galdames, 2016).

5. CONCLUSIONS

The medical diagnosis, the external aids use, and the consumption of medications determine the disability perception.

On the other hand, in the participating people, the external aids use, and the consumption of medications benefit the activities performed. It contributes to self-care and favors the mobility of people with disabilities.

REFERENCES

Cuenot, M. (2018). Clasificación Internacional del Funcionamiento, de la Discapacidad y de la Salud. EMC-Kinesiterapia-Medicina Física, 39(1), 1-6. Recuperado el 2 de septiembre de 2022. Disponible en: http://inger.gob.mx/pluginfile.php/96260/mod_resource/content/149/Archivos/Dip_Enveje cimiento_saludable/MODULO_I/Unidad_IV/Clasificacion-internacional-del-funcionamiento-de-la-discapacidad-y-la-salud-6p.pdf.

Dandicourt Thomas C. (2019). Modelos de enfermería relacionados con el cuidado preventivo orientado a la comunidad y la familia. Rev Cubana Enferm; 34(4). Recuperado el 10 de septiembre, 2022. Disponible en: http://www.revenfermeria.sld.cu/index.php/enf/article/view/2318

De La Guardia Gutiérrez, Mario Alberto, & Ruvalcaba Ledezma, Jesús Carlos. (2020). La salud y sus determinantes, promoción de la salud y educación sanitaria. Journal of Negative and No

Positive   Results, 5(1),   81-90.   Epub   29   de   junio   de 2020.https://dx.doi.org/10.19230/jonnpr.3215

Departamento Nacional de Estadística. (2022). Estado actual de la medición de la discapacidad en Colombia.   Recuperado   el   03   de   septiembre,   2022.   Disponible   en: https://www.saldarriagaconcha.org/wpcontent/uploads/2022/04/abr_2022_nota_estadisti ca_Estado-actual_de_la_medicion_de_discapacidad_en-Colombia.pdf.

Esquivia C. T. La inclusión del concepto de discapacidad en el plan de estudios del programa de medicina.   Recuperado   el   04   de   septiembre,   2022.   Disponible   en: http://hdl.handle.net/10654/13339

Farmaindustria. 2016. Plan de adherencia al tratamiento. Uso responsable del medicamento. Disponible   en: https://www.sefac.org/sites/default/files/sefac2010/private/documentos_sefac/document os/farmaindustria-plan-de-adherencia.pdf

Ferreira Umpiérrez, A., & Galdames Cabrera, L. (2016). Red Internacinal de Gestión del Cuidado de Enfermería: Alcances y desafíos en el marco de la Cobertura Universal de Salud. Revista Cubana de Enfermería, 32(3). Recuperado el 10 de septiembre, 2022. Disponible en: http://www.revenfermeria.sld.cu/index.php/enf/article/view/1249

Gaviria-Bustamante K, Amador-Ahumada C,   Herazo-Beltrán Y & Galvis-Hernández Diana. (2020). Relación entre el funcionamiento y calidad de vida en personas con discapacidad. Archivos Venezolanos de Farmacología y Terapéutica; Caracas. 2019; 38 (3) : 166-173. Recuperado el 15   de   agosto,   2022.   Disponible   en: https://www.revistaavft.com/images/revistas/2019/avft_3_2019/7_relacion_funcionamient o.pdf

Gil-Obando L, López-López A, Avila-Rendón CL, Criollo-Castro CH, Canchala-Obando AM, & Serrato-Mendoza MP. (2016). Discapacidad y su relación con variables sociodemográficas y clínicas en adultos de San Juan de Pasto - Nariño, Colombia. Rev Univ Salud; 18(3): 505-13. Disponible en: http://revistas.udenar.edu.co/index.php/usalud/article/view/2744/pdf/

Gobernación de Sucre. Análisis de la situación de salud en Sucre. (2021). Secretaria de salud departamental.   Recuperado   el   07   de   septiembre,   2022.   Disponible   en: https://www.sucre.gov.co/secretaria-de-salud/documentos

Gobernación de Sucre. (2019). Política de Discapacidad de Sucre 2019-2029. Recuperado el 03 de septiembre, 2022. Disponible en: https://secretaria-de-educacion-departamental-de-sucre.micolombiadigital.gov.co/sites/secretaria-de-educacion-departamental-de-sucre/content/files/000073/3647_35165_poliiticapublicadiscapacidaddesucre20192029.pdf

Gómez Ramirez, E., Ordoñez Hernández, C., Calvo Soto, A., Buriticá Marín, E., Jaramillo Losada, J., & Rengifo Diaz, L. (2021). Condiciones de salud asociadas a discapacidad en adultos mayores de

un programa de actividad física. Revista Cubana de Investigaciones Biomédicas, 40(3). Recuperado de http://www.revibiomedica.sld.cu/index.php/ibi/article/view/1188

Gómez Ramírez, Esperanza, Ordoñez Hernández, Cecilia Andrea, Calvo Soto, Andrea Patricia, Buriticá, Edward David, Jaramillo, Jennifer, & Rengifo, Lina Marcela. (2021). Health conditions associated to disability in older adults attending a physical activity program. Revista Cubana de Investigaciones Biomédicas, 40(3), e1188. Epub 01 de septiembre de 2021. Recuperado en 13 de septiembre de 2022, de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S086403002021000400013&lng=es&tlng=en

Grisales-Romero, Hugo, González, Difariney, & Porras, Sandra. (2020). Años de vida saludable perdidos a causa de trastornos mentales y enfermedades del sistema nervioso de la población de Medellín, 2006-2012. Revista Colombiana de Psiquiatría, 49 (1), 29-38. Epub 12 de junio de 2020. https://doi.org/10.1016/j.rcp.2018.04.003

Lugones Seuret, M. J., Morales Dìaz, L. M. I., & Mainegra Rodríguez, M. O. (2019). Ética bioética y discapacidad. Revista Científica Cultura, Comunicación Y Desarrollo, 4(1), 39-46. Recuperado a partir de https://rccd.ucf.edu.cu/index.php/aes/article/view/191

Mukaka MM. A guide to appropriate use of Correlation coefficient in medical research. (2012). Malawi Medical Journal. 24(3):69-71.

Organización Mundial de la Salud, Organización Panamericana de la Salud, Madrid, Ministerio de Trabajo y asuntos sociales Secretaría general de asuntos sociales, Instituto de migraciones y servicios sociales. (2001). Clasificación Internacional del Funcionamiento, de la Discapacidad y de la Salud (versión abreviada). Recuperado el 02 de septiembre, 2022. Disponible en: http://apps.who.int/iris/ bitstream/10665/43360/1/9241545445_spa.pdf.

Organización Mundial de la Salud. (2013). El Abordaje de los Determinantes Sociales de la Salud a través de acciones intersectoriales: cinco casos de política pública de México.. Disponible en: http://iris.paho.org/xmlui/handle/123456789/6291

Organización Mundial de la Salud. (2021). Causas principales de mortalidad y pérdidas en salud de nivel regional, subregional y nacional en la Región de las Américas, 2000-2019. Portal de datos ENLACE, Pan American Health Organization; Recuperado el 02 de septiembre, 2022. Disponible en: https://www.paho.org/es/enlace/causas-principales-mortalidaddiscapacidad#:~:text=En%20toda%20la%20regi%C3%B3n%20en,total%20de%20ambos%20sexos%20combinados.

Organización Mundial de la Salud, Banco Mundial. (2011). Resumen: Informe mundial sobre la discapacidad. Recuperado el 14 de agosto, 2022. Disponible en: http://www.who.int/disabilities/world_report/2011/accesible_es.pdf

Organización Mundial de la Salud. (2021). Discapacidad y salud. Recuperado el 05 de septiembre, 2022. Disponible en: https://www.who.int/es/news-room/fact-sheets/detail/disability-and-health.

Organización Mundial de la Salud. (2020). Nota Descriptiva: La OMS revela las principales causas de muerte y discapacidad en el mundo: 2000-2019. Disponible en: https://www.who.int/es/news/item/09-12-2020-who-reveals-leading-causes-of-death-and-disability-worldwide-2000-2019.

Orozco, M. E., Valdivia, R., & Espinosa, R. (2021). Análisis situacional sobre las características y las necesidades de la población con discapacidad en Colombia, a partir de la Encuesta Nacional de Calidad de Vida (ECV) 2019. Bogotá.

Páez-Pineda OD, Gualdrón-Solano EL, Melo-Guarín AR & Ortiz-Calderón MV. (2021). Caracterización de discapacidad en pacientes con traumatismos de la médula espinal usando Whodas 2.0. Aten Fam. 28(2):89-94. Recuperado el 07 de septiembre, 2022. Disponible en: http://dx.doi.org/10.22201/fm.14058871p.2021.2.78796

Quelle Santana, L., Almenares Rodríguez, K., Alvarez Lauzarique, M., Pría Barros, M., Martin Corral, A., & Nodarse Silva, J. (2022). "Morbilidad en personas mayores con discapacidad. Policlínico Universitario: Luis Pasteur, 2019.". Revista De InformacióN CientíFica Para La DireccióN En Salud. INFODIR, 0(39). Recuperado de http://revinfodir.sld.cu/index.php/infodir/article/view/1276/1601

Saavedra-Guajardo E, Durán C, Escalera M, Mora B, Pacheco A & Pérez M. (2018). Discapacidad motora y resiliencia en adultos. A.D. Marenco-Escuderos. Estudios del desarrollo humano y socioambiental. (pp. 236-252). Barranquilla, Colombia: Ediciones CUR. Recuperado el 05 de septiembre, 2022. Disponible en: https://dialnet.unirioja.es/servlet/articulo?codigo=6676037

Vásquez Salazar, R. D., & Cardona Mesa, A. A. (2019). Dispositivos de asistencia para la movilidad en personas con discapacidad visual: una revisión bibliográfica. Revista Politécnica, 15(28), 107-116. https://doi.org/10.33571/rpolitec.v15n28a10.