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Attitudes towards suicidal behavior in low and middle-income countries: a systematic review.

Actitudes hacia el comportamiento suicida en países de ingresos medios y bajos: una revisión sistemática.

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Abstract:

Suicide is a multi-causal and complex phenomenon that affects thousands of people worldwide. One of the perspectives for its understanding is the analysis and understanding of attitudes toward suicide; these attitudes vary between countries and cultures, so it is required to contextualize them. The study's objective was to develop a systematic review of attitudes towards suicide in low- and middle-income countries due to increased suicides in these countries. The search engines were EBSCO, Google Scholar, PubMed, ScienceDirect, Scielo, Scopus, Taylor and Francis, and Wiley, following the PRISMA statement for developing systematic reviews. Results show that attitudes toward suicide are influenced by factors such as sex, age, profession, and religion; these play an essential role in behaviors, beliefs, and emotions toward suicide. The conclusion focuses on the importance of developing studies in low and middle-income countries and the generation of contextually and culturally adjusted evidence in developing intervention and prevention strategies.

Keywords:

suicide; suicidal behaviors; attitudes; middle- and low-income, systematic review

Resumen:

El suicidio es complejo y multicausal, afecta a miles de personas en el mundo. Una perspectiva para su comprensión es analizar y comprender las actitudes hacia el suicidio; Estas actitudes varían entre países y culturas, por lo que se requiere contextualizarlas. El objetivo del estudio fue desarrollar una revisión sistemática de las actitudes hacia el suicidio en países de ingresos bajos y medios debido al aumento de suicidios en estos países. Los motores de búsqueda fueron EBSCO, Google Scholar, PubMed, ScienceDirect, Scielo, Scopus, Taylor and Francis y Wiley, siguiendo la declaración PRISMA para revisiones sistemáticas. Los resultados muestran que las actitudes hacia el suicidio están influenciadas por factores como sexo, edad, profesión y religión; influyendo en comportamientos, creencias y emociones hacia el suicidio. Concluyendo en la importancia de desarrollar estudios en países de ingresos bajos y medios, generar evidencia ajustada contextual y culturalmente para desarrollar estrategias de intervención y prevención.

***Palabras Clave**:*

suicidio; conductas suicidas; actitudes; ingresos medios y bajos, revisión sistemática

INTRODUCTION

Suicide is a global health problem of epidemic proportions and involves a deliberate act by which a person ends their life (World Health Organization [WHO], 2019). Data from the WHO report 703,000 suicides globally in 2019, and across the world, 77% of all suicides occur in Low- And Middle-Income Countries (LAMIC) (WHO, 2021). An attempt has been made to explain suicide based on theoretical models, risk factors, and epidemiological data analysis. However, the phenomenon's complexity has required continued research to understand and prevent deaths by suicide (Franklin et al., 2017; Naghavi et al., 2019; Zalsman et al., 2016).

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While accurate data on suicide deaths and suicide attempts are generally difficult to ascertain, reliable statistics on suicide behaviors are unavailable from LAMICs, as suicide is mostly criminalized, and data on the act are not routinely collected (Glenn et al., 2020; Goñi-Sarriés et al., 2019; López, 2017; Mars et al., 2014; Mishara & Weisstub, 2016; Vargas et al., 2019; WHO, 2018). Furthermore, another of the complexities of suicide studies is the wide range of suicidal behaviors, "Suicidal behavior refers to a range of behaviors that include thinking about suicide (or ideation), planning for suicide, attempting suicide and suicide itself" (WHO, 2014, p.12).

Attitudes are conceptualized as a mental state that generates a willingness to respond in a certain way in certain situations. They are formed from experience and predispose reactions to current events based on past experiences (Escalante-Gómez et al., 2012). Ellis & McClintock (1993) conceptualize attitudes as the combination of thoughts and feelings that potentially influence the execution of an action and allow a balance in people's value systems. The construct of attitudes allows understanding, explaining, predicting, preventing, and modifying behaviors. Attitudes are interrelated with motivation, perception, and personality, used to understand human behavior (Whittaker, 2007).

Cochran & Winfree (2017) have proposed that attitudes towards suicide are generated from learning processes and can be modified. Therefore, it has been pointed out that attitudes are not rigid and can vary and change over time (Bustamante, 2002). As established by Mofidi et al. (2008), attitudes toward suicide were determined by acceptance, condemnation or misunderstanding, and the possibility of prevention. They found that having experiences close to suicidal behaviors predicted non-condemning and accepting attitudes toward suicide.

Attitudes towards suicide, as well as its epidemiological characteristics, might differ from country to country. Studies have reported that the highest number of suicides in the world occurs in LAMICs (Graziani et al., 2016); with higher rates in women and younger people (Milner & De Leo, 2010); economic difficulties, lower quality of life, and lack of access to mental health treatments (Hagaman et al., 2013; Silva et al., 2020); as well as differences in cultural aspects and attitudes of greater condemnation towards suicide (Milner & De Leo, 2010) are observed in LAMICs. Moreover, health systems in those countries tend to have more deficiencies, difficulties, and inequities in dealing with suicidal behaviors (Hagaman et al., 2013; Osafo et al., 2012). Thus, it is important to study the characteristics of suicidal behaviors and effective prevention and care strategies in LAMICs (Quarshie et al., 2021; Milner & De Leo, 2010), in which attitudes play a relevant role.

Studies and systematic reviews have focused on different aspects, and populations in order to identify risk and protective factors, information for suicide prevention, and the development of interventions to promote mental health but do not include the review of attitudes that can influence all these variables (Aggarwal et al., 2017; Amiri, 2020; Amiri & Behnezhad, 2020a & b; Chiu et al., 2021; Fox et al., 2021; González-Sancho & Picado, 2020; Hatchel et al., 2019; Li et al., 2019; O'connell et al., 2020; Phan et al., 2019).

Therefore, the aim was to analyze the attitudes towards suicide reported in studies in the period of 2010-2020 in LAMICs through a narrative systematic review. 8

METHOD

This review was completed in 2020 following the PRISMA-P statement (Moher et al., 2015).

Data extraction was performed using a search procedure in the following databases: EBSCO, Academic Google, PubMed, ScienceDirect, Scielo, Scopus, Taylor & Francis, and Wiley. All articles were in English. Keywords' suicide' and 'attitudes' were entered with the AND boolean operator, and the articles were filtered from 2010 to 2020. First, the title and abstract were reviewed; subsequently, the general data was scanned and systematized in Excel sheets; finally, the repeated articles were eliminated.

Selected studies were reviewed to ensure their eligibility and read in full to obtain information on the approach to attitudes towards suicide, objective, country, sample, instruments, or techniques used, type of analysis developed, top results, and conclusions. In the Supplementary Materials, specific information is in Table 1.

Inclusion criteria established that the article focused on the study of attitudes towards suicide, any population group, results based on empirical research and developed in LAMIC as classified by the World Bank (2020). Excluded articles focused on developing measure instruments, theoretical articles, conference proceedings, systematic reviews, meta-analysis, and focused on assisted suicide.

The risk of bias assessment was developed by two authors (KPVG and LMSL), who established parameters and operational definitions to review each article separately; a third author (FPB) review was requested to determine the result where the assessment did not coincide. Each criterion was evaluated with one or zero, depending on whether it was present or absent. Ten aspects of each article were reviewed: Clear objective (1); gender-equitable sample (40/60% max.) (2); clear sample selection (3); the theoretical foundation of the instrument (4); instrument reliability (5); instrument validity (6); context description (7); sufficient data to support results (8); approval of research by ethic committee (9); and precise results (10). This information is presented in Supplementary Materials Table 2.

RESULTS

The general search of the databases resulted in 1,997 articles using the keywords. After screening the titles and abstracts to identify the articles that met the inclusion requirements, 196

were selected, and eight duplicates were eliminated. Fifty-five articles were selected for full text analysis.

From the prior selection, 11 were discarded; one used the same sample in different articles, one was published out of time range, nine did not focus on attitudes towards suicide, and three were instrument validation. Overall, 44 articles met all the inclusion. The process of identification and selection is depicted in Figure 1 adapted from the PRISMA guidelines (Page et al., 2021).

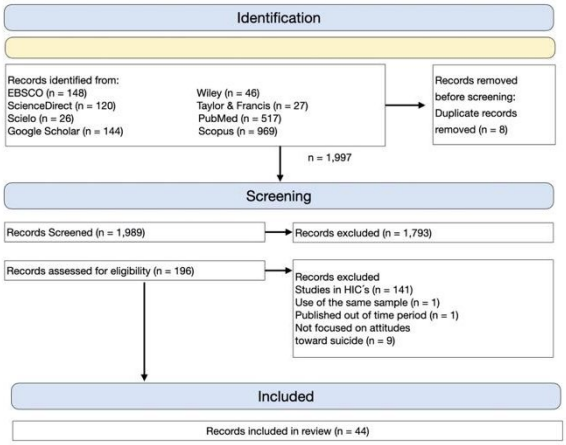

Figure 1. Flow chart of the phases of the systematic review

The studies reviewed focused mainly on attitudes toward suicide, in second place attitudes towards suicidal patients, attitudes towards suicide prevention, and finally, attitudes towards suicidal people. Seven articles reviewed two of the themes mentioned above.

The studies were carried out with different populations. Most of the studies (15) focused on health professionals: nursing (7 studies), medicine (5 studies), and psychology (1 study); in some cases, the attitudes between these professionals or between the same profession but with different degrees of specialization, area or years of experience are contrasted to determine whether attitudes towards suicide differ. In 12 studies, the samples were from university students; the attitudes towards suicide of medical students were studied in 5, nursing students in three, and psychology students in two. In eight studies, the sample was obtained from the general population, of which five specified whether they were urban, rural, or both. Three studies were conducted with school children and adolescents, and three more with youths. Three more studies were conducted with the community, political or religious leaders. Another study was with people who practice Hinduism or the Muslim religion, one more with married women, and finally one with relatives of people who had taken their own lives.

Regarding the countries where the studies were developed, they were in China (9 studies), Ghana, Turkey (6 studies in each country), India (5 studies), Brazil, Iran, Malaysia (3 studies in each country), South Africa, Uganda (2 studies in each country), Cambodia, Colombia, Haiti, Mexico, Nigeria, the Philippines, and Russia (one study in each country). Five articles made comparisons in more than one country, some of which did not belong to a LAMIC but reported the results separately for each country.

The methodological approaches of the studies were: 13 studies used a qualitative approach (10 used one-to-one interviews and three used focus groups discussions); 27 studies had quantitative approaches where instruments such as the Attitudes Towards Suicide Scale (E-ATSS) (Eskin, 2004), Suicide Attitude Questionnaire (QSA) (Xiao et al., 1999), Eskin's Social Reactions to Suicidal Person's Scale (E-SRSPS) (Eskin, 2004), Scale of Public Attitudes about Suicide (SPAS) (Li et al., 2011), Suicide Behavior Attitude Questionnaire (SBAQ) (Botega et al., 2005), Suicide Opinion Questionnaire (SOQ) (Sun et al., 2007), Attitudes towards Suicide questionnaire (ATTS) (Renberg & Jacobsson 2003) were used; four studies used mixed methods designs.

Regarding the biases detected in the studies, the lack of precision in the instruments used to analyze the subject stands out; in some, it was only mentioned that standardized instruments or interviews were used but without delving into the structure, reagents, or characteristics of the instruments.

Risk of bias assessment

Regarding the risk of bias, seventeen articles (38.63%) obtained a score between 10 and 8 points; therefore, they had parameters of low risk of bias. For the scores of seven and six points, thirteen articles (29.54%) showed a medium risk of bias. 31.83% of the studies showed a high risk of bias.

The more frequent components of risk of bias in the articles were: the lack of balanced samples in terms of sex, there was an overrepresentation of women in the samples (30 studies); failure to report the reliability (19 articles), and the validity of the instruments used (18 articles) (these data were referred in a general way but not for the samples or specific country in which were applied); there was no clear selection of the samples (18 articles).

There was a great diversity of instruments used to measure attitudes towards suicide, which complicates the comparison of the results among them. Moreover, the lack of reliability and validity of instruments used was frequent. The sample selections were non-probabilistic, and the methods to obtain them were not clearly reported (41% of the articles).

Table 1.

Supplementary Materials. Articles general information **.**

Source	Country	Sample	Instrument	Main results
Hagaman et al., 2013	Haiti	8 healthcare workers & 16 community members	Semi-structured interviews	Healthcare workers underestimated frequency of suicide, less likely to interpret suicide-related claims as representing true intent and fail to recognize suicide as a serious problem. Religious perspectives influenced attitudes toward suicide in the community members.
Osafo et al., 2012	Ghana	9 clinical psychologist & 8 emergency nurses	Semi-structured interview	Psychologists younger in practice and majority of nurses more judgmental and moralistic toward suicide, religious considerations underpinned moralistic attitude; older psychologists see suicidal behavior as mental health issue.
Eskin et al., 2014	Slovakia and Turkey	541 Turkish high school students	self-report questionnaire; 24 statements from Eskin (2004) about attitudes toward suicide	Adolescents more rejecting, religious, believed that suicidal persons would be punished in life after death, and toward an imagined suicidal close friend were more accepting. Females scored higher on social acceptance, suicidal students scored higher on acceptability of suicide and open reporting suicide
Jegannathan et al., 2016	Cambodia	48 students	Focus group interview	Prevailing suicide-stigmatizing societal attitudes, double-edged media, and suicide-ambiguity in Buddhist religion
Knizek et al., 2013	Uganda	30 mental health personnel	in-depth interviews	Suicide perceived as a legal crime, taboo, unacceptable by their religion, abnormal and negative
Nebhinani et al., 2013	India	308 nursing students	Sociodemographic profile, Suicide opinion questionnaire	Favorable attitude for half of the attitudinal statements, uncertain for rest half of the statements. Positive disposition towards suicide attempters.
Osafo et al., 2011	Ghana	27 laypersons, urban & rural settings	semi-structured interview	View of suicide as representing a social injury, negative attitudes, stigma on family, condemnation of suicide, criminalization of suicide. Rural and urban informants were similar in attitudes. Informants with personal experiences with suicide had non-condemnatory attitudes.
Emul et al., 2011	Turkey	335 students	Social distance, skillfulness assessment, and dangerousness scale	Negative attitudes were predominant in the students.

Source	Country	Sample	Instrument	Main results
Osafo et al., 2013	Ghana	27 adults rural & urban areas	semi-structured interview	Participants committed to core and normative religious beliefs, suicidal behaviors unacceptable, motivated by religion to help during suicidal crisis.
Rezapur-Shahkolai et al., 2020	Iran	923 married women	Beck Scale for Suicidal Ideation, questionnaire of Theory of Planned Behavior	The direct effects of Perceived Behavioral Control, Attitude and Suicidal Ideation on the Suicidal Intention were significant and inverse, inverse, and direct, respectively.
Tiwari et al., 2011	India	100 doctors with multiple specialties	34 item questionnaire yes/no response	Rejection, avoidance, hostility, and indifference was found. Main reasons for these attitudes were medical legal issues and perception that suicide patients drain resources.
Meissner et al., 2016	South Africa	13 men (20 to 25 years)	In-depth semi-structured interviews	Permissive attitudes, suicide as a morally defensible alternative in specific situations, provides means of regaining control, power, communicating, and rendering oneself visible, brave act requiring strength and determination.
Osafo et al., 2018	Ghana	25 health professionals	Semi-structured interview	Majority viewed suicide as public health concern, religion is an interpretative grid for attitudes towards suicide, important dimension of moral view was the tendency to inhibit the expression of empathy towards suicidal patient, some expressed a changed attitude from negative to new positive attitude (transitioned attitudes) resulted from experiences with suicidal crisis involving friends or relatives.
Mugisha et al., 2011	Uganda	28 focus group & 30 key-informant urban & rural	focus group and interviews	Suicide perceived as dangerous to family & community, who adopted ritual practices to distance themselves both symbolically and socially from the suicide. Suicide is culturally interpreted as a misfortune.
Osafo et al., 2019	Ghana	10 rural community leaders	Interviews	Two views of suicide: health crisis and moral taboo, more neutral position in gatekeeping role, providing support for persons in suicidal crisis more than exercising of condemnation.
Zou et al., 2016	China	983 urban & rural	Scale of Public Attitudes about Suicide	General neutral attitude toward suicide. Attitudes in urban & rural residents, had no statistical difference.

Source	Country	Sample	Instrument	Main results
Li et al., 2010	China	608 rural residents, 582 urban & 629 college students	Acceptability of Suicide Scale, multidimensional questionnaire about suicide-related attitudes, and focus group.	College students had more permissive attitudes, urban residents were more accepting of suicide as a response to life stressors. Women had higher overall acceptability scores. Years of formal education, gender, and age were associated with the acceptability of suicide.
Poreddi et al., 2016	India	436 households	standardized questionnaire through face-to-face interview; Attitudes towards Suicide questionnaire	Majority of women accepted their family members made suicidal attempts & expressed suicidal thoughts. More men agreed that it is possible to help a person having suicidal thoughts & most suicide attempts are impulsive actions; & would consider the possibility of taking their life if they had a severe, incurable, disease
Zhong et al., 2018	China	3031 rural workers in city, 16 years & above	Subscale of Scale of Public Attitudes about Suicide, structured questions	They average 75.0, more positive attitudes significantly associated with male gender, low education level, ethnic minority, low monthly income, and originating from western China.
Eskin et al., 2015	Austria and Turkey	351 Turkish medicine and psychology students	Statements adapted from Beck et al., 1979; 25-item Perceived Social Reactions Scale to Suicidal Disclosures Scale (constructed for this study); Attitudes Towards Suicide Scale (Eskin , 2004)	More participants believed that people who think and plan suicide disclosed their thoughts and plans to others and thereby asked for help reported disclosing their own suicidal thoughts; more Turkish than Austrian students disclosed their thoughts to a sibling, relative, opposite-sex friend, girlfriend/boyfriend/spouse, or to a health professional; Turkish students, scored higher on the helping factor.
Evans et al., 2018	Cape Town	98 prehospital transport providers	Interview	Negative attitudes towards suicidal patients; Expressed feeling drained from these encounters, scared, threatened, difficult to not be judgmental and to empathize.

Source	Country	Sample	Instrument	Main results
Gianccehero et al., 2017	Brazil	28 nurses & 188 nursing assistants in emergency	Suicide Behavior Attitude Questionnaire	Nurses in mental health services reported less moralistic/judgmental attitudes; No differences between men and women; people without experience/training scored higher on negative feelings toward the patient.
Siau et al., 2017	Malaysia	448 people & 385 form medical areas	Suicide Opinion Questionnaire	Majority expressed negative attitudes, psychiatric workers were less likely to have judgmental attitudes.
Lopez-Narvaez et al., 2020	Mexico	355 university students from Health Science School	Semi-structured questionnaire; MINI International Neuropsychiatric Interview in Spanish; Attitude Toward Suicide Prevention.	Differences in attitude between nursing & medicine students, most negative attitude in nursing students; attitude toward suicide prevention was influenced by having had personal history of suicide ideation or attempt, showing negative attitude. Students without family history of suicidal behavior showed negative attitude.
Siau et al., 2019	Malaysia	189 nurses (women)	Modified Suicide Opinion Questionnaire	Suicide-related training should focus on improving the attitudes of nonpsychiatric nurses all of whom reported more negative attitudes toward suicidal patients.
Olibamoyo et al., 2020	Nigeria	226 doctors and nurses	Attitudes Toward Suicide Scale	Slightly positive attitudes toward suicidal behavior. Predictors of less positive attitudes were nursing profession and high self-rated irritation toward suicide. Participants whit previous attempts had less positive attitudes.
Vedana et al., 2016	Brazil	19 nurses	Interviews	Predominantly opposition, judgments, and incomprehension to patients, negative feelings, view of suicide as unjustifiable, & difficulty in having empathetic relationship with patients.
Flood et al., 2018	England & Turkey	240 nursing students	Attitudes towards Suicide Scale, Social Reactions to Suicidal Persons Scale	Turkish nursing students scored higher on punishment after death, hiding suicidal behavior, & reactions to a suicidal peer. Adult nurses recorded higher scores on suicide as a sign of mental illness, mental health & social acceptance.
González-Aristizabal et al., 2020	Colombia	300 medicine & psychology students	Questionnaire of attitudinal beliefs about suicidal behavior	Psychology students had greater moral rejection & greater acceptance of their own suicide. Medical students had higher attitude towards legitimization of suicide & justification in terminally ill patients.

Source	Country	Sample	Instrument	Main results
Jiao et al., 2014	China	187 psychiatrists	Scale of Public Attitudes about Suicide	Gender & age were factors strongly correlated with attitudes. Females were more likely to believe that suicide is preventable but less likely to feel empathy for suicidal behavior. Psychiatrists with longer formal education were less likely to have stigmatizing attitudes & more empathy.
Berge et al., 2016	Russia & Norway	119 nurses, psychologists, physicians	Understanding Suicidal Patients Scale and Attitudes Towards Suicide Scale	Positive attitudes were reported. Few doctors or nurses agreed suicide can be prevented.
Tan et al., 2017	China	6,568 children & adolescents	Beck Scale for Suicidal Ideation–Chinese Version, Mental Health Test, Suicide Attitude Questionnaire	Attitudes towards suicide negatively associated with suicidal ideation. Attitudes towards suicide partially mediated link between mental health status and severity of suicidal ideation. Children & adolescents who reported unfavorable attitudes towards suicide had lower suicidal ideation in high & low levels of mental health status.
Eskin et al., 2011	Austria & Turkey	326 Turkish medical students	Questionnaire of opinions about attitudes towards suicide, and reactions to an imagined suicidal friend	Turkish Students reported more punishment after death and hiding suicidal behavior. Suicidal students scored higher than non-suicidal on acceptability of suicide and seeing suicide as a solution.
Estrada et al., 2019	Philippine	171 adolescents, 18 teachers & 12 learners	In-depth interviews, Columbia Suicide Severity Rating Scale	No significant difference in permissiveness towards suicide was observed between those who reported suicidal ideation or behavior and those who did not.
Foo et al., 2014	Malaysia	139 college students	Religious Commitment Inventory, Attitudes Toward Suicide Scale, and Suicidal Behavior Questionnaire-Revised	Chinese higher acceptance of suicide than Malay. Buddhist higher acceptance of suicide than Muslims. Positive relationship between acceptance of suicide and lifetime and in the past 12 months suicide ideation, and self-reported likelihood of future suicide attempts. Acceptance of suicide and suicide prevention ability negatively related to religious commitment.

Source	Country	Sample	Instrument	Main results
Ren et al., 2018	China	930 teenagers	Capability for Suicide Questionnaire, Beck: Scale for Suicide Ideation & Hopelessness Scale, Suicide Attitude Inventory, Painful & Provocative Events Scale, Nonsuicidal Self-Injury, short Depressive symptoms, Anxiety Stress Scale	higher levels of pain tolerance, more detailed suicide plans, more positive attitudes towards suicide, as well as more painful and provocative experiences and more severe depressive symptoms were positively associated with increased likelihood of the engagement in both suicide ideation and suicide attempts.
Eskin et al., 2016	Turkey	70 imams	Eskin's Attitudes toward Suicide Scale, & Eskin's Social Reactions to Suicidal Persons Scale	Imams: suicide unacceptable option, those engaging in suicidal behavior to be punished after death, socially accepting and helping reactions to imagined close friend who attempted suicide.
Thimmaiah et al., 2016	India	172 individuals	interview, and Attitude Towards Suicide Questionnaire	Muslim disagreed that suicide is acceptable in incurable disease and agreed anyone can commit suicide. Majority of Hindus were undecided regarding whether one should talk or not about suicide. Significant difference between Hindu and Muslim regarding whether Suicide happens without warning.
Jones et al., 2015	India	21 nurses	Interviews	Patient care and treatment are directly influenced by the nurse's religious beliefs, physical duties prioritized over psychological support, negative attitudes hold potential to lead towards bias in interactions, cultural attitudes disassociated in groups of us and them (suicide people).
Zhang et al., 2010	China	264 informants	Psychological autopsy and General Social Survey's (GSS)	Findings did not support that suicide death affects the attitudes toward suicide in suicides' family members. Age was associated while believing in God was negatively associated with pro-suicide attitudes, depression status was positively related to the approving attitudes toward suicide.

Source	Country	Sample	Instrument	Main results
Liu et al., 2016	China	405 individuals	Structured Clinical Interview (DSM-IV), Suicide Attitude Questionnaire, Beck Depression Inventory, UCLA Loneliness Scale, NEO Personality Inventory, 3-T Siemens Magnetom Trio scanner	Permissive attitudes toward suicide were significantly correlated with gray matter volume in the left dorsolateral prefrontal cortex (DLPFC) and the left cerebellum, loneliness had a mediating effect on the relationship between the DLPFC volume and attitudes toward suicide, negative correlation between attitudes toward suicide and BDI scores and UCLA scores, openness to experience negatively correlated with attitudes toward suicide.
Osafo et al., 2011	Ghana	15 final year students psychology	In-depth interviews	Generalized negative attitude toward suicide. Suicidal behavior perceived as alien to the cultural norms, proscribed, and stigmatized. Negative attitude expressed through avoiding discussion of suicidal behavior, trivializing reasons and condemnation, offensive to God and family.
Da Silva et al., 2011	Brazil	270 public health professionals	Suicide Behavior Attitude Questionnaire	Attitudes of negative feelings in relation to patients with suicidal behavior, suicidal right, professional capacity perception showed significant change after the training.
Yousuf et al., 2013	China	22 third- and fourth-year medical students	Chinese Attitude toward Suicide Questionnaire, in-depth interviews (3 students)	Reduced negative appraisal, stigmatization, and fatalism towards suicide, and increased awareness of the similarities between attempted and completed suicides across various characteristics after training. Significant gender differences, females showed more agreement with negative view of suicide. Qualitative content analysis of the interviews showed that the students felt a change in attitude towards suicide.

Main findings

In the reviewed studies, there were two main positions regarding attitudes toward suicide: acceptance or rejection. Also, differences in attitudes were reported based on nationality, age, profession, sex, education, or religion. Negative attitudes involve rejection, stigmatization, considering suicidal behaviors abnormal, judging them against social norms, and affecting the community and family (Eskin, 2014; Jegannathan et al., 2016; Knizek et al., 2013; Nebhinani et al., 2013; Osafo et al., 2011a). These attitudes are manifested by avoiding talking about suicide, considering that there is no valid reason to take their own life, and declaring that their position towards people with suicide behaviors was avoidance and indifference (Eskin, 2014; Jegannathan et al., 2016; Knizek et al., 2013; Nebhinani et al., 2013; Osafo et al., 2011a).

Positive attitudes towards suicide were associated with accepting the right to die, considering suicide as an acceptable solution in some situations, a way to have control, and an act of courage, strength, and self-determination (Emul et al., 2011; Osafo et al., 2011a, Osafo et al., 2013; Rezapur-Shahkolai et al., 2020; Tiwari & Srivastava, 2011). Positive attitudes were also manifested toward the aim of helping family, friends, or patients with suicidal behaviors (Eskin et al., 2014). Acceptance attitudes were observed more in those with personal experiences or close people with a history of suicidal behavior (Osafo et al., 2018).

Regarding attitudes towards suicide in the general population, some studies found that suicide was considered a severe problem, and that community support was important for prevention (Hagaman et al., 2013). On the other hand, other studies reported that it was seen as an affront to society and the community and affected the honor of the family of those who died by suicide (Mugisha et al., 2011; Osafo et al., 2011a).

A study reported more neutral attitudes and less condemnation of gatekeepers among community leaders. Although two general views on suicide were also identified, one as a health problem and the other as a moral taboo (Osafo et al., 2019).

Differences were reported between the urban and rural populations. The rural population had more condemnatory attitudes than the urban population (Osafo et al., 2011a; Zou et al., 2016). Another study reported a greater acceptance of suicide in the urban population associated with a more significant number of stressors (Li & Phillips 2010). Another study did not find differences in attitudes towards suicide concerning the geographical area of residence (Osafo et al., 20113). Poreddi et al. (2016) found differences in beliefs about suicide based on sex. Men considered that it is possible to help people with suicidal intentions (80.3%), it was an impulsive behavior (78.6%), and a way to seek help (78.6%); On the other hand, women considered suicide happened without previous warning and that the desire to commit suicide should not be interfered with (68%). Other studies found more positive attitudes towards suicide in men than women (Zhong et al., 2018) and vice versa (Eskin et al, 2014; Li & Phillips, 2010).

Other studies focused on differences in attitudes towards suicide based on age. One study found that youths showed greater permissiveness and acceptance (Li & Phillips, 2010). Another study found that adolescents reported more negative attitudes towards suicide if they considered themselves believers of religion and had beliefs of punishment in life after death in suicide cases and hid expressions of their suicidal intentions (Eskin et al., 2014).

Those who thought that people should express their suicidal thoughts and plans and seek help reported that they expressed these thoughts with others (Eskin et al., 2015). It was also found that among those who had expressed their suicidal intentions, on average, they did so with close people, such as friends, partners, siblings, relatives, or a health professional (Eskin et al., 2015).

Studies focused on attitudes toward suicide in health professionals, such as doctors, nurses, and psychologists reported incomprehension, lack of empathy towards patients, feeling that it was a waste of time to care for them, and the presence of moralistic, discriminatory, and condemnatory attitudes (Evans et al., 2018; Osafo et al., 2012; Giancchero et al., 2017). In African countries, where suicide is considered a crime, negative attitudes were reported by health professionals (Osafo et al., 2013). Psychologists and doctors consider that it should not be this way and that people with suicidal behaviors require specialized mental health care (Osafo et al., 2012; Siau et al., 2017), opposite of nurses, who see it as a crime (Osafo et al., 2012). Other studies reported that health workers underestimated the frequency of suicidal behaviors, believed that suicide threats did not represent a real risk, and did not recognize it as a severe problem (Hagaman et al., 2013).

Specifically, nurses, presented negative attitudes towards suicide prevention (López-Narváez et al., 2020; Siau, 2019) and reported irritation towards suicidal patients (Olibamoyo et al., 2020). Contradictory results were observed in nursing professionals and students; some reported moralistic positions (Osafo et al., 2018), others reported less moralistic attitudes (Olibamoyo et al., 2020), and others reported undecided positions (Nebhinani et al., 2013). Nurses with mental health work experience had more favorable attitudes (Flood et al., 2018; Vedana et al., 2017). On the other hand, nursing students with a history of ideation or attempt or without a history of suicidal behavior in their family showed negative attitudes towards suicide (López-Narváez et al., 2020). Another research reported that nursing students had higher persuasion scores towards their peers who presented suicidal ideation (Flood et al., 2018).

Physicians and medical students understand suicidal behavior as a moral crisis or the effect of adverse life circumstances, such as poverty (Osafo et al., 2018), and justify suicide in the presence of terminal illnesses (González-Aristizabal et al., 2020). Among physicians, differences were reported between those who had a specialization in other areas and psychiatrists who reported less negative and judgmental attitudes towards

people with suicide attempts (Siau, 2017), considered it a significant problem, and believed that suicide could be prevented, and suicidal tendency could be controlled (Jiao et al., 2014).

Table 2. Supplementary Materials. Articles information and risk of bias assessment

Author and year	Country	Components										
		1	2	3	4	5	6	7	8	9	10	Total
Hagaman et al., 2013 [22].	Haiti	0	0	1	1	0	1	1	1	1	0	6
Osafo et al., 2012 [24].	Ghana	1	1	1	1	0	1	1	1	1	1	9
Eskin et al., 2014 [45].	Slovakia & Turkey	1	0	0	1	1	1	0	1	0	0	5
Jegannathan et al., 2016 [46].	Cambodia	1	0	1	1	1	1	1	1	1	1	9
Knizek et al., 2013 [47].	Uganda	1	0	0	1	0	0	0	1	1	1	5
Nebhinani et al., 2013 [48].	India	1	0	1	1	0	0	0	1	0	1	5
Osafo et al., 2011 [49].	Ghana	1	1	0	1	1	0	1	1	1	1	8
Emul et al., 2011 [50].	Turkey	1	0	0	0	1	1	0	1	0	0	4
Osafo et al., 2013 [51].	Ghana	1	1	0	1	0	0	1	1	1	1	7
Rezapur-Shahkolai et al., 2020 [52].	Iran	1	0	1	1	1	1	1	1	1	1	9
Tiwari et al., 2011 [53].	India	1	0	1	1	0	0	1	0	0	0	4
Meissner et al., 2016 [54].	South Africa	1	0	1	1	0	0	1	1	0	1	6
Osafo et al., 2018 [55].	Ghana	1	0	1	1	1	1	1	1	1	1	9
Mugisha et al., 2011 [56].	Uganda	0	0	1	1	0	1	1	1	1	1	7
Osafo et al., 2019 [57].	Ghana	1	1	1	0	0	1	1	1	1	0	7
Zou et al., 2016 [58].	China	1	0	1	1	1	1	1	1	1	1	9
Li et al., 2010 [59].	China	1	0	1	1	1	1	1	1	0	1	8
Poreddi et al., 2016 [60].	India	1	0	1	1	0	0	0	1	1	0	5
Zhong et al., 2018 [61].	China	1	0	0	1	0	0	0	1	1	1	5
Eskin et al., 2015 [62].	Austria & Turkey	0	0	0	1	1	1	0	1	1	0	5
Evans et al., 2018 [63].	Cape Town	1	0	0	0	1	0	0	1	1	0	4
Gianccehero et al., 2017 [64]	Brazil	1	0	1	1	1	1	1	1	1	1	9
Siau et al., 2017 [65]	Malaysia	1	0	1	1	1	1	1	1	1	1	9

López-Narváez et al., 2020 [66]	Mexico	1	0	0	1	1	0	0	1	1	1	6
Siau et al., 2019 [67].	Malaysia	1	0	0	1	1	1	0	1	1	1	7
Olibamoyo et al., 2020 [68].	Nigeria	1	0	1	1	1	1	1	1	1	1	9
Vedana et al., 2016 [69].	Brazil	1	0	0	1	1	1	0	1	1	1	7
Flood et al., 2018 [70].	England & Turkey	1	1	1	1	0	0	0	1	1	1	7
González- Aristizabal et al., 2020 [71].	Colombia	1	0	1	1	1	1	1	1	1	1	9
Jiao et al., 2014 [72].	China	0	1	1	1	1	1	1	1	1	1	9
Berge et al., 2016 [73].	Russia & Norway	1	0	0	1	1	0	1	1	1	1	7
Tan et al., 2017 [74].	China	1	1	1	1	1	1	0	1	1	1	9
Eskin et al., 2011 [75].	Austria & Turkey	1	1	0	1	0	0	0	1	0	1	5
Estrada et al., 2019 [76].	Philippines	1	0	1	1	1	1	1	1	1	1	9
Foo et al., 2014 [77].	Malaysia	1	0	1	1	1	1	1	1	1	1	9
Ren et al., 2018 [78].	China	1	1	1	1	1	1	1	1	1	1	10
Eskin et al., 2016 [79].	Turkey	1	0	0	1	0	0	0	1	0	0	3
Thimmaiah et al., 2016 [80].	India	1	0	1	1	0	0	1	1	1	1	7
Jones et al., 2015 [81].	India	1	0	0	1	0	1	1	0	1	0	5
Zhang et al., 2010 [82].	China	1	0	1	1	0	0	0	1	0	1	5
Liu et al., 2016 [83].	China	1	0	0	1	1	1	0	1	1	1	7
Osafo et al., 2011 [84].	Ghana	1	1	0	1	0	0	0	1	1	1	6
Da Silva et al., 2011 [86].	Brazil	1	0	0	1	0	0	1	1	1	0	5
Yousuf et al., 2013 [85].	China	1	0	1	1	1	1	1	1	0	1	8

In the case of psychiatrists, psychologists, and mental health nurses, it was observed that those who were younger, or had less experience with suicidal patients, or training in suicide prevention reported positive attitudes towards suicide, more moralistic and judgmental (Berge et al., 2016; Jiao et al., 2014; Osafo et al., 2012; Siau, 2019).

A study with students found a negative correlation between mental health and attitudes towards suicide; those with less mental health reported more favorable attitudes towards suicide and more suicidal ideation (Tan et al., 2017). In this sense, more positive attitudes toward suicide were also found in those with previous suicidal ideation or attempts (Eskin et al., 2011; Eskin et al., 2014; Estrada et al., 2019; Foo, 2014) and those who responded that in the future they could present these behaviors (Estrada et al., 2019; Ren et al., 2018). Only one study reported the opposite, less favorable attitudes in people with previous attempts (Olibamoyo et al., 2020).

Studies focused on religion found that people who considered themselves believers considered suicide as a moral fault, with more prejudice, and that those who died by suicide were punished in life after death (Eskin, 2011; Eskin, 2016; Flood et al., 2018; Foo, 2014; Knizek et al., 2013; Osafo et al., 2011a; Osafo et al., 2013; Osafo et al., 2018).

Depending on the religion, different attitudes towards suicide and different ways of interpreting suicide behaviors were observed. For example, in Voodoo, it is believed that suicide behaviors are generated by the possession of demons (Hagaman et al., 2013). Buddhists were more accepting of suicide (Foo, 2014; Jegannathan, 2016; Osafo, 2011a). For Muslims, suicide was unacceptable (Foo, 2014; Thimmaiah et al., 2016), and Hindus reported indecision to talk about suicide and not there were warning signs before suicide (Thimmaiah et al., 2016). Religion also favored the inhibition of empathic responses toward patients with suicide attempts (Osafo et al., 2018). Religion also influenced nurses in treating their patients with suicidal behaviors, generating negative attitudes that promoted biases in their interactions (Jones et al., 2015). Only one study reported that belief in God was correlated with positive attitudes toward suicide (Zhang & Jia, 2010).

Within all the studies reviewed, only one reported a relationship between attitudes towards suicide and specific brain areas, finding correlations between the volume of the gray mass in the dorsolateral prefrontal cortex and the left side of the cerebellum, which was associated with suicidal behaviors to starting from inhibition in the control of negative emotions specifically loneliness (Liu et al., 2016).

Some studies reported changes in attitudes towards suicide from negative to positive due to training on the subject or experiences with own, family, or friends' suicidal behaviors (Osafo et al., 2011b; Yousuf et al., 2013). A study reported that the suicide death of a family member did not modify attitudes towards suicide (Zhang & Jia, 2010). In this sense, some studies concluded that the workers who care for patients with suicide attempts should be trained to reduce negative attitudes (Da Silva et al., 2011; Siau, 2019).

DISCUSSION

It is important to conduct research that provides information on suicidal behaviors in LAMIC since, according to epidemiological data, it is in these countries that the number of suicides is increasing (WHO, 2019). These studies would favor the development of contextual and culturally adjusted intervention and prevention protocols for the said population.

Attitudes towards suicide are a broad and complex object of study that encompasses beliefs, emotions, and behaviors (Ellis & McClintock, 1993) that people report towards suicide in general, the possibility of committing suicide themselves, the way they would react to people with such behaviors or whether they would justify suicide under certain conditions. The findings cannot be generalized based on this breadth of approach and the differences reported in the results in different contexts, ages, professions, and religions.

One limitation of the findings concerns the sampling. The samples were heterogeneous, with different characteristics such as university students, health professionals, general population, or community leaders. The most reported samples were health students or professionals who care people with suicidal behaviors. In these samples, both attitudes positive and negative were reported. Cultural, family, and religious aspects appear to influence negative attitudes. In this sense, it can be suggested that academic education does not modify the attitudes acquired early in life or that these professionals' academic training is not focused on providing information that allows modifying negative attitudes toward suicide.

In some studies, in which training in care for people with suicidal behaviors was implemented and in those in which workers had had experience with suicidal patients showed more positive attitudes and lower judgment, which agrees with what was observed by Mofidi et al. (2008) about having more positive attitudes based on having personal experiences with suicidal behaviors. Attitudes are not rigid and immutable, so it can be inferred that training and professionalization in care would modify negative attitudes toward people with suicide attempts (Bustamante, 2002; Cochran & Winfree, 2017).

Most of the studies used a quantitative approach, which allows the results to be compared, correlated, and contrasted and have valid and standardized instruments in the population to identify their attitudes towards suicide and consequently develop practical actions for vulnerable population groups. On the other hand, no longitudinal study was identified, so further research is still required concerning the stability or possibility of change in attitudes toward suicide.

Suicidal behaviors are diverse (Turecki et al., 2019); however, no information was found on whether attitudes towards different suicidal behaviors were different in the same sample for instance people might have positive attitudes toward

ideation but negative attitudes toward attempted or suicide deaths.

Besides, negative attitude towards suicide does not guarantee that a person does not have suicidal behaviors, or having a positive attitude increases the risk of dying from this cause. For this reason, it is necessary to delve into the benefits or effects of having attitudes in favor or against suicide and use the knowledge on the subject for effective prevention and care.

It is also required to analyze attitudes towards suicide as a phenomenon of gradation, which is not necessarily dichotomic (positive or negative), but with a mixture of beliefs, emotions, and behaviors with different dimensions. A person can have a negative attitude towards the act by rejecting it. However, a favorable position to talk about suicidal ideation can lead to stability and mental health in those who think about or have tried to kill themselves.

The limitations of the systematic review were including only articles in English, which may exclude relevant studies published in other languages. The period established was limited to a decade, but this does not allow observing whether different results have been found on attitudes toward suicide over time. Finally, a detailed analysis of the results differentiating the socio-cultural characteristics of the countries is recommended because although they are all LAMIC, not only economic but social, cultural, and religious differences, among others, can modify attitudes towards suicide.

The study of suicidal behaviors is complex and multifactorial, so it is necessary to analyze attitudes in combination with another series of risk and protective factors, providing more comprehensive information on the implications that attitudes toward suicide may have.

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