Social Stigma Against Dyslexics: Exploring Public's Knowledge and Belief

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Abstract
Dyslexia is a learning disability that has often been misconstrued as a disease or mental disorder, leading to negative impressions from society. This research aims to investigate the relationship between knowledge and belief on dyslexia with social stigma, as well as to determine the extent to which knowledge and belief on dyslexia significantly influence the public's social stigma. In collecting the data, a seven-point Semantic Differential-based scale questionnaire was used with a total of 174 respondents representing the public in the present research. Partial Least Square Structural Equation Modelling (PLS-SEM) Approach was utilised involving Measurement Model to test the validity and reliability of the data, Structural Model to investigate the correlation between knowledge and belief on dyslexia and social stigma, as well as Importance-Performance Matrix Analysis (IPMA) to find out to what extent the importance and achievement of knowledge and belief about dyslexia influence social stigma. The results of the analysis proved that both the Path Coefficient Test of knowledge and belief were found to significantly affect social stigma with t-value of (4.044) and (3.573) respectively. It has also been discovered that knowledge on dyslexia serves as the most important factor with interest values of (0.305) and performance values of (42.585) outperforming belief about dyslexia by interest values of (0.258) and performance values of (45.177). These findings suggest that exposing more information on dyslexia to the public is crucial to avoid social stigma, as some people are still unfamiliar with dyslexia, which could lead to misconceptions and imprecise approaches in unleashing their capabilities.
Keywords: Knowledge, Belief, Developmental Dyslexia, Social Stigma

Introduction
The term dyslexia is generally associated with language learning disorders that challenge the learners' skills in reading, speaking, and writing; particularly in spelling. According to Chisom

(2016), the degree of difficulty experienced by dyslexics in acquiring language skills varies due to inherited differences in brain development and the type of teaching the person receives. Apart from that, dyslexia affects both children and adults, but as children are less able to hide their difficulties, as in reading aloud, having their writing and other expected achievements in a classroom or within society are more significant, as they are predisposed to be critically assessed as compared to adults (Alexander-Passe, 2015).

In addition to the challenges of acquiring language skills in line with their age level, people with dyslexia are often underachievers. Dyslexic were also prone to be regarded as lazy, unwise, and even worse, as disabled, especially in school with inflexible setting, no escape from reading and writing, plus unfair judgement with age-appropriate peers (Alexander-Passe, 2015). Nevertheless, people's the perception of people towards dyslexics could be different based on their level of knowledge and understanding, as well as their personal beliefs on dyslexia. On the other hand, the issue on differences may lead to stigma which is defined as a set of prejudices, stereotypes, discriminatory beliefs, and biases linked to the characteristics that differentiate a person from others (Sun, 2019).

In a study conducted by Alexander-Passe (2015) on *The Dyslexia Experience: Difference, Disclosure, Labelling, Discrimination and Stigma*, it has been discovered that dyslexics experienced discrimination due to their limitation and they felt there was a lack of public domain information on dyslexia and its effects, as most of their peers perceived the dyslexics' condition negatively. The shocking truth of the results indeed serves as the basis of the present paper to investigate the public's knowledge and beliefs about dyslexics and their relation to stigmatisation.

Apart from that, there was a study on *Understanding the Knowledge and Belief about Developmental Dyslexia among Indian Residents* which has revealed that more than half of the sample population had a moderate level of knowledge and belief on dyslexia (Sathyamurthi & Johney, 2022). However, the study generally focused on the knowledge and belief of Indian residents on dyslexics without investigating whether knowledge and belief influence social stigma towards people with dyslexia. In light of this, researchers of the present study keen to investigate the relationship between knowledge and belief on dyslexia with social stigma and to discover to what extent knowledge and belief influence public's stigma on dyslexics in order to unveil the reality exclusively in Malaysian context.

Conceptual Framework

The term stigma was introduced by Erving Goffman (1963) as an attribute that broadly discredits an individual, reducing him or her "from a whole and usual person to a tainted, discounted one." According to Goffman (1963), there are 3 primary types of stigma known as Mental Illness Stigma that is due to imperfections of character, Physical Deformation Stigma that is due to physical abnormality and Tribal Stigma that is due to negative attitudes or idea on a certain group.

Mental Illness Stigma can be categorised into five types which are, social stigma or public stigma, structural stigma or institutional stigma, self-stigma, health practitioner stigma and associative stigma (Olivine, 2022). On the other hand, Physical Deformation Stigma includes negative association with deafness and blindness or stigma associated with HIV or sexually transmitted infections Clair (2018) while Tribal Stigma that associated with race, ethnicity, religion, ideology and etc.

The present research paper focuses on social stigma specifically on the general public's thoughts and beliefs about people with dyslexia. In understanding the flow of this research,

a conceptual framework (Refer to Figure 1) was developed based on two prominent elements in identifying developmental dyslexia which are, knowledge and belief. The theory of stigma proposed by Erving Goffman, (1963) is referred to as the basis for the present research paper to provide extensive understanding on the relationship of knowledge and belief with social stigma on dyslexics.
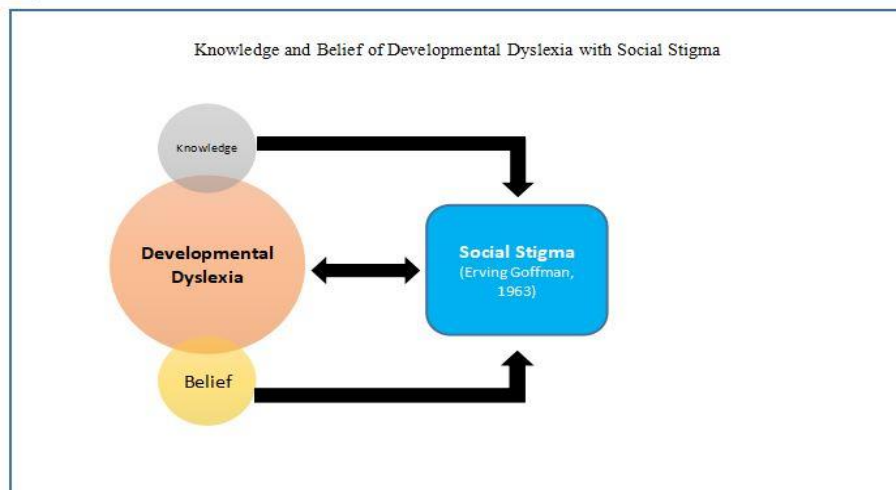

Figure 1: Conceptual Framework on Knowledge and Belief of Developmental Dyslexia with Social Stigma [*Source: Zaini et al.(2023)*]

Methodology

This research aims to investigate the relationship between knowledge and belief on dyslexia with social stigma as well as aims to discover to what extent knowledge and belief on dyslexia significantly predict public's social stigma. For the purpose of attaining the objectives of this research, investigating social stigma in the context of society in Malaysia, a quantitative research method was utilised to retrieve data. The primary data for this descriptive and analytical study were obtained through questionnaires administered to all Malaysians involving Peninsular Malaysia, Sabah and Sarawak. A simple random sampling technique has been used in this through Google Form survey to obtain the responses. The sample size for this study was 178 people who have been identified primarily by referring to the G*Power Calculation Software (Hair et al., 2019). Based on the G*Power 3.1 software analysis, the effect size (f2) used for this research paper is 0.15 of the minimum number. According to Cohen (1992), the effect size indexes and conventional value is medium but it is relevant for social sciences studies. The issue of error on alpha values (α) is 0.05 (95% confidence level) and beta value (β) is 0.05 (at 95% position to avoid error). Therefore, the minimum sample size required to be calculated by G*Power in this study is at least 138 respondents. Since a total of 178 people participated in this study, the minimum sample size requirement has therefore been met.

A seven-point Semantic Differential-based scale was used in the questionnaire to represent the most suitable responses from the respondents. The description of the semantic differential scales used includes, 1-Strongly Disagree to 7-Strongly Agree (Johns, 2010). To test the reliability of the answers of the questionnaires, reliability analysis was used in the study. The reliability analysis has been conducted by referring to the rule of thumb made by (Perry et al., 2004). They described that Cronbach's alpha (α) 0.90 and above shows excellent reliability, 0.70 to 0.90 shows high reliability, 0.50 to 0.70 shows moderate reliability and 0.50 and below shows low reliability. All factors of independent variables (knowledge and belief)

and dependent variables (stigma) have been tested using SPSS. 28. The study used mean, standard deviation, correlation, and regression analysis to examine the relationship between knowledge and belief on social stigma. Besides, the analyses also have been carried out to identify the most influential factors that affect stigma among Malaysians towards dyslexics. Once the questionnaires were successfully collected, the data were cleaned through SPSS 27.0 software. This stage is needed to reduce errors that may affect the study findings by removing unqualified data such as missing data, straightlining, outliers, normality test and collinearity statistics. Non-differentiation in ratings was detected and thus, a total of 4 respondents were discarded. However, the present study did not have missing data and outliers. In addition, the normality of the data was reviewed to ensure that the data provided for the analysis stage is within the range of abnormalities acceptable to PLS-SEM, which is between the values -1 and +1 (1 and þ1). However, for some cases (collinearity and/or small sample size), values lower or higher than 1 are still accepted Hair et al (2019), in contrast to Kline (2016) setting, skewness value <2.0 and kurtosis value <7.0. Testing of normality in the study found that the distribution of data was abnormal, but still in skewness and kurtosis that met the PLS-SEM requirements, which ranged from 2.0 to 7.0 (Kline 2016). The total number of questionnaires or respondents who qualified for the final analysis stage was 174.

Results

The results are categorised according to descriptive analysis on the demographic data and PLS-SEM Approach on Measurement Model to test validity and reliability of the data, Structural Model to investigate the correlation between knowledge and belief on dyslexia and social stigma as well as Importance-Performance Matrix Analysis (IPMA) to find out to what extent the importance and achievement of knowledge and belief about dyslexia influence social stigma.

Descriptive Analysis

This study involved 174 people who responded to the questionnaires distributed. The results showed that majority of the respondents were females (n=115, 66.1%) and the rest were males (n=59, 33.9%). From all the respondents, majority were Malay (n=164, 94.3%), followed by Chinese (n=4, 2.3%), others (n=5, 2.9%), and Indian (n=1, 0.3%). They were from the age group 20 to 29 years (n=88; 50.6%), 30 to 39 years (n=45; 25.9%), 40 to 49 years (n=28, 16.1%) and 50 to 59 years (n=1, 0.3%). The educational qualification of the respondents shows that 33.3% (n=58) at the level bachelor's degree, followed by master's degree (n=51, 29.3%), diploma (n=41, 23.6%), Ph.D (n=19, 10.9%) and certificate (n=5, 2.9%), but no respondents from SPM/STPM level. The respondents were from different states involving Melaka (n=48, 27.6%), Selangor (n=44, 25.3%), Johor (n=13, 7.5%), Kelantan (n=9, 5.2%), Negeri Sembilan (n=8, 4.6%), Kedah (n=8, 4.6%), Wilayah Persekutuan Kuala Lumpur (n=7, 4%), Pulau Pinang (n=6, 3.4%), Terengganu (n=6, 3.4%), Perak (n=5, 2.9%), Pahang (n=5, 2.9%), Sabah (n=5, 2.9%), Sarawak (n=5, 2.9%), Perlis (n=4, 2.3%), and Putrajaya (n=1, 0.6%). In addition, majority of the respondents come from semi urban (n=85, 48.9%), rural (n=27, 15.5%), and urban (n=62, 35.6%). It has been discovered that most of them know what dyslexia is (n=137, 78.7% respectively), with only 37 respondents (21.3%) do not know about it. Most of the respondents got information about dyslexia from mass media (n=105, 60.3%), educational curriculum (n=21, 12.1%), others (n=46, 26.4%), and seminar/conference (n=2, 1.1%).

PLS-SEM Approach

Measurement Model

In this section, testing of the validity and reliability of the data was performed involving three criteria that are essential to fulfil the requirements which are the validity of convergence, the validity of discrimination and the internal reliability of the study items (Ramayah et al., 2018). Convergence validity refers to the level of several items that can measure the same concept. This validity is achieved when all AVE (Average Variance Extracted) values exceed the value of 0.50 and CR (Composite Reliability) passes the minimum level of 0.7 (Hair et al., 2017). The reliability of the construct or factor studied is tested using the value of Cronbach alpha and the value of rhoA. The minimum required value is 0.7 (Cronbach, 1951). The findings showed that the minimum requirements for convergence validity, validity of discrimination and reliability of questionnaire items were met even though three items had a loading value of 0.5 (Gold et al., 2001). The results of the analysis were summarized in Table 1 below.

Table 1
Convergent Reliability Test

Construct	Item	Loading	Cronbach	rhoA	CR	AVE
Knowledge (KN)	KN3	0.573	0.7	0.71	0.777	0.5
	KN9	0.737				
	KN13	0.739				
	KN15	0.612				
Belief (BL)	BL5	0.734	0.72	0.74	0.762	0.501
	BL8	0.683				
	BL9	0.619				
	BL12	0.692				
Stigma (SG)	SG2	0.540	0.897	0.911	0.915	0.525
	SG3	0.666				
	SG4	0.698				
	SG5	0.727				
	SG6	0.820				
	SG7	0.845				
	SG8	0.849				
	SG9	0.770				
	SG10	0.534				
	SG11	0.716				

rhoA & CR: Composite Reliability, AVE: Average Variance Extracted [*Source: Zaini et al. (2023)*]

The figure below displays the reflective measurement model
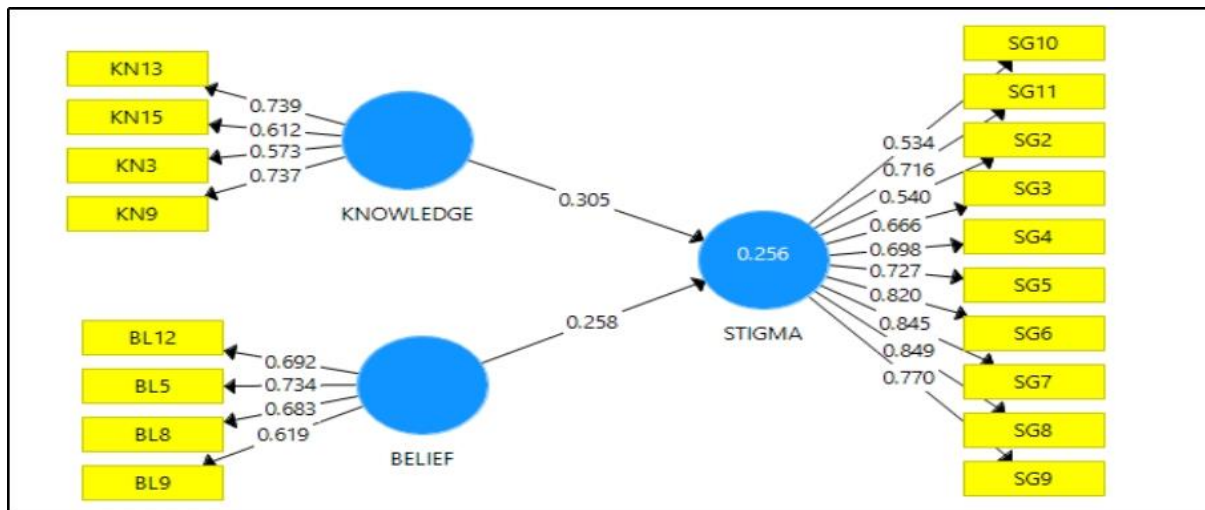
Figure 2: Reflective Measurement Model

The validity of discriminant was checked using the criteria of the Heterotrait-Monotrait method – HTMT (Henseler et al., 2015). If the HTMT value is 0.90 or smaller than 0.90, the validity of discriminant has been achieved (Gold et al., 2001). As described in Table 2, the validity of discrimination between the constructs of the studies is below the prescribed value of 0.90. All values obtained below the HTMT level of 0.90 Gold et al (2001) and this indicates that the validity of discriminant has been achieved.

Table 2
Ratio Heterotrait-Monotrait (HTMT)

	BL	KN	SG
BL			
KN	0.839		
SG	0.508	0.583	

BL: Belief, KN: Knowledge, SG: Stigma [*Source: Zaini et al. (2023)*]

Structural Model
In investigating the correlation between knowledge and belief on dyslexia and social stigma, two hypotheses were tested between the variables in the study. The Smart PLS 3.0 bootstrapping function Ringle et al (2015) was used to test the significant level and t-value of all path coefficients in the study model. The results of the analysis revealed that both the path coefficient of knowledge and belief were found to significantly affect social stigma at level 0.05 with a value of $t \geq 1.96$. Next, the quality of the study model was determined by the effect size ($f2$), R2 value and Q2 value (Hair et al., 2017). The analysis findings showed an intangible effect size ($f2$) between the two constructs with (0.057) and (0.079) respectively. The value of R2 is large at 0.256 in which Q2 exceeded 0 (0.115) has indicated that the study model has a small predictive relevance (Hair et al., 2017). All the results of the study's hypothetical testing analysis and model quality are described in Table 3 below.

Table 3
Path Coefficient Test

Hypothesis	Correlation	Std. Beta	Std. Error	t-value	Result	R²	f²	Q²
H1	KN -> SG	0.321	0.076	4.044**	Supported	0.256	0.079	0.115
H2	BL -> SG	0.264	0.072	3.573**	Supported		0.057	

BL: Belief, KN: Knowledge, SG: Stigma **p<0.05, t value greater than 1.96 [Source: Zaini et al., (2023)]
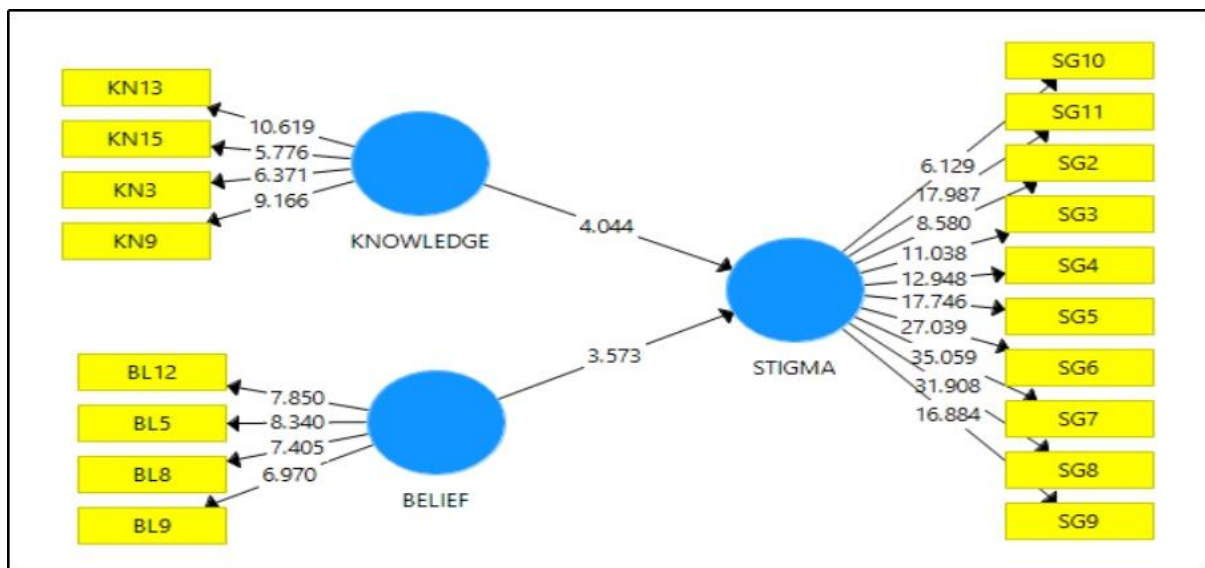

Figure 3: Structural Model

Importance-Performance Matrix Analysis (IPMA)
To obtain the diagnostic value of the model, an IPMA analysis was carried out (Martilla and James, 1977). This assessment is based on a comparison between the average value of stigma (SG) and the expectation of PLS which will result in one measure of the importance of each construct in the study model. In more detail, through the analysis of IPMA, the importance and achievement of each factor influencing the stigma will be identified.

Table 4
IPMA Analysis

Construct	Importance (Total Effect)	Performance (Index Value)
KN	0.305	42.585
BL	0.258	45.177
SG	-	30.653

Table 4 clearly shown that factor knowledge (KN) is the most important factor with interest values (0.305) and performance values (42.585) outperforming belief (BL) by interest values (0.258) and performance values (45.177).

Discussion

Knowledge in this research context includes general understanding about dyslexia which could be vary among the respondents while belief in this research context covers the respondents' opinion on the claims about dyslexia based on their own reasoning. Through the demographic data, it has been discovered that majority of the respondents know about dyslexia with (78.7%) respectively. The data showed that their knowledge on dyslexia mostly from the mass media (60.3%), educational curriculum (12.1%), seminars/conferences (1.1%) and other sources (26.4%). Despite the majority who are aware about dyslexia, there are people who do not know what dyslexia is (21.3%). Due to the findings on the respondents' attentiveness on dyslexia, it is believed that necessary actions should be taken to increase public awareness about this learning disorder through various platforms.

In referring to the relationship of knowledge and belief on dyslexia with social stigma, the present research findings revealed positive and significant relationship of knowledge (4.044) and belief (3.573) on dyslexia with social stigma. These results suggest that public's knowledge about dyslexia and their beliefs on the subject are essential in determining their actions and perceptions towards the dyslexics. The findings are in line with previous studies that suggested discrimination towards dyslexics whether they are being perceived as a disability or not was due to the lack of public domain information on dyslexia Alexander-Passe (2015) which has led to negative assumptions and inability to get involve for assistance.

Furthermore, multiple studies on stigma have proven that the level of knowledge on a particular issue is the key factor in influencing public's stigmatisation, and through Smart PLS analysis, the present study also revealed similar findings in which knowledge (0.305) has been identified as the most important factor in influencing social stigma towards dyslexia. However, it is interesting to discover that even though knowledge statistically has the highest interest value, the performance value of knowledge (42.585) is lower than belief (45.177). The results call for effective and immediate actions to provide more information and exposure on dyslexia to the public for better deliberation and thus, preventing misconceptions towards the dyslexics due to lack of knowledge about their condition. Indeed, involvement, intervention and assistance from many people are required as in the parents who need to be alerted on their children's development, the teachers who have to recognise their students' progress in learning, the school administrators who can provide appropriate training to all teachers in educating them about dyslexia and most importantly the role of government specifically in education line to ensure all programs organised involving dyslexics are well-supported.

Conclusion

In conclusion, this research greatly improves our understanding of dyslexia and how society views it by shedding light on the stigma dyslexics face. Stigmatisation towards dyslexics occurs in our country due to lack of knowledge and personal belief without familiarity that lead to misconceptions which is unfair to the recipients. The study shows the importance of awareness and education in clearing up myths and misconceptions, and it highlights the urgent need for better support strategies. By placing dyslexia within the larger context of cognitive disorders and societal attitudes, this research adds valuable insights into the social and psychological issues involved. Its findings provide a strong basis for creating better policies and educational programs for early diagnosis and support for dyslexics. Additionally, by calling for more involvement from parents and teachers, the research emphasizes our shared responsibility to create a more inclusive environment. This study not only adds to

academic knowledge but also offers practical recommendations to improve how society views and treats dyslexics, helping them reach their full potential.

 Indeed, the present research is considered as the basis in determining more arising issues involving dyslexia in the society and thus, necessary actions can be taken to ensure these people are not being mistreated especially at the early stage when they themselves might not know about their own disorder. In addition to that, it is crucial for the parents and teachers to be exposed to the signs of dyslexia for further arrangements in helping the dyslexics. It is consequently recommended for future studies to use different methodological approach by involving specific sample of participants in relation to the issue discussed in the present research paper. Thus, this research is hoped to contribute to a better understanding about the notion of dyslexics and public's roles in assisting them to unlock their capabilities as early as they can.

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